

LIVING WITH REPTILES



The author with her husband and the two dogs

LIVING WITH  
REPTILES

by

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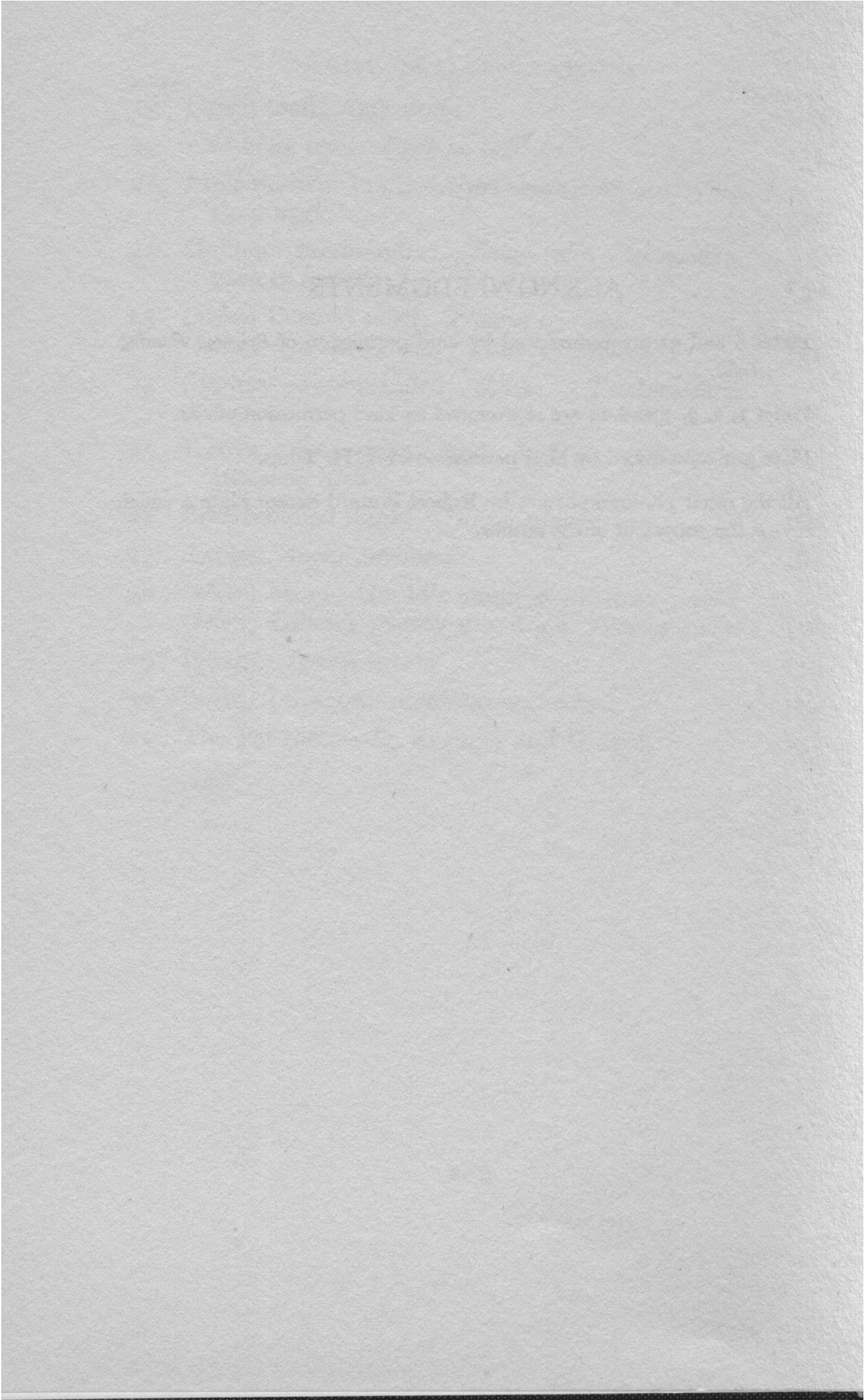
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## FOREWORD

**T**HIS is the story of some of the failures and successes, as far as they have gone, of two amateur keepers of reptiles, who claim neither originality nor scientific pioneering (nor that their pets recognise their names or answer to them), but who want to share their pleasure in watching the private lives of these small creatures, and to help others, irrespective of age, who may be embarking upon this adventure. Now that the popularity of these animals is so much on the increase, and they are again comparatively easy to obtain, we are anxious to put forward as many as possible of the points in their favour.

First of all then, they are the cleanest of all animals in themselves, having absolutely no smell, attracting no vermin, and leaving no 'fur' for the busy housewife to remove. Many of them are inexpensive, costing only a few shillings each; they can be kept indoors or out, in a small space or a larger one; they do not scratch in the seed beds, catch the birds or bark at the postman, and they will live in harmony with each other.

They need no daily exercise in bad weather, and are no more trouble to kindly neighbours during one's absence from home than a cat or canary; and if one has stayed out exceptionally late, they will—albeit unwillingly—forgo their suppers for once. Maybe they do not have the engaging ways of a kitten, nor the devotion of a puppy, but they are not destructive, and even the least of them has a very marked personality all its own which one discovers as one lives with them. What more can one ask?

There are members of two schools of thought among

## FOREWORD

reptile keepers: those who treat their animals as pets, and those who consider they should be kept entirely as scientific specimens. So far we have never been able to discover how the latter manage to maintain their attitude. . . .

We should like to extend our grateful thanks to our many friends and visitors who have helped us to produce this book by their questions and comments.

The quotation on pages 189-190 from *The Great Chain of Life*, by Joseph Wood Krutch, is by kind permission of Messrs. Eyre and Spottiswoode.

And the green lizard, and the golden snake,  
Like imprisoned flames, out of their trance awake.

SHELLEY.

. . . The swimming frog, the toad, the tadpole, the  
wall newt and the water.

SHAKESPEARE, *King Lear*.

## INTRODUCTION

AS is not unusual in these days, the term reptile is here used to cover both types of 'creeping venom'd thing that lives', which are dealt with in the following pages: the reptiles proper—which are the creatures with dry or horny scales such as the crocodiles, tortoises, snakes and lizards—and the amphibians, or batrachians, which differ widely not only in possessing smooth, moist skins without scales, but in that they begin their lives in water, breathing by means of gills, and are later transformed into lung-breathing land dwellers. Toads, frogs, newts and salamanders are the chief representatives of this clan, to which the axolotl belongs although usually retaining its larval characteristics throughout its lifetime.

All these animals are known as cold-blooded vertebrates because, instead of having a constant body temperature of their own, they take it from the surrounding air—which accounts for the fact that in temperate climates such as ours, all the non-tropical species become sluggish, and emulate the dormouse in creeping into the cosiest possible retreat to sleep away the winter months. Tropical species, on the other hand, must be kept feeding all the year round, as the climate of their native habitats has not prepared them for the necessity of storing up food reserves for a period of hibernation.

The Amphibia are divided again into two different orders: the Anura, meaning those without tails, covering the enormous number of species of toads and frogs (approximately two thousand); and the Caudata, or tailed, of which newts and salamanders are the most familiar examples.

## INTRODUCTION

Both have numerous characteristics in common with their ancestors, the fish. They do not drink, but imbibe the necessary moisture through their skins; from which it follows that, although many of them are not averse to sunshine, they will need cool and shady retreats with plenty of water at hand.

True reptiles, on the other hand, will, for the most part, enjoy the warmest and driest—or rather, best-drained—conditions that can be provided, again with shade and water available, of course, for in really hot weather even they will retire from the direct rays of the sun.

## *Chapter 1*

### THE SETTING AND THE NATIVE FAUNA

PEOPLE often ask, 'What made you start this thing?' The answer is that, like Topsy, 'it just grewed'; and as the following pages will show, it seems likely to go on growing, as these creatures, large and small, exert their inimitable fascinations upon us. At the beginning of the century such a course would have been virtually impossible for amateurs, unless one was the lucky possessor of a heated greenhouse, but the increasing availability of electricity has been a major factor in the expansion of our hobby.

Actually it all began with the toads which we used to keep in the cold greenhouse where we grew tomatoes, when I was only a little girl. At that time we lived on the edge of water-meadows near a large pond, and although this was too deep to be the home of frogs or toads or newts, we often used to find toads of all sizes in the garden and orchard, so that our family of toads frequently numbered as many as twenty. Some were elderly and obese, some tiny and very active, but one and all were living quite happily in their favourite hiding-places, either among the piles of empty pots and lumber which find their way under a greenhouse bench, or among the tomato or chrysanthemum stems according to the season. In the summer, when the door was left open, there was a little gate put in to keep them from straying.

Most of these creatures became very tame and would come out into the open when anyone was working in the greenhouse to see what titbits were likely to be forthcoming.

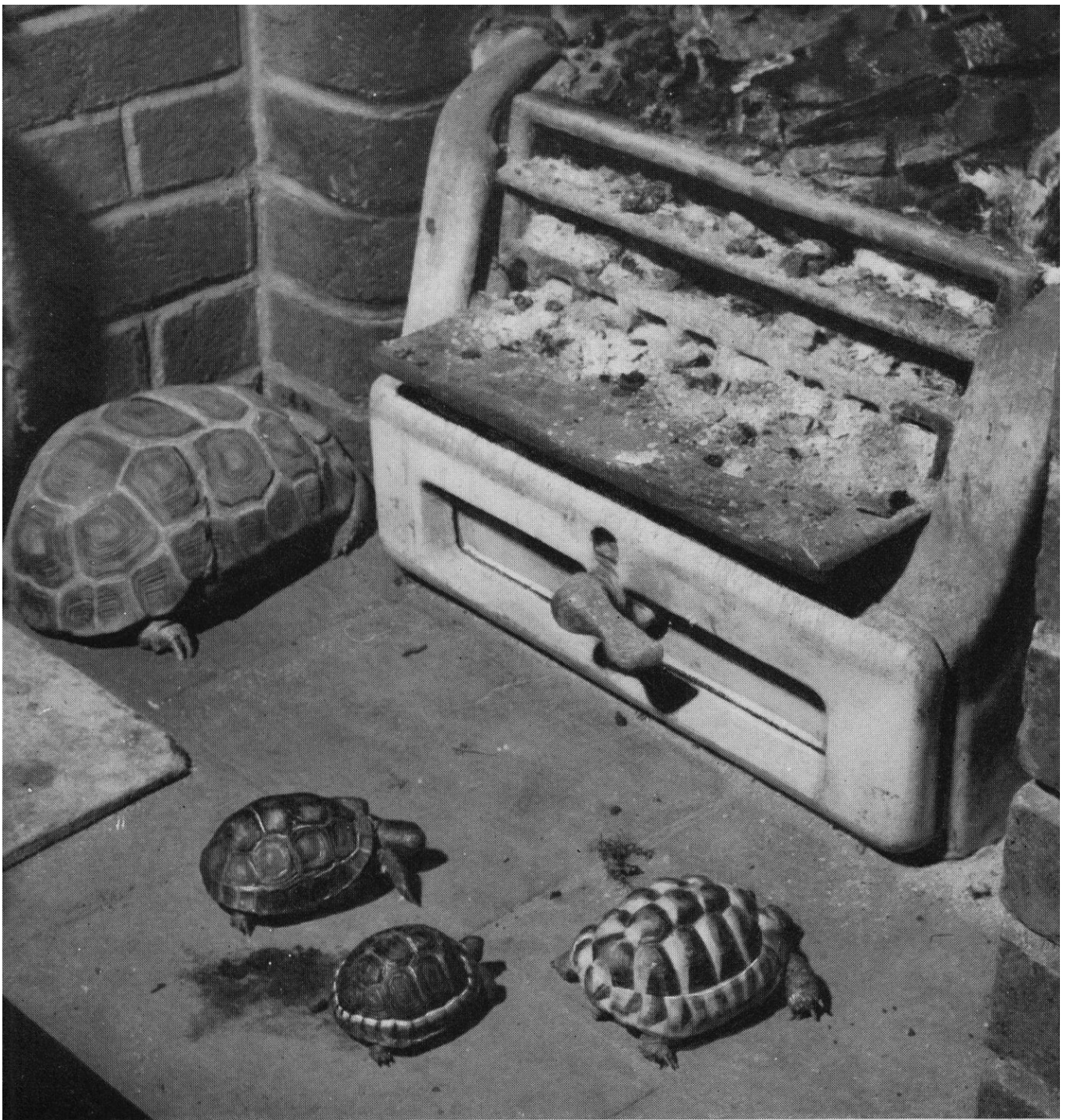
All went well for a long time until one day someone brought home a hedgehog, and in an unlucky moment it was suggested that it should be put into the greenhouse, a place from which it could not escape. But what a terrible sight met our eyes in the morning! Every toad that had not been able to creep away into safety had been killed or maimed, and only one or two of the smallest had escaped injury. Evidently the toads' so-called venom had not deterred the hedgehog's murderous instincts—merely prevented him from enjoying a gargantuan repast.

Soon after this we left that house and, although we only moved about half a mile, not only is our new garden very much drier but it has no natural water anywhere near it. For some years we were never lucky enough even to see a toad or a frog on any of our walks in places where at one time they had been a frequent sight. So for a long time there were no garden pets, though we have always done our best to make our sheltered garden a sanctuary for birds, butterflies, or any other wildlings that come our way.

On account of this, cats are taboo—those of our neighbours being firmly discouraged—and the only other four-legged resident is Meg, a black-and-white border collie, the breed used at sheepdog trials, who is the gentlest creature imaginable and who will find a fledgling bird, show it to us, and then lose all interest in it. She did once kill a mouse—by slipping on the polished floor when she was chasing it and banging it against the wall!

The actual scene of all the activities I am about to relate is set in the half-acre garden of an old Tudor house in a Sussex village—Harveys, a lath-and-plaster building that has seen more than four hundred and fifty years of English history. Not only did it till recently shelter a family of three—my father ('the Old 'Un', then ninety-one years





The hearth in winter—Bella and the tortoise trio



Breakfast

## THE SETTING AND THE NATIVE FAUNA

of age), my husband, Frank, and myself with Meg—but quite a lot of uninvited living creatures, some of which, such as death watch beetles, weevils and woodlice, are not very welcome. Butterflies of several kinds find it a most desirable haunt for hibernation purposes, and we have to be very careful when sweeping wall or ceiling beams not to disturb the rest of innumerable peacocks and small tortoiseshells—we have often counted over fifty in the various rooms.

The most interesting lodgers, from our point of view—though not always appreciated by visitors—are the bats in the belfry; or, more accurately, in the attic. In spite of many a hunt round the rafters, and under the tiles all around the big old chimney which fills the centre of the house, we have never been able to locate their actual dormitory; but no matter how often the floor is swept, there is always present unmistakable evidence of their tenancy.

One year, soon after we came to live here, Frank went into the bathroom one morning and soon came rushing back to me saying, 'There's something in the bath that looks like a dead leaf, but when I went to pick it up it squeaked!' (Being city-born-and-bred, he used to be sometimes rather unnerved by the shocks that country life provides!) On coming to the rescue, I found it was a tiny bat with a body about the size of my thumb nail, which had probably been dropped accidentally, as mother bats carry their babies wherever they themselves go, until they are big enough to fend for themselves.

We did our best to feed the velvet-coated mite with drops of milk, and then when evening came we put Oscar, as we called him (every animal has to be called something as familiarity strengthens), on one of the beams which run up the side of the house and waited to see what would happen. Oscar started to climb slowly and steadily, and

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in an almost incredibly short time—attracted in some mysterious and inexplicable way—numerous grown-up bats had flown up to it and inspected it, probably to see if it was their own. Finally it disappeared over the eaves at the top, so we were unable to see the end of the adventure, though we were a little afraid that our human scent on it might cause its mother to abandon it, as sometimes happens with other wild animals. We just had to hope for the best. Since then, seldom a summer goes by that we do not find another Oscar somewhere in the house.

## Chapter 2

### ERMYNTRUDE, THE GLOW-WORM— AND THE HEDGEHOG

**U**NDER the compulsion of the urge to have more living creatures about us, we embarked experimentally upon keeping fish; but, attractive as a well-set-up tank undoubtedly is, we did not feel that this really filled the bill. We wanted something with more individuality and less perpetual motion, so the hardy fish were introduced to a convenient rain-water tank where they still flourish. Possibly more fish will be procured as our accommodation increases, for even the smallest pool is brought alive by the flicker of a fin; but they will have to be large enough for the other residents to live in amity with them.

Birds of all kinds were still very expensive, and the ease with which quite a number of mice can play hide-and-peek in a house such as ours makes these rather an undependable proposition. Since then we have been lucky enough to acquire some of the aviary-bred birds which were first developed by the Duke of Bedford, and are now known as homing budgerigars. These are a slightly smaller, hardier, less hysterical type of the bird, and can be given the freedom of the outside world. They will mostly return home after quite lengthy excursions. Visitors to the neighbourhood are often startled by the sight of a small flock of these colourful birds speeding across the tree tops.

So for feathered pets we contented ourselves with hanging pieces of fat outside the upstairs windows, where there is

## LIVING WITH REPTILES

complete safety, and there we have often counted as many as fourteen tits—great tits, blue tits and an occasional coal tit—at the same time, generally towards dusk, and the air is constantly filled with the whirring of wings. Other much welcomed visitors to this feast are a spotted woodpecker and a nuthatch. With the coming of Spring, however, our little friends desert us while more natural fare is easily come by. In any case, we had to give up feeding the tits, as they started to come indoors and strip paper covers off our books, as well as getting into other mischief . . .

An importation that caused considerable amusement among our friends and neighbours, and even made us the subject of a newspaper paragraph, was Ermyntrude the Glow-worm, whom we removed one June evening at dusk from a grassy bank to the dry-wall rockery near the front gate. There she greeted us nightly for several weeks on our return home until her lantern evidently went out for the season. We had almost forgotten her until the following June when the sight of two lanterns, on our way home rather later than usual, sent us hot foot to look for Ermyntrude—and there she was, beaming as brightly as ever, which seems to indicate that in a sheltered spot such as this these beetles are capable of living through a period of sharp frost. Every year the number increases by the addition of more picked up on our wanderings, making a very attractive decoration among the rock plants.

Then on another June evening, when we were taking Meg for her ramble, we found quite a small hedgehog which had evidently only just begun to fend for itself, and brought it home in a pocket handkerchief. This time there were no toads to worry about. Hedgie was duly fixed up with a hen coop, a bundle of dry hay and a wonderful home-made run of wire netting (which had to be covered, as he

proved to be an excellent climber) around a large patch of lilies of the valley under a big apple tree.

Every evening at dusk we went out, with deck chairs, a flashlight and a large saucer of bread-and-milk for his supper for which he was usually waiting impatiently. Meg followed all these proceedings with the greatest of interest, listening intently for the sound of his slightest movement if he was not already up, and then looking up at us with a flash of her white-tipped tail, as if to warn us that something was about to happen. In October he ceased to be interested in bread-and-milk, so we moved his home to a drier and more sheltered position, gave him a lot more hay, and he retired to sleep.

Towards the end of the following March, routine inspection made us suspicious that the hay had been moved; and sure enough, a night or two later there was Hedgie waiting as usual for his bread-and-milk. We kept him another month or so until the weather was more or less settled, and then, as it seemed a shame to keep him in solitary confinement, we set him free and for the rest of the summer he and a friend, who apparently came and went under the wire netting which bounds the garden on one side, regularly cleared the saucers which we put on the lawn for them.

It would seem that they still remember those suppers, for Meg frequently calls our attention to one or more hedgehogs under the hedge on the other side of the netting, which is now firmly pegged down—as since our family extended to its present capacity, we cannot encourage hedgehog attentions.

## Chapter 3

### THE TORTOISES—PART I

AFTER we had given Hedgie his freedom, the garden seemed strangely deserted, until one day at the beginning of May we passed a shop with the notice in the window, ' Strong, Healthy Tortoises for sale, 5/- each ' ; and so we promptly became the proud owners of Charles and Jane (though I would now find it hard to explain why these particular names were chosen).

They are a pair of the so-called Greek, but more properly named Iberian tortoises—*Testudo graeca*—which come from the shores of the Mediterranean. They are really better described as Spur-thighed tortoises to distinguish them from their near relations who do not have this appendage, which can be clearly seen if you look at the spot where their back legs cross the edge of the lower shell.

By the way, it is an excellent idea to learn the Latin names of all one's pets. Most of the books of reference employ them, but much more important is the fact that the conversation of the real experts in these matters is certain to be sprinkled with them, which not only makes it hard to follow if one is not familiar with them, but makes it equally easy to lose many valuable words of wisdom. In any case one does not need many, and if one looks up their derivation it makes them much easier to remember. After all Latin is the international language for all branches of natural history, and its use minimises the risk of confusion.

Charles and Jane settled down quite happily in Hedgie's old run, although Jane was rather shy at first and used to



hiss when she was picked up. A disconcerting habit—which they quickly lose when they became accustomed to being handled—is the voiding of a liquid secretion, a defence mechanism not uncommon among reptiles; so be sure to hold newly-purchased tortoises well away from you, though the fluid appears to be a scentless and harmless product.

As soon as they had become used to us and to their new surroundings, we began to put them on the lawn on fine, sunny days, and from there they would wander off on to the border; but although it is thickly planted with alpines and smaller herbaceous things, they have never done any real damage. True, they give some of the plants a light pruning now and then, but no doubt this is often to the plant's advantage; and they are certainly very fond of the wild convolvulus or bindweed, which is such a pernicious weed here, and this quite offsets any other mischievous tricks. After all, one does not *have* to let them go on to the border, as quite a low barrier, not more than twelve inches high, will take care of that. This is not a recommendation to turn them loose in the kitchen garden, however, and we no longer try to grow sweet peas! There is now available in some shops a miniature version of the electric fence, for the sole purpose of keeping pets off the garden; and it would be interesting to test the reaction of a tortoise, which should be fairly well insulated against the shock.

It seems that even tortoises have their favourite salads, for while Charles is mostly content with sow-thistle, dandelion, convolvulus and columbine leaves, Jane has a taste for rose petals and gleaming yellow dandelion flowers, and her literally consuming passion is for mauve or blue flowers, so that no clump of rock campanula is safe from her depredations. When we pick her up to put her to bed, we often gather a blue flower of some kind which she will nibble

contentedly en route. This predilection of hers led to an amusing incident:

A friend gave me some unknown bulbs from Austria, which later proved to be of a species of Meadow Saffron, whose flowers appear almost overnight in early Autumn, and which resemble large pale mauve crocuses. Idly glancing at Jane as I passed along the lawn one morning, I discovered her with one of the hitherto unseen flowers sticking out of her mouth like a cigar as she devoured it, and I exclaimed involuntarily, 'Oh Jane! you *bad* girl!' If ever a reptile gave a human a haughty look, that was the time, for she glanced up, stopped chewing for a moment and indicated quite clearly that if she could speak she would say, 'Now what's the matter with you?'

This particular pair do not seem very keen on clover, though they do eat it occasionally. Actually they are almost entirely self-supporting during the summer months, and will turn up their noses at a proffered lettuce leaf even while they are obviously foraging. The only time when such an offering is properly appreciated is in Spring or Autumn, when they are taken indoors to sleep every night, and breakfast and supper are welcome. One tortoise that we know has learned the amazing trick of walking along lily stems—not, mark you, just lily of the valley stems, but the tall stiff Madonnas and the less resistant but even longer orange flowered *Henryii* lily—and gradually pushing the blossom spikes down by his advancing weight until he can reach the sweetly scented titbits. What mysterious sense tells him of the delicacy he will find at the top of a two-to-three-foot stem? It would be interesting to test further the reaction of tortoises to a diet of more colourful flowers, or less fragrant scents, as they seem to have definite individual preferences in these matters.

## THE TORTOISES—PART I

Tortoises go to bed very early, roughly at what we should term 'tea time', while the sun is still shining, and in spite of their waterproof shells they should always have available for cool nights or bad weather a warm, dry shelter.

Other people seem able to train their tortoises to return to a home specially built for them, but, possibly owing to the large area available, we have not been very successful with this. Rather, we have found that they prefer to select their own retiring places—often at a considerable distance from each other. An ordinary glass cloche makes a very effective, but inconspicuous, sun parlour amongst the vegetation, to which they will almost unfailingly return—except in periods of very fine weather—as they are very quick to learn the geography of their available territory. A shallow cemented puddle, or water-pan let into the ground to the rim and large enough for them to sit in for an occasional soak—especially after they emerge from hibernation—is another essential. Incidentally, is it just coincidence that they seem to find in the garden and use as shelter plants, shrubs and plants native to their own country, two particular favourites being a yellow-flowered vetch, *coronilla* and a prostrate rosemary? True, their growth is ideal for the purpose, but one does wonder . . .

The recent cycle of mild autumns has made life very difficult for tortoises, who often stay awake long after one would expect them to be asleep. On December 6th, 1953, eighty-six degrees Fahrenheit in the sun was registered in a nearby town, and that year it was not until after Christmas that the rustlings of the tortoises ceased. These irregularities were rather alarming for novices; but intensive search of Gilbert White's references to his famous tortoise (it lived, by the way, not three miles from this house) revealed that its comings and goings varied considerably over a period of

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years, and from his records we took considerable comfort. Experience has shown that there is seldom real need to worry.

All sorts of materials can be used for the winter blankets of tortoises. Dry leaves or hay, earth or newspaper are some of the most general, but the best of all—and the most up-to-date—is the granulated cork in which imported grapes are packed, and for which most fruiterers are only too glad to find a repository. This is clean, light, warm and easily portable, besides presenting no obstacles to burrowing activities. More important than the actual medium is that their box should be put in a draught-, damp- and rat-proof place, where frost cannot penetrate, and where the temperature is as constant as possible. Being the lucky possessors of a cellar, this presents us with no difficulties. It is possible to leave the animals in the garden to dig themselves in, but unwise, as it usually leads to disaster, owing to the vagaries of our climate. They may succumb to severe cold, or perhaps a hot day may bring them out too early in the Spring when they are especially vulnerable, and exposure to a late frost can easily lead to a fatal chill. Ours are never allowed out at night until the end of May, though Jane sometimes raises her voice in anger and expostulation at this rule.

Incidentally, it is better always to have two tortoises—a true pair, if possible—as they are sociable creatures, and this minimises the danger of their wandering away in search of companionship. It may be a little more expensive at first, but with reasonable luck it will be years before one needs to buy another. In fact, if they live as long as some of their ancestors have been said to do, it may be necessary to mention them in one's will!

After Charles and Jane had become quite old inhabitants, we went one day to buy a tortoise for a friend's little

## THE TORTOISES—PART I

boy, and there we fell in love with a very large female tortoise who was promptly added to the family. Many and various were the suggested names for such a handsome lady, but it was difficult to achieve harmony in this always tricky matter until finally an obscure reference to a distinguished statesman led to the adoption of 'Winnie'.

After about a month, during which period we had had time to observe the rather too obvious effect upon the smaller plants of her steam-roller passage across the border, we were startled one day by the appearance of a neighbour who said, 'Is that your tortoise half way up the road?' Indeed it was, though it must have been a very tight squeeze for her under the gate. When she was returned to the garden, we discovered that far from being her usual rather lethargic self, she was in a most energetic mood, and intended to make every effort to repeat her escapade.

Then we remembered forgotten stories of what female tortoises would do when they wanted to lay their eggs; so we barricaded every possible route and awaited events. The next morning, having occasion to go through to the outer garden, I impressed firmly upon everyone else that they must shut all the gates, and I departed leaving Winnie peacefully slumbering under her favourite lavender bush. But alas!—force of long habit was too much for me, and I left the connecting gate open as usual for Meg's benefit. When I returned an hour later, Winnie was invisible, but we consoled ourselves by remembering that there was nothing unusual about that, as even the largest tortoise has miraculous powers of evading detection.

Forty-eight hours passed during which hopes of seeing her again, and of hatching her eggs, flickered and died—and then came news. Twenty-four hours after she left home, Winnie had been found a mile away, tucked under a tuft

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of grass, nearly on the top of the Downs. She was taken to the finder's home, kept carefully indoors all night and then put into a chicken run—with a hole in it! By the time we heard the story, she had found the hole, and that, as far as we were concerned, was the end of Winnie. It seems more than likely that she was discovered by someone who did not know her story, and taken to a new home. So if *your* tortoise answers to the name, Winnie. . . .

The following year, Fate led our steps to yet another pet-shop, where was displayed a collection of very small tortoises whose immediate appeal it was impossible to resist, and we emerged with the sweetest little creature about three inches long who was promptly named the Littlest One. She was, of course, much too small and precious to be let loose in the garden, so she was put into Hedgie's old run, where she soon made herself quite at home and showed herself to be much more responsive to humans than the bigger ones.

Fearing that she might be lonely, we returned to the shop with a view to obtaining for her a companion—another female, though nowadays we should have chosen a male—and Judy very happily took up her abode with the Littlest One and a most attractive couple they make when, side by side, they amble up to beg for lettuce.

Tortoises are reasonably reliable weather prophets, in that if they are observed to be feeding early in the day there is probably rain on the way and they are making the most of the time at their disposal. In settled weather they are generally sprawled in the sun. As the strength of the autumn sun declines, so, more and more, they tilt their shells sideways against the plants to glean away every atom of warmth, and it is surprising for what a long time the shells retain this heat.

## THE TORTOISES—PART I

Owing to the fact that tortoises are unable to expand their ribs in order to breathe in the normal way, they have evolved a system of pumping with their throats and at the same time rotating their shoulder bones while air is being taken in, so that what looks as if it might be an acknowledgment of one's greeting, is probably just their version of scenting the air to detect the presence of friend or foe. Their alertness and intelligent expression also lead the ignorant to suspect that their hearing is good, whereas actually, as is usual with quieter animals, it is very poor but is augmented by their sensitivity to vibration.

## Chapter 4

### THE TERRAPIN TALE—PART I

THE next and most conclusive step along the road to the acquisition of a collection of reptiles came very shortly afterwards when a friend, who was enquiring about the garden, made the fatal remark which finally set the spark to the tinder. We mentioned the tortoises and she said, 'What you want is a water tortoise—Terrapins, they call them. He would eat your slugs for you.' So ignorant were we that we had never heard of terrapins, much less thought of keeping one. She explained that they were quaint little chaps like 'flattened tortoises with short tails'.

So then the hunt was on, and we haunted the local pet shops, most of which expected to be having a supply 'next week'. After a month or so of this, we realised that next week was one of those weeks which never come. At that critical moment we came across, for the first time, one of the magazines devoted to fish-keeping and kindred subjects, in which we discovered several advertisements of reptiles. These were answered, but we were only to meet with the same reply every time, 'sold out'. At last one shop replied that they *had* terrapins available—by this time it was early August.

While all this was going on, it had occurred to us to apply to a London store which has a pet department and we found that they had green terrapins to offer. This was entirely a new idea, but, colour being a minor consideration, and on the principle of trying everything once, one was



ordered and duly arrived by train to take up temporary residence in an old mixing basin while a permanent home was prepared. We had lost our hearts to her at first sight, for she was the most beautiful little creature, looking more like an enamelled brooch than an animal. Her upper shell was leaf green, each shield being outlined with black, and her breastplate yellow, patterned in black with archaic hieroglyphs. Her head was green, the sides of her neck finely striped with yellow and red, while her ‘puggish’ little face had all the features outlined in the same yellow. Her bright little eyes held the wisdom of the ages.

For some unknown reason she became Josephine, but—alas!—here begins a sorry tale of mistake from which a great deal of experience was gained. With the implicit confidence of novices that such a mite could not have any other idea than that of settling down comfortably in a new home, an old sink was let into the lawn and filled with about four inches of water surrounding an island of rocks. (Please note that there is no mention of any boundary fencing whatever—such innocence now seems to us absolutely unbelievable!)

On a lovely sunny morning Josephine was introduced to her private pond, where she immediately took refuge under a rock and peeped knowingly out. After a period of admiration, the human audience moved off about its chores, returning in about twenty minutes for a further period of admiration; but—lo and behold!—Josephine had vanished, and in spite of the most thorough search in every likely and unlikely place *was never seen again*.

It was only long, long afterwards that we discovered that at this youthful stage they are far too delicate to endure many changes of temperature with equanimity, and that although they may be all right outdoors in a large shallow

## LIVING WITH REPTILES

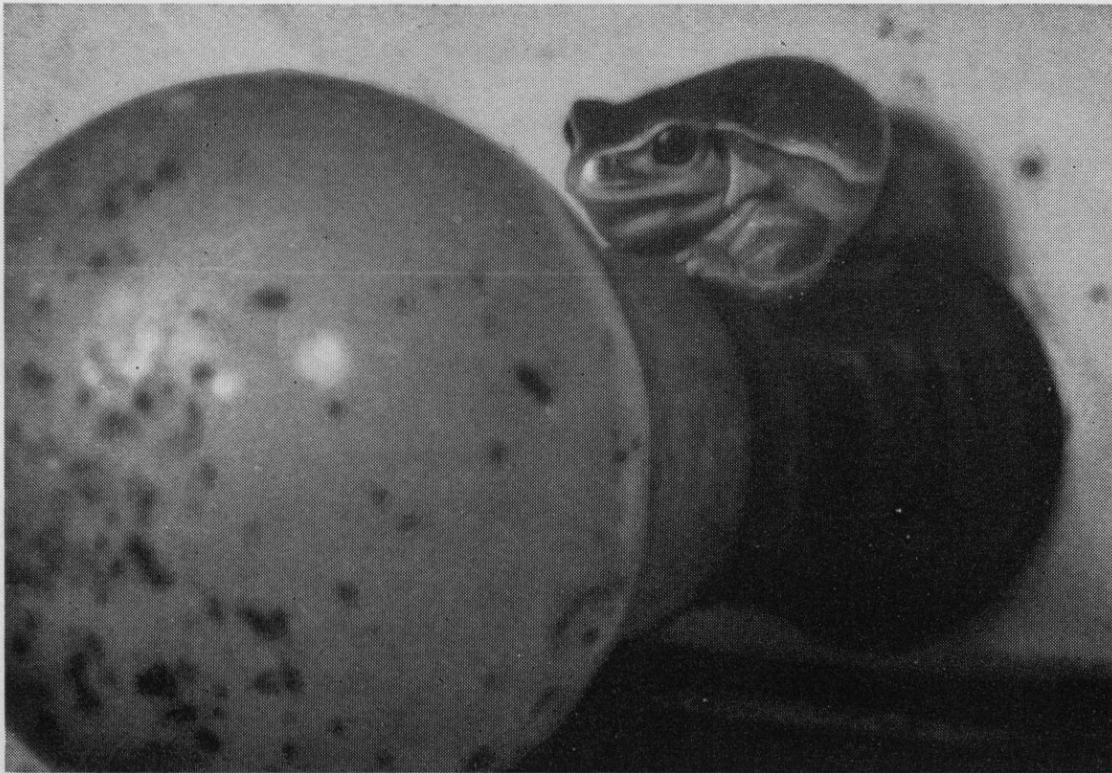
container, with plenty of weed for shade, during the sunny hours of the Summer, they should be transferred to artificially-heated quarters indoors at the first sign of a falling temperature, and are, in fact, really much better kept permanently indoors—but more of this later.

By the way, Josephine's official title was *Chrysemys scripta*, which means the Elegant Terrapin, 'emys' being the Greek word for Water Tortoise, and 'chyrsos' actually meaning gold, but in this case more loosely interpreted as 'decorated' or 'adorned'. Most of the genus have particularly attractive shells, especially when they are young. These babies come from the North American continent where they are known as Red-eared Turtles.

There, for the season, ended the terrapin tale, because when we set out to visit the shop in London which was supposed to have them in stock, we found only one, the condition of whose eyes reminded us of a warning we had read always to examine carefully the eyes of tortoises and terrapins, as this is one of the first places where they show symptoms of disease, or of injury due to careless packing by the collectors. Terrapins' claws are very sharp, as can be easily seen when they are tearing their food asunder, and can inflict quite a lot of damage on their companions if they are too closely packed. Always see, too, that these animals react to the slightest touch by immediate withdrawal into their shells—at any rate until they become familiar with you.



Making friends with Pete in the sanctuary before the final alteration.  
Note the lizard on the log and the terrapin under the left-hand wall

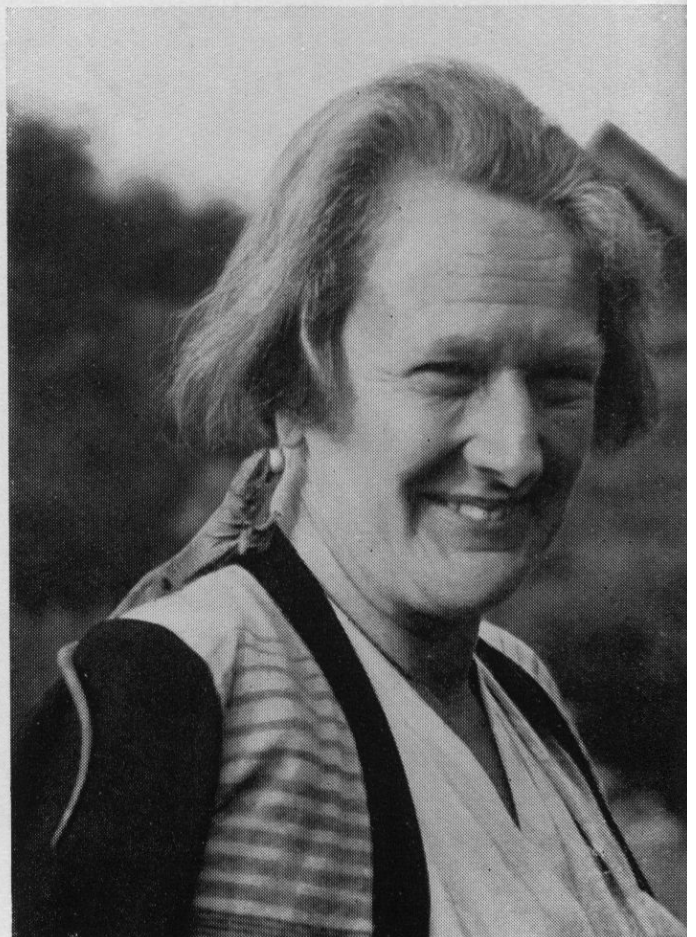


Tree frog (*Hyla*) toasting his toes



' Looks good to eat. Let's—

—try !'



## Chapter 5

### THE GREEN LIZARDS—PART I

THE visit to the original terrapin shop was not without a very long train of consequences. After all, who, with money to burn (however small the amount!), can visit a shop full of unknown and fascinating creatures and come away empty-handed, especially when most of them are new to one? It took us some time to make up our minds what to have, but we finally left the shop with a much bestringed and scotch-taped cardboard box containing two green lizards and two golden salamanders.

In due course we arrived at the second objective of our expedition, the Zoological Gardens, and mingled with the thronging crowds of a lovely August afternoon, the precious box being carried as carefully as possible, until finally the time came for us to leave. Having emerged from the North Gate and walked back to the previous bus stop, to avoid the worst of the enormous queues, we were awaiting the arrival of the bus when suddenly I felt an ominous wriggle under my hand. A hasty glance revealed a long lizard tail protruding from under the brown paper. Flinging the rest of my impedimenta on top of my astonished husband's own burdens with a 'Quick!—hold this', I got my other hand free just as an enquiring head replaced the tail . . .

With true novice's luck, not having acquired the art of holding a lizard, I yet managed to grab the wildly wriggling animal just as the bus drew up. Frank, for whom, like most men, the lower deck of a bus simply does not exist, made straight for the stairs, leading the way for me, whereas I

was glad to stagger to the nearest inside seat, box in one hand and lizard in the other, much to the horror or amusement respectively of the other travellers in the crowded bus.

With the usual ready Cockney wit, the cheery conductor greeted me with, 'That's right, mum, put it down on the floor. That'll empty my bus for me!' At the next stop he assisted me to climb to the upper deck, as it was manifestly impossible for me to undo the knots and get the lizard back into the box with one hand—especially as I was expecting the other lizard to appear at any moment. Finally Frank and I together were able to bring this operation to a successful conclusion, much to the relief of our fellow travellers, and the rest of the journey home fortunately went off without further incident. I should add that it was the feminine spirit of adventure—for the lizard was a female—which had led to this contretemps, a personal characteristic we came to know only too well.

The moral of this story is, of course, always to take a tin, with a tightly-fitting lid pierced (from the inside, please, to avoid sharp edges inside) with airholes, on any such expedition, though the opportunity to make such purchases usually presents itself at most unexpected moments. Only recently I saw and bought for a friend a slow-worm which was carefully put into a much too large cardboard box with the assurance that it would be 'all right'—a statement which my now considerably greater experience of reptiles led me to doubt. Fortunately my attaché case was large enough to accommodate the box and when, later, having forgotten the purchase, I opened the case in a crowded store, my hasty snatch at the slow-worm, perched on the top of the box all ready for such a contingency, entirely escaped the notice of the many shoppers.

On the day following our London visit, there was a

## THE GREEN LIZARDS—PART I

grand search of cellars and attics where much pre-war treasure trove in the way of potential reptile residences was unearthed. A large tea-chest was selected for the lizards, and turned into an apparently adequate vivarium with the aid of glass and perforated zinc. Furnishings were added in the shape of plenty of sand and not too dry moss, a rocky cave for privacy, a small branch for climbing and a pan of water.

The two lizards—dubbed by the Old 'Un, Mr. and Mrs. Toby—were put in, and though for a time they were apt to hide away every time someone went by, they soon became less timid, and all went well. The box was stood on a garden seat on the lawn in the sun, and for some time we had warm dry weather. Then came a heavy thunderstorm which gave the long stored box a thorough wetting, and as a result not, of course, anticipated by such greenhorns as we then were—the wood began to warp, and the edges of one of the joins along the bottom rolled back, leaving at one end a small and, to us, invisible hole . . .

Next day, Saturday, always (as we began to note) a fateful day among our reptiles, was rather cool, so no alarm was felt when only Mr. Toby was observed. When another bright day dawned without a sign of his companion, however, a detailed investigation was made, and her unbelievable absence, as well as her escape route, were discovered. More perforated zinc was applied to the offending crack and Mr. Toby dwelt in solitary state—which did not seem to affect his spirits or appetite at all.

Weeks went by, and apart from scurryings in the sunnier boundary hedge of the garden, nothing was seen of Mrs. Toby until on another Saturday, in early November, Charles the tortoise, walked out of the back door and disappeared. He was soon missed and a search party went

## LIVING WITH REPTILES

out. Fortunately by this time there were fewer available hiding-places, as the garden had been tidied up for the winter, so we felt he could not escape us for long enough to bury himself.

Suddenly I was moved to look under one of his favourite plants, a clump of pinks under which he had spent several nights, and there, to my amazement, I discovered, not Charles, but Mrs. Toby, curled up and half asleep, so that I was able to catch her quite easily and put her back into the box where her husband had already been asleep for nearly a month in a north, frost-proof room. After the excitement had died down, Charles, too, was found—obviously making for the same plant.

This story should have had a happy ending, but after this bit of luck tragedy crept in, probably as a result of a winter in which there was much fluctuation of temperature, assisted by our own incompetence. On a lovely morning at the beginning of March, we felt it was time to bring the box into a warmer atmosphere, only to find that whereas Mrs. Toby was sitting on her log, all ready for a sunbath and a good meal, Mr. Toby had evidently come out some time earlier, intent upon changing his skin for the Spring, and had died through being unable to obtain food when he needed it. Now, if we have to keep a hibernating lizard indoors, we see that there are always mealworms available, and a pan of fresh water beside the thick pile of dry moss and leaves which make such an excellent bed, and so we try to avoid similar losses.

Now to leave the lizard story for a while and go back to follow the adventures of the other occupants of the famous cardboard box.



## Chapter 6

### THE SALAMANDER STORY—PART I

THERE is an infinite variety in the black-and-gold patterning of salamanders—*Salamandra salamandra*—whose name means ‘kind of lizard’. They do, in fact, look rather more like amphibious lizards than like their near relatives the newts. Some are clear yellow with black stripes along their backs and sides; some are nearly all black with ‘lozenges’ of yellow arranged in a neat lattice pattern, while some have yellow spots on a black ground. The striped ones are known as variety *taeniata*. These colours are a warning to their enemies that the poison which their glands secrete is of a very virulent nature and liable to cause the immediate death of their attacker. They are, however, the gentlest of creatures in captivity, never showing, in any circumstances, signs of aggression. In fact they make most attractive and easily-managed pets, which will quickly learn to feed from one’s fingers, and are liable to live an unexpectedly long time, twenty-five years having been recorded. Incidentally, far from being able, as the legend goes, to pass through fire unscathed, even the mild heat of human hands makes them intensely uncomfortable. Their sole disadvantage is their invisibility during the daytime unless they are ‘routed’.

The proud dignity of their bearing is in odd contrast to the peculiar, deliberate placing of their feet, in true rock climber’s gait—it somehow reminds one irresistibly of a clown striding on stage in his long-toed boots—and the resultant curving of the body is a direct and age-old heritage

## LIVING WITH REPTILES

from their fishy ancestors. In the early dusk or in moonlight, their bodies gleam like those of highly-coloured varnished wooden toys, and there is a very appealing kittenish look about the backs of their rather square shaped heads, where the prominent glands create the illusion by simulating a kitten's ears.

An ornate, early twentieth-century fish tank now came into its own again after a long period of obscurity, and was fitted up with damp but not water-logged earth, moss, a wonderful erection of stones and odd pieces of tile for 'hidey-holes'; and a shallow dish of water for drinking, and an occasional soak, was sunk into the earth and lined with moss to ensure easy exit. Goldie and Spots were installed in their new home, promptly disappeared into the stronghold, and remained invisible for several days—or I should say nights as, except on the warm and showery days of thundery weather, they seldom appear until dusk.

We had been advised to feed them on worms, but even the most luscious specimens of worm failed to tempt them from their lair. We were just beginning to be anxious, when a small white slug crossed my path, and I picked it up and laid it on the threshold. Only a few seconds passed before Spots emerged to devour it. A further offering was quickly sought and six slugs disappeared in record time, so another problem had resolved itself—what to do with slugs. Unlike toads, salamanders grip their food in their mouths and shake their heads from side to side, rather like a dog with a rat, before swallowing it.

Now, once again, we made the novice's mistake of under-estimating the natural instinct of all wild creatures to make their escape from captivity, however much it may resemble their original home, and we had not provided a cover for the apparently escape-proof tank.

## THE SALAMANDER STORY—PART I

This lesson seems to be one of the hardest to learn, and usually one does so only by bitter and rather costly experience.

If, for example, an amphibian escapes indoors and is not discovered at once, its moist skin will inevitably collect dust from even the most meticulously kept floor, and this will clog the pores and equally inevitably cause death. In such cases one feels that one's carelessness has made one virtually responsible for a most unnecessary loss of life, and a 'guilt complex' sets in for which no self-reproach will atone. I am assured that even experienced reptile-keepers are frequently out-witted, which is small consolation . . .

So do, please, cover all containers until you are quite, quite sure the occupants cannot climb out. When newly acquired they will almost automatically investigate every faintest chance of escape, after which they will probably settle down and accept the inevitable. Some champion climbers, such as lizards, tree frogs or newts will have to be covered all the time; others, such as terrapins, clawed toads and axolotls may be safely trusted in deep containers not more than half full of water, unless they are out of doors, when all tanks should be covered against marauders.

These strong, inherited instincts merge back into the origin of all living matter, and despite all the care and consideration, and the ease with which food, shelter and protection from natural enemies are obtained, this primitive urge to escape will always force them to seek to return to nature.

To continue, after this digression, I went out at dusk one evening to feed Goldie and Spots. When no Spots appeared, I lifted the roof of the den, but there was still no Spots; so, after moving every scrap of rock and moss, I called to Frank, 'Believe it or not—Spots is not in the tank!'

## LIVING WITH REPTILES

‘Nonsense!’, was the assured reply; ‘she couldn’t possibly have climbed a foot of glass—she’s under one of the rocks.’

But when he proceeded to search the tank as thoroughly as I had done, he, too, only had to admit defeat. It was a very dejected couple who returned to the house. The tank was standing on a table under the big apple tree at the end of the lawn, so there had been a drop of a foot to the table, and another three feet or so to the ground.

We have since discovered that the trick which many of these creatures use is to push themselves up a corner with two feet on each angle; but in this case there was a large knob at each corner which had to be negotiated as well.

Next morning we tried to ‘tooth comb’ all the most suitable spots—round fern roots, under paving stones, among the lilies of the valley—but we soon realised what a hopeless proposition it was, and, incidentally, what an amazing number of yellow-tinged leaves every plant seems to have even as early as August!

On the Monday morning I heard the neighbour on the cool side of our garden, so I called out to him, ‘If you see any more strange creatures wandering about they are almost sure to be ours,’ and he replied, ‘What have you lost now?’ When I explained that this time the creature was black-and-gold, his totally unexpected, but very welcome answer was, ‘Oh, that’s just walked into my toolshed—I wondered what on earth it was!’ So Spots’ adventure came to an abrupt but, from our point of view, very satisfactory end after forty-eight hours. (I might say that, happily, our neighbours are very tolerant of all our ‘horrid things’).

During this period I had written an account of our adventures to a London friend, who, not knowing of the

THE SALAMANDER STORY—PART I

happy ending to the story, straight away sent us another salamander to console us. The newcomer was promptly named Stripes, and her addition to the family had some very far reaching consequences, as will be seen later. (Our nomenclature, by the way, is never likely to win a prize for originality!)

## Chapter 7

### BUILDING THE REPTILIARY

SOON after the acquisition of the lizards and salamanders, and before the terrapins came on the scene, we began to realise that we could not bear to keep our hardy pets permanently in boxes or tanks, especially if we were to embark on some of the tempting and more ambitious ventures in the way of these animals which our reading showed us were available. So we began to put our wits to work as to the best way of overcoming the practical difficulties of supplying them with adequate outdoor accommodation at a moderate cost. Wire netting did not seem to be the answer from any point of view.

We read and re-read all the suggestions of the few available books, and were more and more impressed by the description of a reptiliary, or vivarium as it is sometimes called, surrounded by a low brick wall, capped by crossway tiles on the inside to make it unclimbable, enclosing a pool and a proper brick-built hibernating chamber. We were not, however, too sure of our capabilities as bricklayers. But we knew where we could get a nice lot of old weathered bricks for the trouble of fetching them, which was a step in the right direction, and whose use would prevent even such a new building from being too conspicuous.

Having, a short while previously, had the urge to contact other folks with the same interests, we had joined the Herpetological Society, which is the official and rather formidable title of the body which is given to the study of reptiles. Among the list of members given in the Journal

## BUILDING THE REPTILIARY

we had discovered a name that we had seen mentioned in connection with building a reptiliary so, banking on a similar *camaraderie* existing between reptile lovers as does between gardeners, we ventured to write to him, and our hopes were more than justified. Not only did he provide us with a specially-drawn diagram, but with the very valuable suggestion, born of recent experiences of his own, that the hibernating chamber should be built above ground rather than below.

It was at this stage that the Old 'Un, who has always been an animal-lover, stepped into the picture and had built for us professionally, in the very warmest and most sheltered corner of the garden, the sanctuary of our dreams—an enclosure nine-and-a-half feet by five-and-a-half feet, with the confining wall two-and-a-half feet high. Under the top brick of the wall, tiles were laid with a five-inch projection inside and two inches outside to prevent not only the inmates getting out, but to discourage undesirable visitors such as mice or rats. In the South-West corner where it would always be in the shade, a pool was dug about two feet deep and the two inner slopes cemented in very shallow steps to make an easily climbable ramp to ground level.

In the centre of the remaining area an eighteen-inch-square hibernating chamber was built, and connected with the outer world by a round two-inch diameter drainpipe at each side, leading upwards into the chamber. A ledge about six inches from the base supports an inner lid under which we used to put dry moss for the creatures to nestle into, but where now, since we were introduced to it, we use the granulated cork which the tortoises find so comforting. This seems to be the ideal medium, being light, warm and, above all, drier than anything else. Possibly reptiles seldom find themselves completely damp-proof winter residences,

## LIVING WITH REPTILES

but that is no reason why one should not do one's best to provide such a refuge. The space above the lid is filled with more cork, hay, dry leaves, horticultural peat or anything available, and covered with another lid which is cut from a sheet of asbestos large enough to allow a slight overhang. About October this is reinforced with strips of roofing felt round the eaves to prevent rain or snow driving in. Under this selection of blankets there should be happy dreams indeed.

So there we were in the middle of November with the sanctuary and the surrounding piece of garden looking as desolate as any other building site—a square bungalow of new red bricks with a glaring white asbestos roof, surrounded by the usual pile of debris. Somehow this and the pool had to be blended into a harmonious whole. There seemed only one solution—to build a series of shallow terraces round the central square, leading by easy stages to the top, which would make the bungalow still more frost proof. We set to work and collected all the mossiest bricks we could find among the left overs, several barrow loads of earth and, finally, young plants to put in as we went along, as one would in building a dry wall rock garden. As wide a rough crescent of bricks as was possible was laid on all sides of the chamber and filled in with earth. Plant roots were laid in the crevices and then another layer of bricks, just overlapping the inside edge of the first row, and inclined slightly downwards at the inner edge, to allow rain to reach the plant roots instead of draining away. Five of such tiers brought us up level with the top of the bungalow, and things began to look a lot more mellow, although it did not then seem as if the scraps of plant could ever cover the allotted area. In actual fact there was very little bare earth to be seen by the following mid-summer.



## BUILDING THE REPTILIARY

Spreading, free-flowering plants were chosen, more for their suitability and for their natural association with the animals we had in mind, than for actual decorative purposes. Rock speedwells, phloxes and, above all, thymes, to attract insects and to form tough rugs to stand up to the constant traffic to which they would be subjected—prostrate rosemary, a very thick-growing procumbent ivy, lilies of the valley, and several ferns for shade and shelter have all proved their inestimable worth. On the flat part, two large clumps of pinks were introduced, a choice governed by the experience gained from Mrs. Toby's selection for her autumnal retreat, and since very fully justified as having obviously earned the maximum vote as shelter plants against all hazards of the elements. Round the pool, creeping jenny, water forget-me-not and pennyroyal make a fragrant tangle.

Suitable plants for a small terrapin pool, though essential, need careful selection. Anything in the way of a floating plant is dragged from its moorings and out of the pool by the perpetual perambulations. Irises and the like grow too tall and have to be ruthlessly shorn off again and again in case they are used as gateways to freedom by the more mobile inhabitants of the sanctuary. Slow-worms can climb unbelievable distances by coiling round a strong stem, and a candelabra primula too near the ramparts would probably account for many a vanished specimen! The most effective and long-suffering plant to date has been a large clump of water plantain which has never been allowed to anchor itself and is ruthlessly pushed around the pool on its side, but its thick foliage and tough roots make ideal cover for timid terrapins in summer as well as thick blankets for the winter retreat of the sturdy trio who are allowed to stay out-doors.

A selection of shelters were contrived in the corners

from logs, tiles and mossy bricks suitably masked with ferns, while the glaring white roof—now nicely weathered—was covered with large pieces of bark (one piece of elm had most obligingly rolled into the form of a tunnel) and rotten wood in studied disarray, and this 'look-out' has proved a most popular rendezvous at all times—it is very seldom that no-one is to be found on the topmost peak. In order to keep a safe distance from the back wall, part of the roof has to be left uncovered but this has proved a blessing in disguise as a favourite 'lido'.

Paving stones interplanted with creeping plants formed the 'observation deck', and a garden seat was placed at a strategic point. The constant traffic along the lawn to see what 'they' are doing makes it look as though stepping stones would be a desirable future refinement, while flood-lighting would save a lot of wear and tear on torch batteries.

At the last moment another pool was made between the south wall of the reptiliary and the lawn, in the shade, but not under the drip, of a big apple tree—this with an eye to future developments.

An essential addition, at any rate during the summer months, is a light net with a wide mesh, such as is sold as a substitute for pea-sticks, which can be thrown over and kept taut—and so unreachable by the inmates—by a pole through each end. Not only does this discourage a certain amount of bird bathers whose attentions are rather unwelcome, but also gives a highly desirable degree of security against the attentions of cats and, more especially, of jackdaws, who are always on the lookout for toothsome morsels—this precaution was taken, alas! only after a tragedy had occurred. We also have a large piece of tent canvas ready to throw right over when hard frost or snow are threatened.

## BUILDING THE REPTILIARY

The home was ready, but there were four more months of winter to slip quietly by before it would be safe for the would-be occupants to take possession of their brand new sanctuary; though as the days lengthened, the urge to see them there grew more and more powerful.

## Chapter 8

### THE CLAWED TOAD AND THE JUNIORS

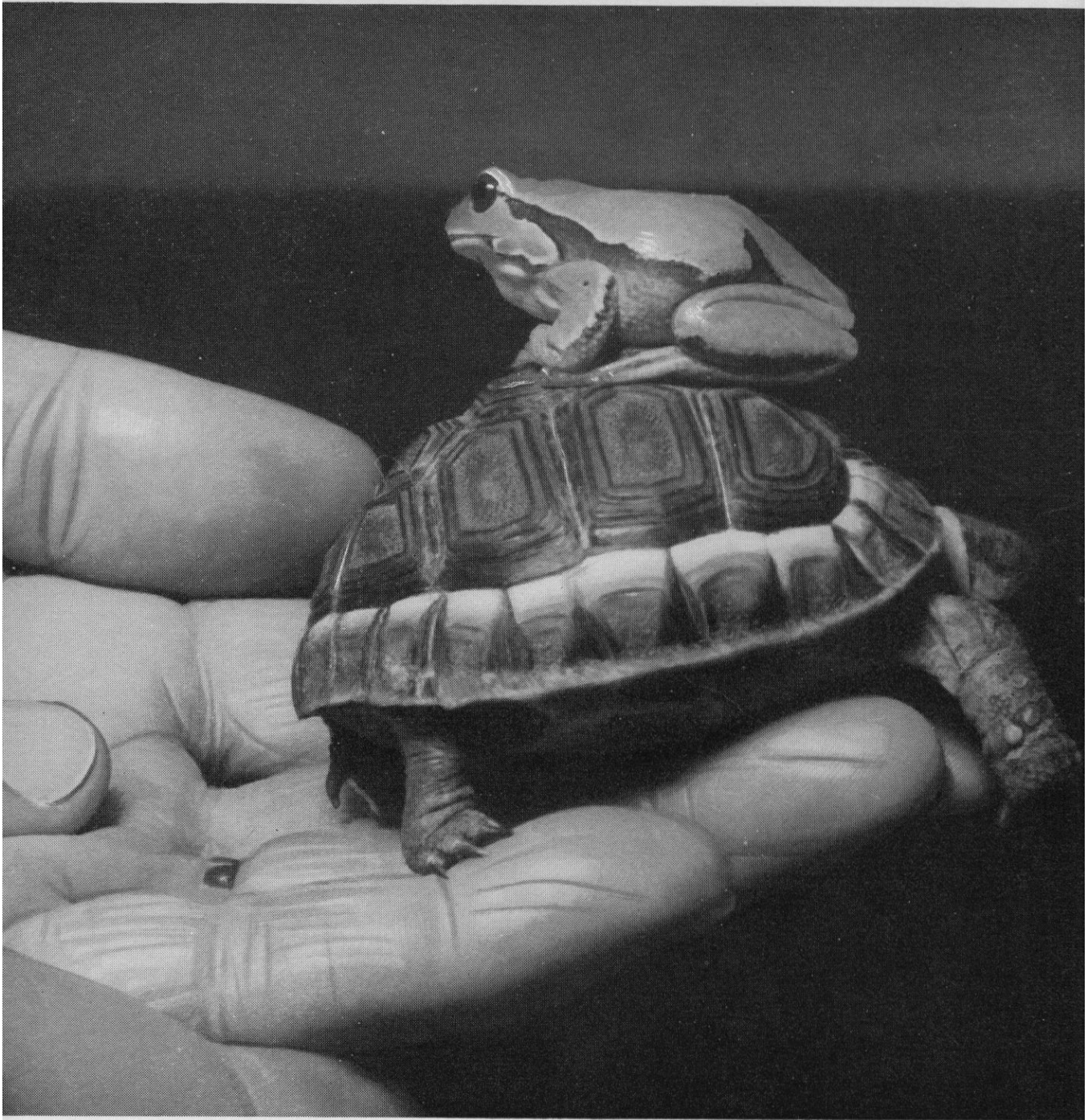
FROM the beginning of October when the night temperature fell, on several occasions, to about forty degrees, we had begun to put the lizards and salamanders in at night and out on sunny days, but first Mr. Toby and then the 'sallies' retired from view, and life would have been rather dull but for another pet which was given to us at this time, Claudie, the clawed toad, *Xenopus laevis*.

At first sight he is not very prepossessing, but newcomers quickly learn to appreciate his outstanding points, not the least of these being the velvety white of his waistcoat—rendering him invisible to underwater enemies—and his wonderfully-muscled ballet dancer's legs ending in the rather fan-shaped feet that must, surely, have been the original inspiration for the frogmen's flippers which came into prominence during the war.

It is to their feet that clawed toads owe both their Latin and their English names—the former, *Xenopus* being a combination of two Greek words, *xeno*, meaning strange or unusual, and *pus*, a foot. Owing to their intermediate position between toads and frogs, these animals are as frequently referred to one family as the other, hence their not infrequent designation as spur-clawed frogs. The spurs in question are the sharp, horny nails with which each of the three inner toes of the hind feet are provided and of which the use is probably to help cleave their way through the underwater swamp vegetation of their African homes, though at times their actions lead one to suppose that they



Conversation Piece



Tiny Tim and the Pet-room tree frog

## THE CLAWED TOAD AND THE JUNIORS

may also be used to assist in tearing larger prey to pieces.

Other unusual features of the make-up of clawed toads are the conspicuous light-coloured vertical 'stitches' running along the sides of their bodies—which are really highly sensitive nerve centres—and the lack of eyelids, eardrums and tongue, which latter appendage is not necessary for an under-water feeder. Their extreme sensitivity to vibration of any kind no doubt compensates for the omission of the hearing apparatus. In common with many other frogs and toads, they have no teeth in the lower jaw, and those in the upper are quite imperceptible when one's finger is mistaken for a worm.

Incidentally it is most unwise, if not impossible, to handle these toads without a net, as their bodies are covered with such an extremely slippery substance that they might easily be hurt through one's inability to hold them—apart from the adverse effect upon them of the warmth of a human hand. Failing a net, a piece of soft rag is better than nothing. Their Latin christian name, *laevis*—meaning slippery—gives due warning of this characteristic.

Experiments on the lawn prove that, given the opportunity, Claudie can move at a remarkably frog-like speed; but these toads seldom, or never, leave the water of their own accord except through fear of drought. For this reason they can be safely trusted in a garden pool where—rather surprisingly, having regard to their native haunts—they are said to be hardy enough to survive a normal winter. Later, we put a couple into the outer pool with the intention of testing this statement; but after they had completely disappeared, we found a large hedgehog in the garden, and shall never be satisfied that the gently sloping sides of the pool did not make their murder too easy for their

## LIVING WITH REPTILES

sworn enemy. One day we shall try again in a safer place.

This greater freedom leads, of course, to a certain rather regrettable loss of intimacy, as well as to difficulties in observing the grace and skill of their glides and dives and slow driftings in the water, which fill at least one very amateur swimmer with envy.

Here again is a most entertaining, very easily managed pet, liable to live for ten or more years, one of the easiest of all to tame, who asks nothing but a good-sized tank and an unfailing supply of earthworms or gentles, with a few blowflies, when available, as a very great treat. So powerful are his swimming strokes that neither weeds nor rocks have any place in his tank even though it does look rather bare—and he seems to feel no need of a hiding-place, but lives quite happily in a depth of water sufficient for him to stand upright in. No matter what size the toads may be, this is a good guide to the amount of water required for their comfort—though a little extra will not matter—but the tank should be at least as deep again to allow for the standing leaps they sometimes take. One of the particular advantages of clawed toads is that, living in cold water and feeding on live food only, they do not need their water changed more than once in six or eight weeks, and if their earthworms and gentles are rinsed before using them for feeding, a great deal of debris will be eliminated.

Our instructions were to feed Claudie twice a week, but it would take harder hearts than ours to ignore the pleading looks and gestures (these enhanced by the fact that the outstretched arms of these toads are seldom lowered beneath their heads, making their posture one of permanent supplication) with which he follows us round the tank in the evenings, so he has been rationed to one large or two small



## THE CLAWED TOAD AND THE JUNIORS

worms daily. After all, it would be a very dull existence without at least one event in the day to look forward to! Only once has his appetite been known to fail—though he is never enthusiastic about food in the daytime—and that was during a period of severe frost, of which he could feel the influence, though he is kept in ordinary living-room temperature.

After he has seized them from our fingers in a most unmannerly way, he stuffs the worms into his mouth with his slender four-fingered hands—at the same time stroking away any mud or foreign matter—as a child stuffs popcorn, eagerly, with one eye on a further source of supply. His technique consists of an almost simultaneous advance, grab, and backward recoil to the bottom of the tank.

A notable event which took place soon after Christmas was the arrival of four small clawed toads only a few months old and about three inches long from fingers to toes. We had been trying to get a companion for Claudie on the principle that neither man nor beast should live alone, but we had been unable to trace any adults and were, in any case, hampered by the uncertainty as to whether males or females were required; not that this is particularly important as they are difficult or impossible for an amateur to breed, needing a closer imitation of an African swamp than is easily realisable.

During the war, they were, however, bred in considerable numbers by pathological institutions with the aid of injections, as they are constantly used by the medical profession for a test which, I am told, causes the toads no discomfort whatever. This breeding—a specialist job—has now been largely discontinued, as it is cheaper to import the toads.

It is always difficult to determine the sex of an amphibian, but *Xenopus* is easier than most, as the females have what

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the books call 'three little folds of skin' which, to the layman, looks like tiny tails. Soon after we acquired Claudie—from an experienced herpetologist who refused to give any opinion on the matter—we became suspicious that our prime favourite should really be Claudia, especially when we had discovered that only female *Xenopus* are used in the laboratory and imported. Our suspicions proved correct, but our pronouns are still unreliable.

When these little ones came, we were told to feed them on a tablespoonful of chopped liver twice a week; but they seemed quite apathetic about this, and it made the water in so horrible a mess that it had to be changed after every meal, as *never* must any of these animals be allowed to remain in water tainted by uneaten food. So, with an eye to lessening our labours very considerably and evading the difficulty of obtaining liver in tiny quantities (meat was still rationed at that time, and we tend to view all pet-shop liver with probably quite unjustifiable suspicion), and remembering Claudia's propensity for worms as opposed to all other articles of fare except blowflies, we cut up some earthworms into small pieces, and tried them with that. The resulting commotion was amazing—frenzied searchings round the corners of the tank, fierce squabbles, with every scrap cleared up—a very different picture from the meals when liver was served.

Soon the babies began to grow, and as they grew they graduated to whole worms, first small and then larger, and it was not long before they began to adopt Claudia's tactics of feeding from our fingers, though at first their aim was rather uncertain. This operation has something in common with fishing, as one comes to recognise the tug on the worm which means that they have made their catch, after they have nuzzled one's hand with their soft noses, and clasped

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and nibbled one's finger tips! Individual feeding takes very little longer and is much to be recommended, for besides fostering a sense of confidence and security, it enables one to see that each animal gets a fair share, and also to keep a sharp eye on their progress and to detect very quickly anything wrong; for a reptile which does not feed freely in normal conditions is generally a sick animal, except, of course, when hibernation is in the offing.

It was quite obvious when they first came that they were much too small to put within reach of Claudia's very forceful feet—she measures fully six inches when she is standing erect, with her periscopic eyes, set rather high on her head, just peeping out of the water, a very favourite attitude—so they were put in a separate tank, and there, so far, they remain. An experiment was made of introducing one to her tank, but, having lived so long alone she regards anything moving as eatable and wheels like lightning at the slightest touch; so when she proceeded to grab in no uncertain manner, the little one was hastily removed. It is usually necessary to segregate amphibian parents from their children, as the elders are not at all averse to making a meal of their offspring; and though these four are past the kindergarten stage, we propose to play 'Safety First' and give up our idea of saving tank space until they are rather larger.

In some mysterious way one of them did receive an injury to its arm which unfortunately proved fatal. It was on a very stormy night when all the creatures were restless and excited, and the clawed toads were leaping about in the water. It seems more than likely that the casualty bruised its arm on the tank and was then set on by the others as soon as they discovered the disability (as is the way of many animals), and too badly injured, even in the short

time before it was found, to recover when put into a hospital tank.

Sad as was this event, it made recognition of the others infinitely easier, as this one and its twin of intermediate colouring were indistinguishable. Silver is palest grey, almost albino in some lights; Dusky looks as though he has been in contact with a sweep's brush; and the third of these little trapeze artists, who affect the most delightful postures and groupings in the water, finally acquired the name of Platinum. This, when shortened to Plattie, reminds one of the Boers' name for these toads—*Plathander*.

Not the least of the attractions of these toads is the funny little sound, like the slow, distant winding of a small watch, which frequently emanates from their tank. This voice is the male prerogative and it was a long time before we discovered that the female makes an almost indescribable answer—a muted tapping sound which might be likened to water dripping from a height.

Perhaps this is the place to relate the horrid experience which befell a fellow pet-owner with his clawed toads—as a warning to others who might find themselves in the same plight. He possesses a water-softener activated by salt, and when recharging this apparatus it is fatally easy to turn the wrong tap, and discharge the salt into the supply pipe.

An unfortunate chain of circumstances led him to do his chores in the wrong order, and he inadvertently refilled three tanks with salt water. Over an hour later he drew some drinking water and realised at once why his toads had seemed extra lively, a fact which he had put down to the change of temperature; he had since been too busy elsewhere to take proper heed of their doings. Horror-stricken, he rushed to his pet-room. The older specimens in two of the tanks appeared quite unharmed, but the younger ones

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were obviously dead or dying. Hastily they were all removed into the nearest utensil of rain water and rinsed and rinsed again, keeping their heads above water meanwhile—as, although they are aquatic, they surface regularly for air—until some began to show signs of revival. Very, very gradually several recovered and within twenty-four hours were feeding again—a remarkable example of their recuperative powers and will to live.

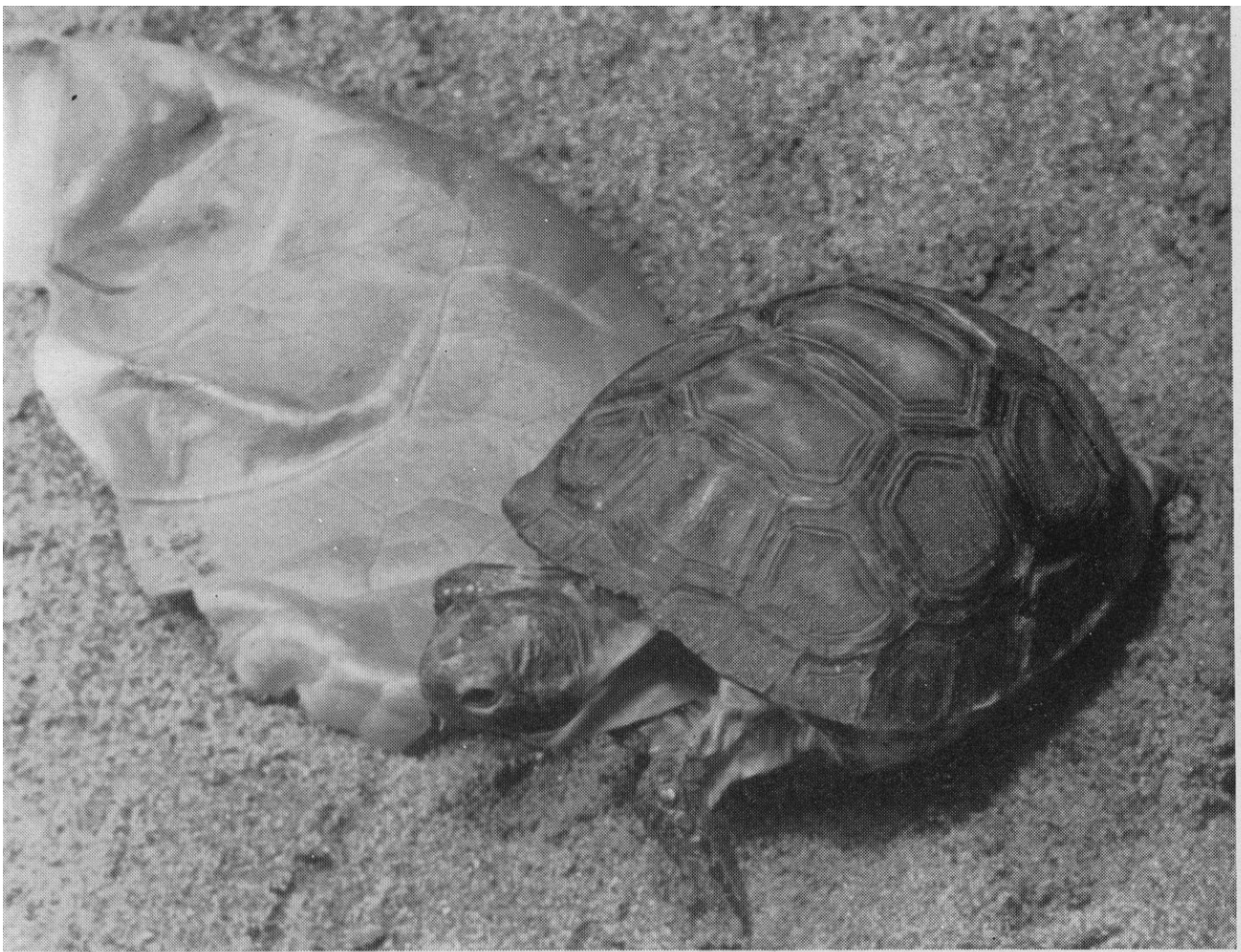
He vows he will never again use anything but soft water even if it does cloud the glass; but if tap water has to be used, do, please, taste it first. A biologist explains that the salt solution would, apart from any other effect, draw all the moisture from the animal's body. As one would-be comforter said, sacrifices have to be made to gain knowledge, but at these times one would prefer to remain in the comparative bliss of ignorance!

These toads, when young, are quite the most highly strung of the 'water babies' we have so far come across, darting wildly round the tank at the slightest shadow or vibration. We tried to make a retiring-place with rounded stones, but it was not very satisfactory, and we were afraid it would lead to injuries; so the stones were removed and we compromised with floating weed, but, after some weeks, this, too, was removed, as it produced complications at mealtimes, being invariably mistaken for food. In due course, the little creatures began to take life more calmly, and by the time they were half grown were almost as imperturbable as Claudia herself.

In the late summer a third generation came on the scene when we had the offer of some fourteen-weeks-old infants, which offer was, of course, eagerly accepted; and when the enormous tin in which they arrived was opened, it was amusing to see the three miniature Claudies, whose bodies

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were only an inch long, lost in the shadows at the bottom. In all their ways there is no deviation from the family pattern, except that they are small enough to hide comfortably in the floating weed, and are, in any case, much more knowledgeable about dealing with worms than were their liver-fed elders. One of these mites stuffing worm into his mouth with his tiny hands is a strangely irresistible spectacle!



Tippy-toes : *Testudo denticulata* (baby)

Box tortoises : *Terrapene carolina* and *Terrapene ornata*

PLATE 8

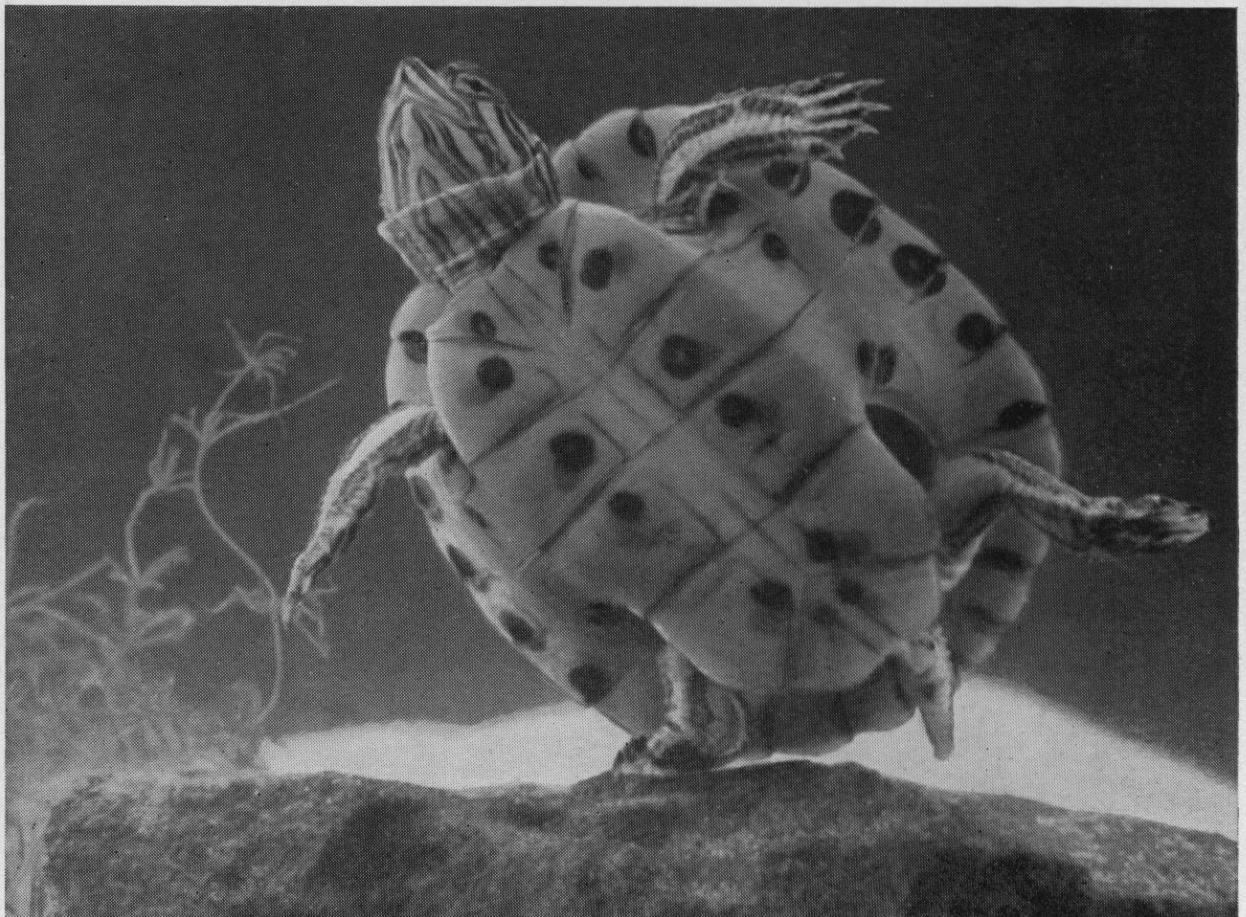




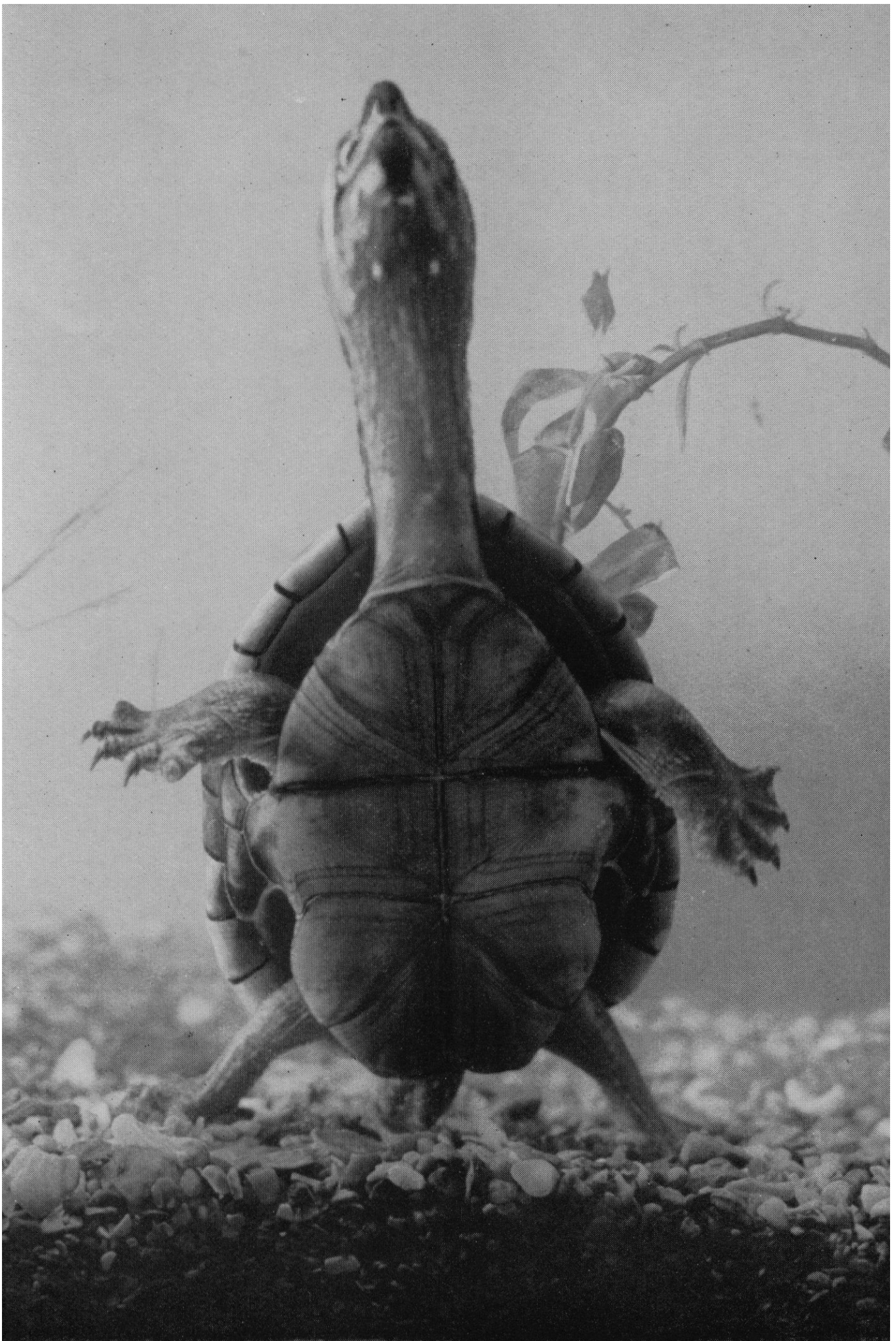
PLATE 9

American mud terrapin : *Kinosternon baurii*

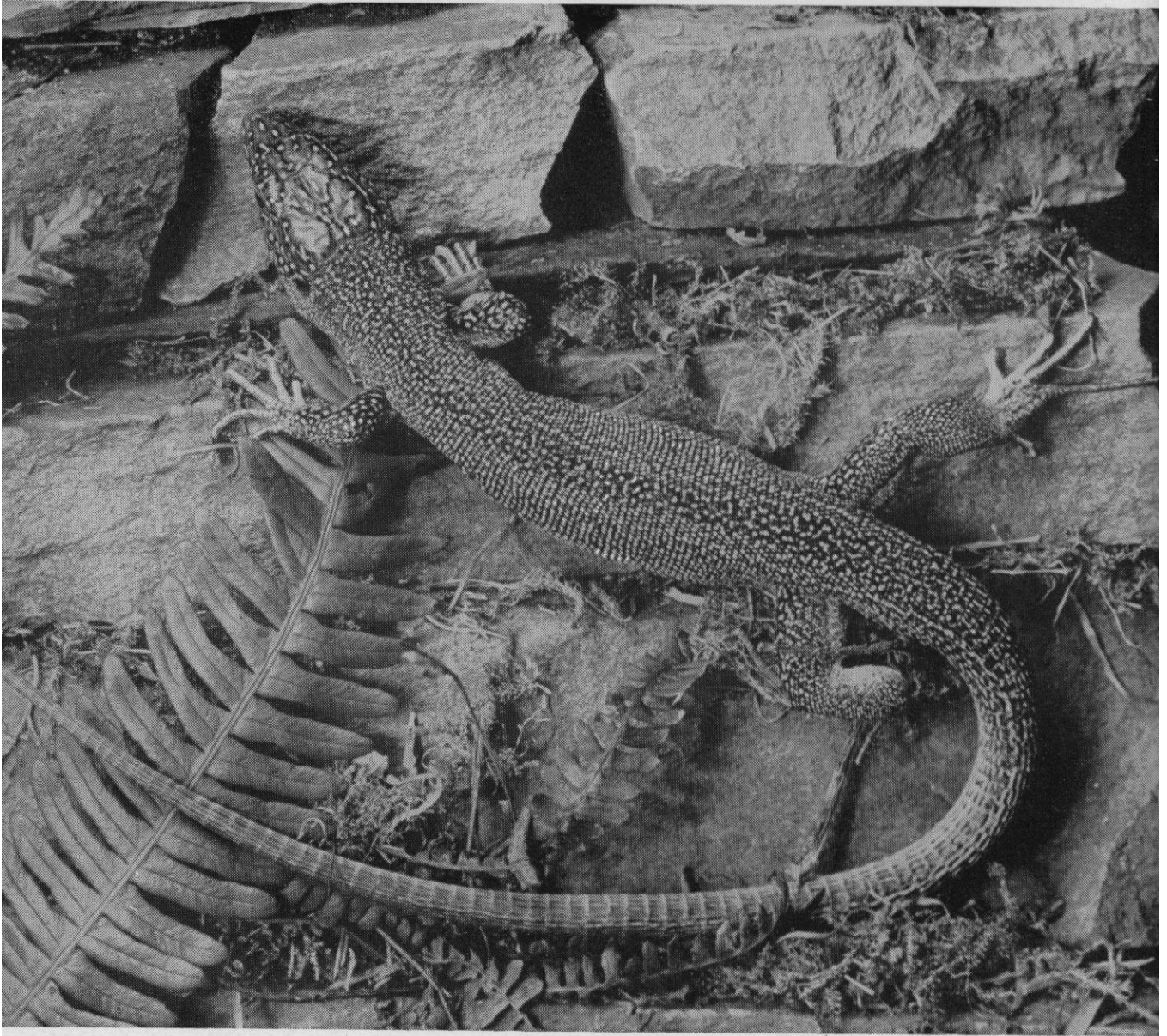
Peek-a-Boo : *Pseudemys scripta elegans*







American mud terrapin : *Kinosternon baurii*



Green lizard : *Lacerta viridis*

## Chapter 9

### THE NEWT NARRATIVE

THE next excitement was the finding of the newt pond, thrilling because, although I have lived in this part of the country all my life, and had passed the pond constantly, I had never had this experience before—extraordinary how much even an observant eye can miss when the interest is not stimulated!

It was a chilly evening at the end of March when we looked over the bank and saw what seemed to be dozens of these graceful creatures gliding about in the shallow water; but so ignorant were we then that we did not even know what species they were.

Our thoughts turned to the old butterfly-net of childhood days, still carefully preserved; and duly armed with this and a large tin, we returned to the pond a day or two later to try our luck. Exciting as it is to buy a new pet, there is something almost more satisfying about collecting one's own from the wild, and the urge to populate the reptiliary was ever present. Much to our delight, the spoils comprised not only five of the large crested or warty newts, *Triturus cristatus*, but—a not unusual, but very pleasing record for one pond—specimens of both the smaller British species: smooth newts—*T. vulgaris*—with their spotted coats and orange waist-coats, and palmate newts—*T. helveticus*—rather similarly attired but distinguished chiefly by the dark hair-like tip to the tail. The male palmate newt has black fringes round his toes during the breeding season which makes them appear webbed—hence their English name.

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The generic name for newts, *Triturus*, appears to be derived from the earlier and simpler, Triton, which has reference to the son of Neptune, a sea deity, who is depicted in works of art with the lower body of a dolphin, and blowing a conch-shell. It seems likely that the newts' fancied resemblance to dolphins, coupled with their almost universal distribution in the fresh waters of the world, may have suggested the name.

Crested newts are very handsome at this time of year. Both male and female are resplendent in dark livery, picked out with silver down the sides, and the usual orange waist-coats; but to impress his mate, the male grows a wavy crest down his back and along his tail, which he further embellishes with a wide band of bluish silver. A distinguishing feature of this species, apart from their six to seven inches size—almost double that of the other two species—and one which persists through all the other seasonal changes, is the alternating bands of black and yellow on their fingers and very long toes.

After a short sojourn for them in a glass tank, while we were watching the courting displays for which newts are famous, and the subsequent equally interesting spectacle of their egg-laying activities, two pairs of the crested newts were put into the sanctuary. Another pair—pending their return to the pond with the rest of the catch—were put into a good old-fashioned galvanised bath duly fitted up with some floating weed and an island cave of two bricks with a tile laid across—a move which proved to be an important factor in a situation which developed in the near future.

It is a habit of newts to come to the edge of the water at dusk and stand with their heads up, as if sniffing the air. The crested newts in the reptiliary had an amusing trick of standing one at each corner of the pool in this position,

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looking, for all the world, like china dogs on a chimney shelf, and seemingly quite unperturbed by a flashlight turned upon them.

The almost transparent tadpoles which had emerged from the 'home laid' eggs were put into the pool where the clawed toads had been. When the last fully fledged baby newt left the water in August, we missed so much the movement of their constant surfacing for air, and the soft explosions resulting from it, that we hastily acquired another half-dozen hardy fish to take their place.

Newts, whose seemingly fragile bodies have been known to hold the spark of life for twenty-five years, make attractive, bright-eyed pets, whose undulating movements grace any tank, and whose rather phlegmatic acceptance of life as it comes is a welcome contrast to the nerves of some of their more volatile kin. I confess that sometimes this very placidity and slowness of reaction, even to the sight of food, makes one rather impatient of their apparent stupidity. Certainly they are ridiculously easy to feed, their manners sometimes belying their gentle appearance when two of them seize opposite ends of the same worm.

The great drawback of the British species is that all of them leave the water after the breeding season is over and live for more than half the year on dry land, so that a rather special kind of tank furnishing is required to allow for both phases, unless one is lucky enough to have an outdoor reptiliary such as ours. An enamel baking dish filled with growing moss and water forget-me-not trails, standing above the water on two upturned flowerpots in a tank half full, is quite adequate. (Do not forget to cover the tank!)

Having promised ourselves acquaintance with some of the more colourful and, often, more truly aquatic foreign

## LIVING WITH REPTILES

species, we took the first opportunity of acquiring a pair of Spanish newts—*Pleurodeles waltlii*—which are liable to attain a length of ten inches as giants of the newt clan; but, alas, a greater pair of dim-wits among reptiles it has not yet been our fortune to meet!

Their basic colour scheme is grey, thickly sprinkled with darker spots, and this is not as unprepossessing as it sounds. Their particular interest is that, quite often if they are handled at all roughly their strong wriggling movements force the points of their ribs through the skin, which heals around them, leaving the horny projections as an efficient defence. This peculiarity gives rise to their Latin name, which is formed from the two Greek words, *pleuron*, a rib, and *delos*, visible or conspicuous.

More recently a pair of America's handsomest species came our way, Californian newts—*Triturus torosus*—about the same size as their crested relatives, but very attractively coloured in russet brown with vivid orange yellow underparts, and with beautiful luminous golden eyes which are nearly as large as the 'precious jewels' of a toad. Finally, our cosmopolitan crowd—which seem to flourish indoors or out—was joined by a pair of the very aptly named European Marbled Newts—*Triturus marmoratus*—whose jigsaw patterning of emerald-green and black makes them very difficult to see amongst the water weeds, but which give them an almost spectral appearance when our torchlight picks them out stretched along a frond of Hart's Tongue fern. Their close affinity to crested newts is shown by their feet being similarly fringed alternately with green and black.

## Chapter 10

### THE GREEN LIZARDS—PART II

THE honour of being the very first inhabitant of the new sanctuary belongs to Mrs. Toby who emerged from her winter sleep on that lovely morning in mid-March, and who, as the weather appeared to be fairly settled, was duly installed. It seemed likely that she could regulate her exits and her entrances to correspond with the weather a great deal better than we could, and with far less trouble. She quickly made a thorough exploration of her new quarters, had a real sunbath, and then disappeared into the cover as if it had been her long established custom. For the first few weeks she was very shy, and it was quite a feat to catch a glimpse of her, the only evidence of her presence being the scuffle of her hasty retreat.

It was really in April that the lizard story began again. Then the new importations appeared in what was, for the time being, our favourite shop, and from them we received the first of our much needed lessons in providing an escape-proof home for our pets. Not only do lizards suffer, like the elephant child, from 'satiabile curiosity', but also from the perpetual urge to be elsewhere than where you want them to be.

Our initial purchases were called wall lizards, but they were quite unlike the commonly available type, which do not vary quite so widely in their coloration or markings. These did not answer to any description that we could find, and it was only during their fourth year with us that they were identified for us as the variety *serpae*. So far we have

## LIVING WITH REPTILES

never been lucky enough to get any more, much as we should like to do so, as they are so much more attractive in appearance than the commoner ones. Actually they lived longer than any other wall lizards we have had so far. Bought as at least year-old adults, they lived outdoors for four full years, and there is more than a suspicion that even then they did not die a natural death, but fell victims to a more than usually cannibalistic green lizard.

One of the quartette was a dark moss-green, another was resplendent in black-and-turquoise. A bright green female was named Grassy and the fourth, a male, so evenly marked all over with what looked like tiny brown and white checks that in some lights he appeared quite ghostlike, was Brownie—a surprising reversal of the sexes one would expect from such a colour scheme.

As Easter Sunday showed a great improvement in the weather, we decided that this batch were now sufficiently acclimatised to be put into the reptiliary. (It is always wise to give a newly-purchased animal a day or two indoors if the weather is unsettled, as one does not know to what rapid changes of temperature it has recently had to adjust itself.) Grassy and Brownie came to hand first, and in they went—another step to the fulfilment of our long-held ambition.

We lingered, and gloated over their exotic appearance as they flashed about, exploring everything with their flickering tongues, when—so suddenly that we never quite knew how she got there—Grassy was running merrily round the top bricks of the confining wall! A hasty movement sent her back where she belonged, but it was only a minute or so before Brownie had followed her example—so much for a five-inch overhang of tile! Their lightness of weight and their long slender fingers give them a hold on all but



the very smoothest surface. Evidently zinc, or half a glazed drainpipe, which had been suggested would have been a more practical, if less ornamental, barrier as being too slippery to provide a foothold.

However, with the aid of a hurriedly-assembled assortment of weapons, from a butterfly-net to glass cloches, we managed to secure the lively pair again after an hour's hard work. Then we thought hard, and a plan was finally evolved of having nine-inch strips of zinc nailed to a framework of laths, and the whole thing fitted over the tiles, any crevices being filled with weak cement. This purely temporary measure was duly carried out at the earliest possible moment. All the time we were wondering whether Mrs. Toby had given us the slip by the same method; but as soon as the cold winds had abated, she set our minds at rest.

In the meantime, another visit to the shop had resulted in the purchase of one of the largest and most beautiful green lizards it has so far been our good fortune to see. Would that we had been warned by the mean look in his eye, which we subconsciously recognised, but resolutely ignored, on account of his handsome appearance! What a pity we humans cannot learn by experience and attend more carefully to the promptings of that still small voice shared by conscience—so many of our troubles would be avoided . . .

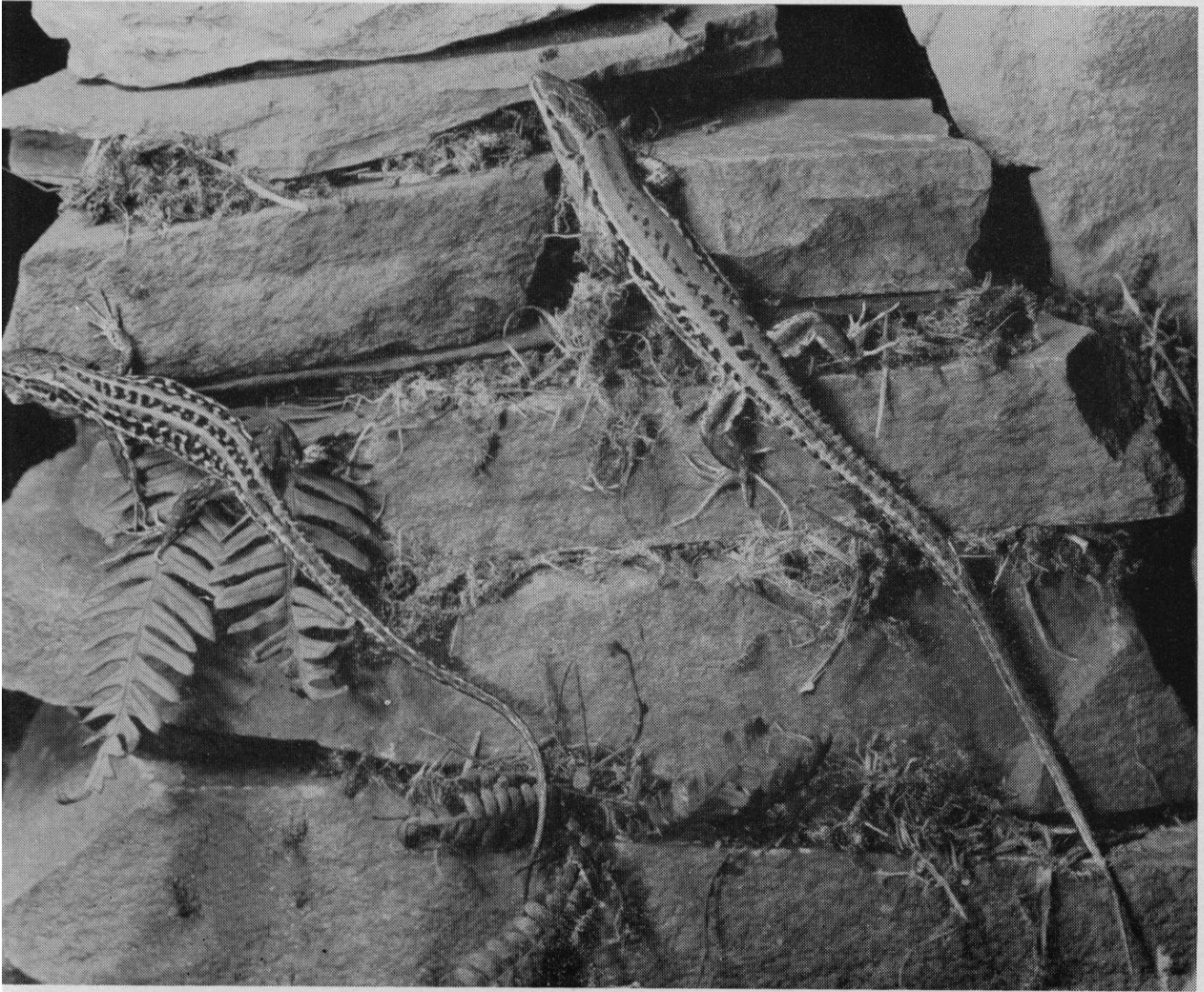
Anyway, Emerald was duly acquired along with a pair of green lizards which had been ordered from farther afield some time previously. These three were introduced to their new home on the next good day and, having stationed watchers on every side, the wall lizards were again given their freedom. This time all went well. We sat happily back, and thought how clever we had been . . . But we

## LIVING WITH REPTILES

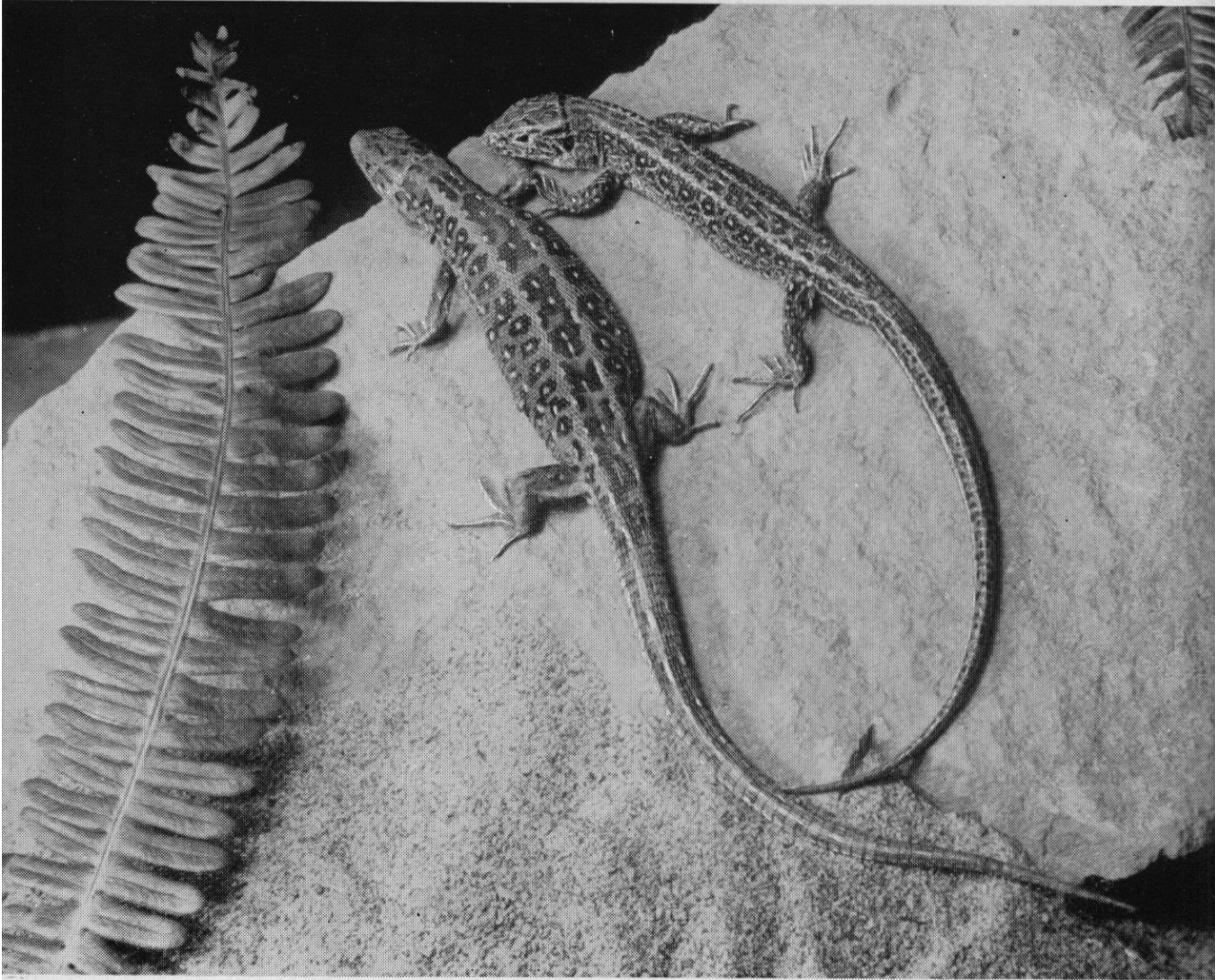
had another lesson to learn, and our self-satisfaction was short-lived. For three or four days the weather was very cold and wet, but when blue skies came again only three green lizards were visible. We thought that maybe one had overslept, and paid no particular attention. The next day and the next, there were still only three, and then I remembered a scuffle Meg and I had heard near the garage; but nothing more was seen or heard until we were having tea on the lawn two further days later, when—behold!—there was the missing one, basking in the sunshine on the garage window sill—from henceforth his name, of course, was Garry. A difficulty we had not foreseen was that in view of an above-ground hibernating chamber, the reptiliary wall at the back and sides of this should have been at least a brick higher, as under the stimulus of a chase, or on a very hot day, the larger lizards are capable of jumping a sufficient distance to get out.

So during the coming winter we arranged to have this done, and the zinc cemented under the top bricks all round in place of the tiles. The remains of the tiles which were not removed make a very comfortable retreat when the weather is cool or wet. Another mistake we had made was to brush over the upper surface of the zinc with a cement wash to make it less conspicuous. This actually converted it into a climbable surface, which even a session with glass-paper did not entirely remedy.

We did not catch Garry—then. But about three weeks later I was passing the reptiliary with only a casual glance when I saw something which made me step back for another look—there was a fourth lizard head peeping over the logs! The wanderer had returned after being, as a familiar war-time phrase expresses it, 'absent without leave' for over a month. We had been assured by other reptile-keepers that



Wall lizards : *Lacerta muralis*



Sand lizards : *Lacerta agilis*

strays nearly always rejoin their comrades sooner or later, and do not, in any case, usually leave their vicinity; and here we had proof of the truth of this.

This was as well, for Grassy and Brownie between them now discovered a secret exit from the sanctuary and led us a great dance for a while, until I caught Brownie red-handed squeezing through a tiny crack that had been overlooked in the joining of the zinc, and took measures to stop their little tricks. They would pop out for half an hour, cross a path almost under our feet, have a sunbath on the garden wall in full view, and then return to the fold by means of the wooden ladder we had thoughtfully provided for the first absentee.

Actually in the meantime things had not been going too well in the reptiliary, for Emerald had claimed Mrs. Toby as his mate and was most assiduous in his attentions. One would not have expected him to allow another male to approach her, of course, but it did not really seem necessary for him to leave her side every few moments, rampage until he found one of the others, and then bully him unmercifully, either by fighting or chasing the poor victim round and round as he fled in terror. This was obviously what had happened to Garry, and after his departure, the remaining lizard, Pete, took the full brunt of it, though he never tried to approach Mrs. Toby. This was too bad, for he is a very phlegmatic, non-aggressive lizard, always first up and last to bed, and taking advantage of every least gleam of sunshine. The smaller fellows would try and stand their ground, but always had to give in to Emerald's superior size, seventeen inches from nose to tail.

Finally, one Sunday evening about nine p.m., long after he should have gone to bed—as lizards retire directly the sun's rays are not available to them—we found Pete clinging to the wall above the pool, where he had obviously

taken refuge after a ducking; so we removed the poor frozen creature to the original lizard box, where for several days he was quite content to rest and eat as if he had had no chance to do either. It was at this stage that Garry mistakenly elected to return to the fold, and it was only a matter of hours before he, too, had to be rescued . . .

While all this had been going on, we had acquired some of the more usual type of wall lizard, *Lacerta muralis*. These are fairly constantly some shade of bluish green, with brownish heads and legs and a kind of mosaic pattern running down the centre of their backs to match similar ones on their sides and tails. Obviously though, another tactical error had been made here in choosing lizards for their appearance, not even giving a thought to the fact that the eye-catching splendours are mostly bestowed upon the males. Hence we were seriously upsetting the balance of nature by picking out the ones with the longest tails and blue spots amongst their mosaic.

Mind you, it is not by any means easy to tell the difference between the sexes of lizards, even after considerable experience, and we have a theory that when these brightly-coloured lizards have been in captivity for some time before their purchase, their colourings fade quite a bit, especially in the case of the big green ones (whose name, by the way, is *Lacerta viridis*). We had been told to look for a warning flush of turquoise blue round the cheeks and throats of the males—but, alas, the females, too, develop this decoration for the duration of the breeding season, and it is, in any case, not readily apparent unless they are exposed to the action of fresh air and sunlight on their skins. Incidentally, no green lizards will live very long unless exposed to sunlight which gives them something vitally necessary for their well-being.

The novice is very much at the mercy of the vendor, but by degrees the eye begins to detect the various subtle differences between males and females. The females have smaller, more slender heads, and the upper part of their tails also is more slender and tapering. Then, too, those that have laid eggs in previous seasons have small tell-tale tucks along their sides which never entirely disappear. Quite frequently female green lizards have streaks and lines of white and black along their backs. The most strongly marked are spoken of as 'carpet pattern' specimens. As these often have their basic hue almost olive green, they are very attractive. In general, the males' mixture of green and gold and black is replaced by the females with a much darker shade of bluish green.

Anyway, the male wall lizard had begun to follow in Emerald's footsteps, and be belligerent; but he was not so prone to seek trouble deliberately, and it is much easier for a small lizard to disappear when discretion demands. Poor Pete lost two portions of his tail during the period of Emerald's aggression, so his beauty is now permanently impaired, as tails can only be regenerated to a limited extent after the first time, and even that is always recognisable.

Obviously the answer to our problem was to provide an adequate supply of females, so two more wall lizards and two more green lizards were procured and the latter put into a box with Pete and Garry. Not many hours had passed before I heard a now-familiar scuffle as I went through the gate into the further garden. I went on, then crept back and peeped through the gate to behold, to my horror, Pete's brand new mate, who had had, quite literally, to stand on her head to get out of the box.

Within another hour or two it was evident that Emerald

—of whom Mrs. Toby had now had enough—was well aware that a female was at large, and in what direction she was hiding and that, moreover, if he could possibly manage it, he was going after her. It took him three days to achieve this, but he did. Two weeks passed, and then Emerald walked across the lawn one day and disappeared behind the reptiliary—where naturally, we expected to find him. He had other ideas, however—and we didn't. Two days later he and Esmeralda, the newcomer, were discovered settled under a prostrate rosemary bush. There they stayed for some weeks, smugly basking on the rock garden, swaggering up and down the paths and being well fed with mealworms until Emerald suddenly decided to return home—where immediately, trouble started again.

No sooner did he set eyes on one of his rivals (as, of course, we had taken advantage of his absence to put the others back) than he started on his old tricks, and in quick succession both Pete and Garry were fished out of the pond where by now the weed had become rather thick and difficult for them to negotiate. Although lizards can swim, they cannot stay in the water long, as they grow cold and would soon drown. Here was a fine state of affairs indeed; but with these two safely in the lizard box once more, I went back to the reptiliary and, by the greatest good fortune, managed to catch the bully as he stood watching me. He expressed his fury in no uncertain terms by a good hard nip on my finger, but this time it was Emerald who went into the box, and Pete and Garry and one female back into the reptiliary, where they quickly settled down as if nothing had happened. Esmeralda was last seen over half a mile away, and so far has the distinction of being the only one of our many green lizards who has really vanished for all time.



## THE GREEN LIZARDS—PART II

Emerald looked so miserable in the box that we were tempted to release him—he had been so beautiful wandering in the garden—but we knew that he would only go home again, and that we might not be so lucky in catching him a second time. So, sacrificing his comfort to that of the majority, we adapted our small alpine frame as a place of solitary confinement for him, until he learned how to behave. It was quite evident by the brilliant blue of his throat that he was still ready for mating, and we were determined not to allow him to disturb the prevailing harmony.

Saturday, October 2nd, was a glorious day, one of the best of that season, and the warmth raised our hopes of encouraging sufficient lizard activity to induce the errant one to come home. Sure enough, at three p.m. there was an extra green lizard in the sanctuary—and we were really only mildly disappointed when we realised that it was Emerald, who had somehow escaped from his durance vile and had automatically returned once more to his original home. For, much to our delight, he made no move of an aggressive nature even when mildly provoked, but steadfastly ignored the others, and was only too anxious to enjoy his greater freedom and more ample supply of sunshine. He accepted food from our fingers which he had been slightly chary of doing in the frame, and we were rather glad he had taken the law into his own hands and would have the benefit of the hibernating chamber for the winter, instead of coming indoors in the lizard box.

## Chapter II

### THE TERRAPIN TALE—PART II

HAVING followed these events to a successful conclusion, we must now go back and take up the terrapin tale again. Happening, early the next Spring, to pass an aquarist's shop which had never before held any particular attractions, my eye was caught by a brief and brand new notice, 'Terrapins'.

It was not very long before I emerged from the shop with a rather miscellaneous assortment of purchases—two terrapins, two toads, and a few yards of toad spawn, all packed into a glass battery jar which I was still green enough to allow to be filled with water. They would have travelled equally well, and been much less trouble to me, in a cardboard box, with the spawn in a jam jar. With this load, added to the ordinary housewife's shopping, I duly staggered home—to be greeted, I may say, with some derision, but who cared!

Such was our abysmal ignorance even yet that we were under the impression that our new acquisitions belonged to the species spoken of as the European Pond Tortoise, and it was some weeks before we encountered the real thing and realised why the written descriptions had seemed inappropriate (but then, we had argued, might not ours have been immature specimens not yet arrayed in all their glory?) Actually these first two were Spanish Terrapins, *Clemmys leprosa*, whose rather surprising christian name, meaning scaly, is not in the least applicable to the well-cared-for specimens assured of a constant water supply, but which

refers to their appearance after the often acute water shortages of their native lands have played havoc with their shells. The burning of the sun causes these to chip and crack so that they are laid wide open to the action upon them of a fresh water alga, and the combined effect of these two agents produces the leprous appearance which gives them their name.

In truth, they are a handsome if somewhat sombrely dressed couple, though so anxious was I to get a pair well matched in size that we have never been able to tell them apart. They measure about two-and-a-half inches long, their heads and limbs are olive grey with yellow markings, those around their collars being so regular as to leave no doubt as to the source of inspiration for the original 'turtle-necked' sweater. Their carapaces, or upper shells, are brownish grey with touches of orange, while the ground colour of their breast plates, or plastrons, matches the pale yellow of their limbs, with darker patterning. Their rather long necks and small eyes enable them to assume a distinctly supercilious expression at times. Incidentally, the wrinkled skin of their back legs and the shape of their quite substantial tails are very reminiscent of the hind quarters of an elephant—an illusion exaggerated by their coloration.

At first they were hopelessly shy, though fortunately they never treated us to a whiff of the horrible fishy odour which they sometimes give off when they are first imported. For days at a time, after they were put into the pond, a ripple of the water as they withdrew their ever watchful eyes was all that betrayed them. Then one day I noticed what I thought was a pebble lodged under a plant, and closer inspection proved it to be the braver of the two, sunbathing, with all his limbs and his tail tucked inside his shell. After some weeks, both would emerge to bask on the cement

slope; but the slightest sound, and particularly Meg's barking, sent them tumbling headlong back into the water, sometimes rolling over and over in their panic.

It was not until the end of June that, amongst the terrapins in the same shop, I discovered a beautiful dark one with a golden-spotted head and shell, and though an enquiry as to his identity only brought the rather shocking reply, 'I haven't a clue!' needless to say he was promptly acquired and equally promptly introduced to the sanctuary. Fortunately, possibly because his over-all dimensions, being an inch more than the others, gave him more self-confidence, his nervous system was better balanced, and the first dawn saw a thorough exploration of his new quarters, and in a couple of days he was feeding freely from the forceps. His refusal to allow human appearances to disturb his sunbathing evidently gave the other little people confidence—these creatures learn by example—for it quickly became an exception for them to display their former fears.

Being great believers in 'evens', we set out to seek a wife for Blackie, whose curved plastron and longer tail indicated his sex, as it does with land tortoises. A rather large but not so handsomely-apparelled female was acquired, but—alas!—in a few days she fell a victim to a fatal distemper which she had evidently contracted before we met, but which, by some miracle, she did not pass on to her new family. The lesson to be learnt from this episode is that all newly-acquired animals should be kept apart for a few days' quarantine, so that if they should have any infection they will not pass it on to your healthy stock. This will also give the newcomers an opportunity of settling down after their journeyings, and of growing accustomed to their new humans.

Shortly after this, Blackie managed to damage his left eye rather badly, but a daily treatment with a very weak solution of peroxide of hydrogen, followed by a touch of warm olive oil, put it right in less than two weeks and made him our friend for life. (Do please remember, if you have need to bathe an injury to any reptile, that we have no conception of how hot to their cold blood our tepid appears to be; so be sure to test the water with an elbow as if for a human infant.)

It was decided to leave the resumed question of a female until another suitable opportunity should arise for personal choice; but at the end of July we were offered a large five-and-a-quarter-inch by four-inch, probably fully adult, male, who had been found wandering but was unclaimed, so of course, he, too, had to join the family, and he it was who completed the cementing of friendly relations, for he had obviously had considerable experience of the human species and saw no reason to mistrust them. So far the Eden was still without an Eve—and the more peaceful in consequence!

When dusk fell on his first day in residence, Ulysses—who had made the circuit of the sanctuary so many times that he reminded us of the famous traveller—returned to the water with but one thought in his mind, food, and no sooner did the worm jar appear than there he was, trying his hardest to climb the iris leaves the better to reach whatever might be coming, with Blackie doing his best to emulate him. The sight of their companions coming so fearlessly, and receiving such generous bounty, was too much for the little Spanish people (whose meals had hitherto been rather a source of worry, though worms had been thrown hopefully round the edges of the pool), and one grey nose popped up expectantly from among the weeds and, although a little timorous, finally grabbed the proffered meal.

## LIVING WITH REPTILES

The appetites of all four are now excellent, but they like their worms in easily managed relative sizes, though Ulysses can tackle the largest that can be found. The grip of their jaws is very tenacious, and when the others have grabbed an end of his worm, they think nothing of being dragged round the pool by Ulysses (who is nearly three times their size) until it breaks. A convenient and equally acceptable substitute for worms, and one which provides the necessary variety of diet is lean stewing-steak cut into worm-like strips. Fish supper is an eagerly welcomed treat—usually a plaice fillet scraped off the skin with a knife—and every morsel that falls into the pond is relentlessly pursued; but as it makes the water rather dirty this is a rare indulgence. We have never found evidence, in the way of cracked shells, of their use as consumers of garden snails (as the books promised); but no matter how many water snails are introduced to the pool, there is never one to be found.

They spend most of their daylight hours basking in the sunshine, tucking their heads under convenient vegetation if it is too hot, and are not interested in food until they return to the pool in the cool of the evening. Once there, however, the sound of my step—there is no need to speak—brings a rush of traffic across the pool, and the quartette, usually led by Blackie, charge up the slope, jostling each other in fierce competition for the best position from which to grab whatever tasty morsel is forthcoming. As they always take their food back into the water for consumption, it is quite a busy scene for a few moments until the rations are exhausted—which is by no means a way of saying they have had their fill.

It is a scene of daily occurrence from about the beginning of May until some time in October, according to season.

From then on, more and more time is spent in the pool, and no further interest is evinced in food. One is advised to keep any terrapin, under four inches in length, indoors for the winter, so we have left Ulysses in sole possession of the pool, and for six springs he has emerged from the bottom in good trim, in spite of having to be rescued from a frost-cracked pond on one occasion.

Most reptile-keepers have their own ideas on hibernation problems, and although some books recommend keeping terrapins out of water, we have always tried to reproduce natural conditions as faithfully as possible and, so far, have had no failures. One of the dangers is a tendency to eye-trouble unless a sufficient degree of moisture is available.

In the attic was reposing one of those old-fashioned round baby's baths, about three feet across, with unclimbable sloping sides, rounded edges and a spout which could be blocked. It was removed to the cellar, which has an average winter temperature of about forty degrees and sufficient daylight from an area window, and placed next to the tortoise dormitory. A few brick-and-tile caves, heavy enough to be immovable by a determined terrapin, with their roofs above water, for use as islands when required, about two inches of washed gravel on the bottom covered with about six inches of water, a few floating weeds—and what more can they want? Apparently nothing!

When spring has really arrived—usually in April—a careful comparison is made daily of the water temperature at the bottom—the coldest part of the pool—and that of their winter quarters. As soon as the two practically coincide, on a sunny day they are put out again and take up life from where it left off, just as if nothing had happened.

The two black fellows are the real European Pond

## LIVING WITH REPTILES

Tortoises, *Emys orbicularis* ('circular' though their shells are only properly round when they are quite tiny), and they differ from real terrapins in that their plastrons have a movable hinge. Incidentally, their fossil remains have been found in England. The general colour scheme is blackish with gold-spotted heads, throats and legs—the younger ones have gold spots and lines on their shells, but these fade with age—while their plastrons are brownish yellow marked with black. The chief use of their tails seems to be to help right themselves when they have inadvertently fallen on their backs, after launching themselves into space, as they frequently and unhesitatingly do—for such comparatively clumsy creatures, they are remarkably agile.

One warm afternoon when sitting by the reptiliary, we were considerably puzzled by what appeared to be the subdued chirp of a sparrow coming from a spot where no bird was visible. Much to our amusement, we discovered that Ulysses, perched on the lookout, was opening his mouth and producing these seemingly rather feeble sounds for such a large animal. Apparently no member of the shell-bearing family has a voice to match its size, and even that is only raised when its owner's inclination is towards mating.



## Chapter 12

### THE SALAMANDER STORY—PART II

**A**FTER a long cold, dry spell, May Day dawned with a promise of approaching rain, and it seemed as if at last it really would be safe to bestow the freedom of the sanctuary on the salamanders, whose quarters, after nearly seven months of hibernation, were sadly in need of a spring clean. So first Goldie, then Spots and finally Stripes, were introduced to the corner we thought most likely to be chosen for their residence—though, of course, our selection was not the right one!

Until that moment we had no idea that this was to be a real red-letter-day in our career. We had read that on occasion salamanders brought late in the season give birth to young the following spring—their habit of carrying them over the winter being not only unique, but complicated—and that ‘if from her size’ such an event should be adjudged imminent, the female should be placed in about four inches of water, where she will deposit her young.

In the full light of day, certainly, Stripes did appear to be rather plump—but then, had she not been taking regular, if rather well-spaced, meals all through the winter? It was not until her tail was disappearing over the threshold of her new home that a deepening suspicion prompted us to take a hand in the game, rather than let matters take their chance in the open pool. Much against her will we retrieved her, and, failing other suitable accommodation, popped her, at about noon, into the bath where the crested newts had been, and into which, for her comfort, we put a

pile of stones shielded by a piece of bark, and there she was left to her own devices for a while, pending possible developments. (N.B. The bath was carefully covered with perforated zinc!)

Curiosity, getting the better of us after an hour or so, discovered her half sitting in the water as if in a hip bath, the correct position, according to our information, to presage a birth—but even then it might only have been the sheer luxury of a bath after long incarceration, with limited facilities, and surely we had not hit upon *the* very day? About six o'clock, another peep disclosed her swimming vigorously round the bath, evidently intent upon escape from her quarters. Thinking she had better rejoin her family, I went to lift her out and, as I did so, a tiny something crossed my line of vision on the sandy bottom, and in great excitement I called out, 'She's done it—she's done it!'

With the aid of a teaspoon and an eggcup, one of five or six little phantoms was captured, a lens and all the available literature collected—and the examination started. But what was this? Natural caution reasserted itself, and jumping to conclusions was sternly frowned upon; for was not the little creature *walking* on its four tiny legs, or rather using the characteristic 'dog paddle' method of progression in the water; and did not the only book which went into any detail at all say, 'as with the newt larvae, when metamorphosis approaches, the forelegs will develop first and then the hind limbs?'

So Stripes hadn't done it after all, and they were probably the offspring of the erstwhile newt inhabitants, until now unobserved. But baby newts do not grow their legs until approximately the eighth week, and it was only four weeks since the newts were put into the water. Perhaps the eggs were on the weed which had been bought—anyway, newts

they obviously had to be. All very puzzling, but novices could not really expect such luck, and after all there would be lots of other excitements to make up for this slight disappointment.

There matters rested for another six weeks, and the eight or nine larvae which occasionally emerged on the top of the weed were obviously flourishing with no attention whatsoever. The action of rainfall and sunlight on the weeds and soft water had produced a splendid growth of algae, and a few *Daphnia*, which had been overlooked by the newts, had found things very much to their liking, and multiplied instead of dying out as they usually do when one tries to increase one's stock. Then things began to happen all at once. Firstly, one fine Saturday afternoon we decided that not only was the bath itself far from ornamental, but that the water and the weed badly needed changing; so, therefore, we would dispense with it by putting the little newts with the others in the outside pool, as they stood a good chance of being able to hide in the weeds from the larger ones.

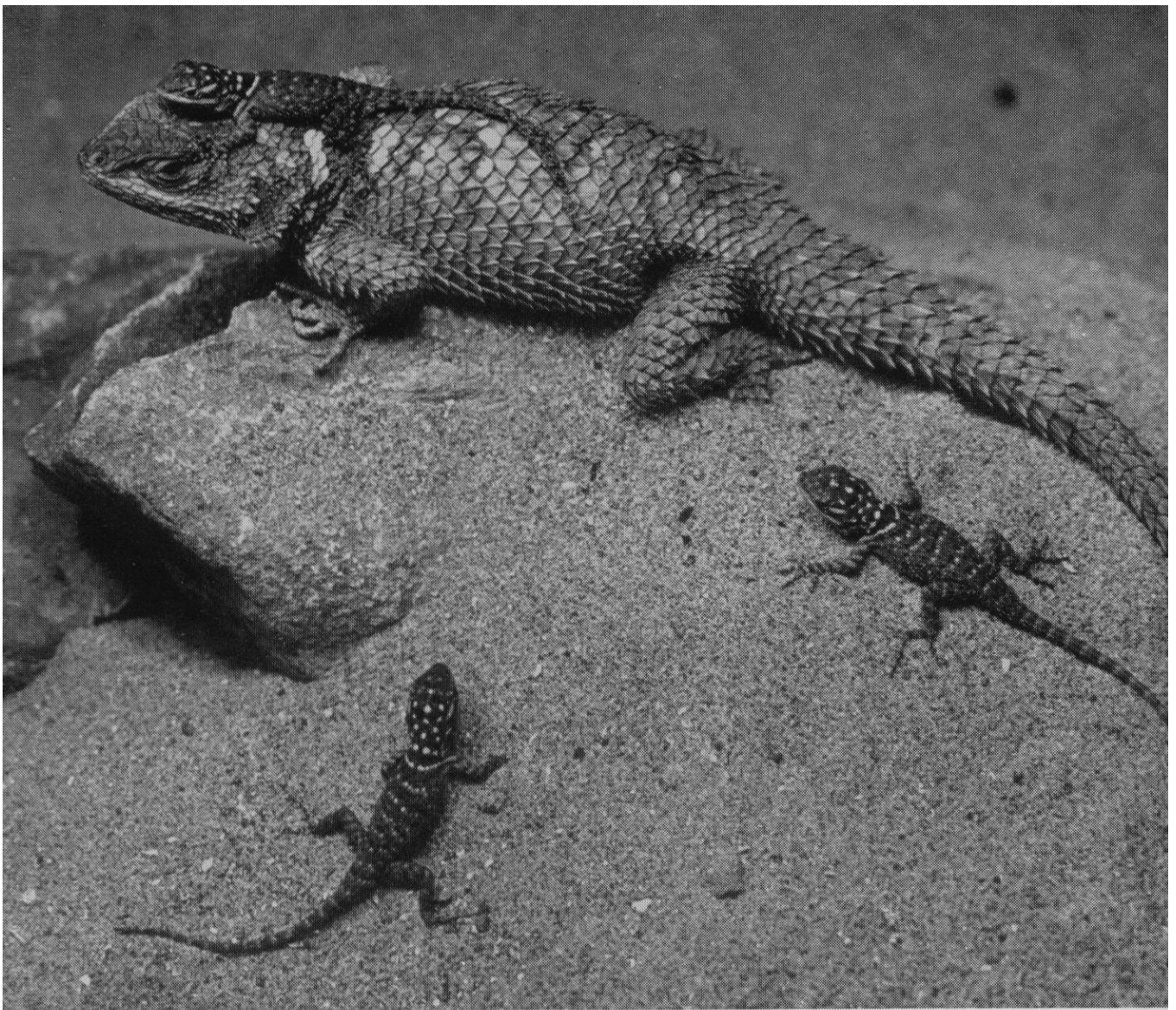
Here, again, we were due for a surprise; because when all the hiding places were opened up, not only eight or nine larvae were exposed to view but, before we had finished, twenty-nine came to light, such a number seeming to be further evidence on the side of the newt theory—surely no creature of salamander size could have produced thirty-one living youngsters, however small (two had been given to a young visitor the week before)? So, still blissful in our ignorance, we brushed lightly aside the query of another visitor who, unknown to us, had caught a glimpse of them on a tour of the garden and who, several days later, mildly enquired, 'Are you sure your newts are not salamanders?' at the same time admitting that while she had recently had

a hand in raising salamanders, she would not know a newt tadpole if she saw one, though she thought our babies were remarkably like hers. Even that did not shake our confidence because, after all, who but the initiated could tell the difference between frog and toad tadpoles at a glance?

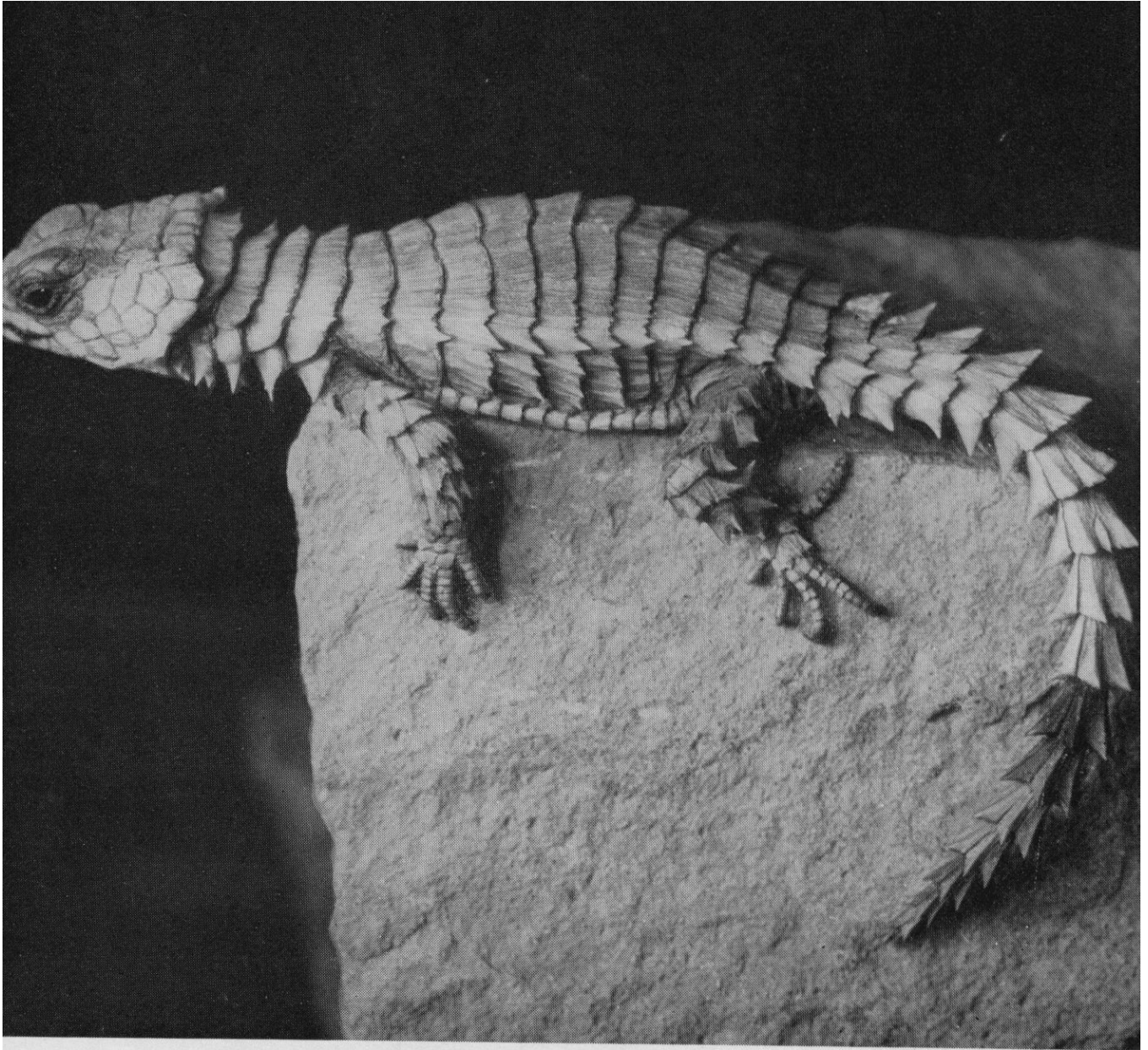
Finally, on one and the same day, we found a colour plate of fully-grown crested newt larvae looking nothing at all like our specimens (but might not ours be smooth newts?); and we also received a library copy of one of the most comprehensive books on this subject—now only obtainable second-hand. On turning hastily to the salamander pages, we read that not only does the average family comprise anything from 'a few to fifty individuals, usually about fifteen', but that 'new born salamanders have four limbs, though these are very small'.

Only one thing was needed for final proof that my first joyful cry had not been misplaced after all, and that was a visit to the newt pond, where by now some of the offspring should be large enough for comparison. There, sure enough sitting all round the edges of the pond—as did their relations in our sanctuary pool—were dozens of immature newts of all sizes, as unlike our little bags of mystery as they well could be; and so, as my diary for June 28th records, our newts were salamanders after all! (Never again shall we have this kind of fun, which is only possible to the real ignoramus.)

Quickly on the heels of this discovery came the horrible thought—what about the newts in the same pool? Would they find the babies, now about one-and-a-half inches long, tasty breakfast morsels, or would the virulent poison which deals so effectively with the enemies of the adult salamanders be present in sufficient quantity to protect them? A speedy return home, and an equally speedy refurnishing of the bath



Blue scaly lizard and family : *Sceloporus cyanogenys*



Armadillo girdled lizard : *Cordylus cataphractus*

with a loosely-built rocky island and a clump of growing starwort for vegetation, and we were ready to rescue the foundlings—a job which would in any case have to be done before they were ready to leave the water, or we should lose them all; for once an amphibian has lost its gills, it will need a very large obstacle to prevent it from leaving the water and disappearing into the most secure hiding-place available. Again a spoon, though a dessert-size this time, was the most efficient weapon to insert gently under them as they took their evening airing. In two or three days, seventeen of them were safely back in the bath.

One lovely morning during the rescue period—the same morning, incidentally, when we watched the emergence of a dragonfly, one of nature's most wonderful spectacles—as I passed the pool in the sunlight, I saw floating what I immediately took to be the corpse of a newt which had come to some sad end. When the ubiquitous spoon came into use, however, to our amusement it proved to be only the 'ghost' of a newt, a phenomenon of which we had read, and which is explained by the fact that when a newt changes its skin it peels it off completely in every detail, as if it were a glove, and leaves it floating on the water. As no trace of the remaining twelve salamanders was ever seen, it looks as though their protective poison had not, indeed, reached full strength.

Salamander and newt larvae, then, are, in their first stages, very similar in colouring and general appearance except for the limbs of the former, but afterwards it is a case of once seen, never forgotten. Where newt tadpoles are lightish brown in colour, with very conspicuous rusty gills and wide, faintly-spotted fins running from their shoulders right down their laterally-compressed tails, making them look rather like some curious winged insect,

the transparency of the baby salamanders turns gradually to a uniform deep velvety brown, which renders their gills much less distinct. But the greatest difference lies in the fins, which are confined to the thicker, more rounded tails characteristic of the fully-grown salamander. The close relationship of the two is, however, clearly visible throughout the whole of their terrestrial lives, every movement and pose of a salamander being but an exaggerated version of the corresponding one of a newt, as can be easily observed if they are kept together, as ours are.

Soon after their return to the bath, the first traces of yellow pigment appeared, where their legs join their bodies and on their 'eyebrows'. After this there is no appreciable alteration for quite some time, although the tail fin is actually diminishing. By this time they are about two inches long, with voracious appetites for anything moving—bloodworms, *Daphnia*, white worms and minute earthworms are all snapped up at the first wriggle. It is amusing to see the flash of their bluish-pink tummies as they turn somersaults in their frequent tugs of war over succulent things.

Now everything appeared to be plain sailing—but they had still another shock in store for us! We had been warned that when the time comes for them to begin their life on land, they seem to change quite suddenly . . . Close examination at feeding time failed to disclose any diminution of gills, though their brown velvet coats were acquiring a dappled patterning.

Being rather late home after an unusually strenuous day in August, the usual feeding ritual was everywhere rather curtailed, and a batch of *Daphnia* tipped into an apparently empty bath. One last look round with the flashlight, after Meg had had her usual nightly drink from the salamander bath, and an unmistakable 'junior', scrambling nimbly up



the side of the bath elicited a frantic yell for help, as it obviously needed two hands to deal with that situation. After this enterprising animal was safely ensconced in a teacup, we decided that the next move was to take the bath indoors where we could have adequate light, when—lo!—another junior was discovered perched on the handle of the bath, and we began to have visions of a mass exodus at any moment.

By chance, Frank had fetched a new accumulator jar that morning, and I had just returned from a moss-collecting expedition, so that we were able to fix up a creditable imitation of a woodland glade in a very short while, giving the new arrivals no time to ponder the strange surroundings in which they found themselves. After these alarms nothing more happened that night, but the bath was securely shrouded with a net curtain, secured by an expanding curtain rod, before we went to bed.

So for the next eight weeks visitors were greeted in the hall by the salamander nursery standing on the table, as being the most convenient spot to await further developments. On August 21st one emerged, on 22nd two more, on 26th one—and then a long wait for another until September 1st. By this time we were beginning to recognise the process: the most advanced ones spend most of their time on the top of the weed and, before they get the urge to climb (always up the side of the bath, scorning the wooden escape route we thoughtfully provided, and always in the evening), apart from the disappearance of their gills, the future pattern of their colouring becomes quite distinct, so that there is never again any need to be taken by complete surprise.

It is interesting that there should be such a long period between the first emergence and the last, but no doubt it is an illustration of the old law governing the survival of

## LIVING WITH REPTILES

the fittest, in that the strong ones were no doubt the ones always first in the field at meal-times and so developed most quickly. Number nine narrowly escaped extinction under Frank's feet when it was discovered marching in a very business-like fashion across the hall floor (having obviously fallen off the table) long before dusk on September 5th, and number ten followed later the same evening. Number eleven waited until the 7th, number twelve until the 19th and number thirteen until 22nd, after which nothing happened until October 1st; then came number fifteen on the 12th, number sixteen on the 16th, and number seventeen emerged on October 21st—so the whole process, under apparently identical conditions, took just over two months.

It would seem that newts and salamanders are infinitely easier to rear than frogs and toads, probably because they do not undergo such radical changes in their make-up; nor does their menu appear to alter appreciably when they take to land as, even before their skins were as dry as they ever will be, each of them was ready to demolish a whiteworm, and before many days had passed each was capable of disposing—in sections—of an inch-long earthworm. Intelligence is said to be lower in these tailed batrachians than in any others. Is it, then, intelligence (better expressed, perhaps, as mental awareness) or merely instinct, that makes a salamander not yet out of the water follow a finger tip across the top of the weed, nibbling at it all the way? Whichever it is, it is hard to realise that recognition of a human as a universal provider can be developed so early in life.

It is quite clear, too, that these small ones have excellent eyesight. It was our usual practice to tip the contents of the worm storage jar on to a newspaper while serving meals, so that the appropriate size could be more easily selected. One

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evening we suddenly realised that two of the salamanders were making frantic efforts to get out of their tank, having evidently been attracted by the heaving pile of earth, so they were lifted out and set down on the table at least eighteen inches from the pile, upon which they converged in a very few seconds. Each selected a worm of at least three times the size of anything we should ever have offered—in fact, longer than their own bodies—and proceeded to swallow it with no more ado than the head shakings and body wriggings which normally take place. After this, they were content to return to their own quarters, but the incident has helped to confirm our idea that one need not be over anxious on the score of giving too much food, as these babies are equally quick to turn up their noses if they are not interested. The accidental dropping of a gentle into the tank one day led to the addition of these to the diet occasionally, as they made no bones about grabbing this rather formidable mouthful at only four months of age.

When first we realised that there were likely to be so many survivors, our minds were filled with confused visions of lining them up in rows to receive their daily ration; but actually the difficulty was over-exaggerated—as most of one's fears usually are. Owing to their habit of clustering in one favourite spot to the exclusion of all others, it is unwise to keep many salamanders together, as they are apt to develop a fatal fungoid disease if they do this; we therefore resolved the greater part of the difficulty by putting only six babies in each small tank, so that it was reasonably easy to see that fair shares were the rule—because, although they can skip very fast when they like, they do not usually move at anything but a very dignified pace.

So far the salamander story had been one of consistent good luck as opposed to the terrapin tale—would this good

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luck hold so that we should get through the winter without casualties? We were as proud of our brood as a couple of hens with their chicks, and were, of course, keeping them indoors. After five years their toughness is proven and we are just as proud of the eleven which remain. They are only just catching up to their parents in size, but have faced all but that first winter out of doors without a loss to date. As the three adults are still living with the terrapins, we have been unable to discover whether later courtship has led to a similar birth as, of course, progeny would stand no chance of survival in the community pool, terrapins being very partial to tadpoles of all kinds. In Toad Hall (a later-built sanctuary), however, our home-bred salamanders have, in their seventh spring, provided us with a third generation. Incidentally, adult salamanders—or in fact any batrachians which have been kept feeding indoors all the winter and not allowed to hibernate—are unlikely to breed the following year.

## Chapter 13

### THE TOADS

WHEN Spotty Toad and Plain Toad arrived with the Spanish terrapins, they had obviously not long emerged from hibernation, and fully justified the description 'skin and bone'. It was surprising how soon a few good meals altered their contours, not altogether to the improvement of their looks, for Spotty Toad, the larger by quite a bit and therefore probably a female (she measures three-and-a-half inches in length by two-and-a-half inches at her fattest) soon began to resemble a rather portly lady who has decided to dispense with her stays.

Before they had been in the sanctuary many hours, they had obviously learnt the geography very thoroughly; for not only had they set up housekeeping at opposite ends, but had explored the bathing facilities and, more important still, located the dining-table. For some months to come Spotty Toad could be found regularly as soon as the sun went down, patiently awaiting the serving of supper—worms, slugs, mealworms or gentles, all equally welcome. We began to wonder if she was clearing every crumb before Plain Toad arrived, but a few 'left overs' in the mornings dispelled this suspicion.

They have very decided views about bath times, as Spotty believes in business—i.e. food first, and the pleasure of the bath afterwards—while Plain reverses the procedure. It is said that toads usually only soak before changing their skins, but these two—and in fact all those acquired since—may be seen nearly every night obviously thoroughly

enjoying themselves, squatting or standing in the water up to their necks, often for three or four hours at a time, a practice they continue until well into October.

Plain Toad is of a rather more retiring nature, though ready to accept mealworms from our hands, and was so called because of his regulation male all-over olive green attire, which is in strong contrast to the uniform rusty brown of Spotty, her cream undercarriage handsomely decorated with chocolate-coloured blotches—a very striking ensemble! These two are, of course, the British native *Bufo vulgaris*. Spotty, for all her appearance of matronly placidity, is far from demonstrative, and although she will allow herself to be stroked, stolidly refuses all offers of food, however tempting, unless it is put in the tin.

From about the middle of August, toads change their habits entirely, and no longer await their suppers so eagerly. It seems possible that if they have had plenty of food in the earlier months, there comes a sort of climax, after which their appetites begin to wane with the year and the smaller amount of food which disappears supports this conclusion. In thundery weather, or after a wet night, all the toads are very active, but during hot or dry weather, they hardly stray from their respective shelters.

About midsummer we had a few toadlets given to us, and after watching one of these tiny scraps climb solemnly up eleven inches of vertical glass and sit triumphantly on the edge of the tank, we put them into the sanctuary to fend for themselves and were very thrilled to see two of them, then about three-quarters-of-an-inch long, sharing the lookout with the rest of their kin in October. By the way, be sure to put spawn into wide and rather shallow containers, so that there is ample oxygen, and with plenty of weed as cover for the tadpoles when they hatch. If possible, keep

## THE TOADS

the tank in the open air but out of direct sunlight. Also, take particular care that toad spawn does not touch the sides or bottom of the tank, but is suspended on the weed, otherwise it will probably moulder.

One of the easiest foods to get for these adorable scraps when they first leave the water, are greenfly, though these are hard to come by in wet weather. Failing this, the best thing to do is to make a strong net of tough material—e.g. a piece of old sheet—and sweep among fairly long grass or nettles, or a non-prickly hedgerow. Innumerable tiny insects lurk in this kind of spot, and if the catch is transferred to a screw-topped bottle they can be kept for several days—a piece of perforated zinc, and a piece of muslin instead of glass, on a Kilner preserving jar converts the latter into a splendid larder. In case anyone is as stupid as I was over this operation at first, the method of transfer is to shake the flies to the bottom of the net and grip it firmly about half way between them and the handle. Put the mouth of the net over the neck of the jar and push the pouch holding the catch gently down into the jar—thus turning the net inside out. A sharp tap on the jar and a little sleight of hand with the lid, and the job is done. After a little practice, very few things are lost.

Having at last re-opened friendly relations with the toad family, we were now obsessed with the desire to add to the collection a pair of the only other toad species native in Britain—and that, only on sandy soils and not to be obtained in our parts—the natterjack, *Bufo calamita*, named after a reed, *calamus*, and not from association with any kind of disaster! Here we came up against a real *Through the Looking-Glass* situation, toads yesterday, toads tomorrow but never toads today—this being attributed to bad weather on the Continent, whence these specimens mostly come.

Actually at the end of June we thought we had obtained a pair, but later the vendor wrote to say that, packing them at dusk, he had sent in error a pair of Italian Green Toads, *Bufo viridis*. This mistake had not, of course, been detected by novices such as ourselves from written descriptions, as some of these, and our pair in particular, have a yellow stripe down their backs almost identical with the one which is a chief characteristic of the natterjacks. They are pretty creatures, with light skins thickly overlaid with olive green and reddish blotches and spots, while their dark greyish-green eyes are almost more lustrous and beautiful than the famous golden orbs of the Common Toad.

It is stated in some of the books that Green Toads will starve rather than eat an earthworm, and although possibly they would not go to quite these lengths, they are extremely partial to mealworms. It is also stated that they are not easily tamed and remain rather unfriendly, but in our case, at any rate, this is not so, as neither of them make any bones about stepping on to our hands for mealworms. Both appreciate their bath and may be seen regularly in company with Spotty.

Mr. and Mrs. Green Toad were quick in learning where food was to be had for the taking, and it soon became necessary to eject one or other of the four would-be consumers from the dish before it could be replenished—which was not possible until after sunset, as parent thrushes found mealworms and gentles a very great help in providing for a hungry brood. Finally a second dish was provided at the other end of the sanctuary, which attention was very much appreciated and immediately accepted by the Greens, and on still summer nights a familiar sound became the duet of soft ‘pops’ which indicate the snapping shut of a toad’s lips on a tasty morsel.



## THE TOADS

When the postman handed me a small parcel one morning in June, I immediately thought one of my friends had taken the not unusual course of sending me a new plant. The sight of the tin box within only deepened my suspicions, and I did not notice the air holes—so imagine our amused surprise when the removal of the lid revealed three pairs of beady little eyes peering out of a thick lump of grass! True, we *had* ordered fire-bellied toads, but never in our wildest dreams had it occurred to us that they would arrive by post; though, of course, their weight is negligible, as when fully grown they are only about two inches long.

Obviously they were as yet much too small to be put into the reptiliary, not because they would not flourish there, but because we should rarely see them, much less get to know them. A hasty search was instituted for a suitable container, as our ever-increasing collection of accumulator jars could not provide the right size. (By the way, in buying these jars insist on the square kind, not the deep and narrow ones which are impractical in many ways.) An old zinc meat safe, rescued from the dustbin 'in case it might be useful', proved to be the very thing, except that part of their interest was lost as we did not get the full advantage of the display of 'fire-belly' unless we popped them into a tumbler to show off . . . . A patch of grass, some plain earth, a water vessel about four inches deep with a sloping tile laid at one side to combine easy exit with a hiding place, and a strip of bark leaning against the wall, were the simple furnishings.

The fire-bellies spent most of their daylight hours in the water hidden from view, their presence only betrayed by the movement of the water as they withdrew from their points of vantage when one passed—though sometimes their curiosity did urge them to take the opposite course and

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pop out for investigation. Nothing will induce them to indulge in their trick of exposing their bellies—mottled in grey, black and tangerine, to frighten off their enemies—though one catches glimpses in their not infrequent tussles over worms. They can consume the most incredible quantity of food in relation to their size, a quite large, say two-inch worm being seized by the middle and disposed of in one gulp, and they think nothing of three or four meal-worms for one meal. On the other hand, they know when they have had enough, and waste no time in turning their backs.

These rather gnome-like little people have their goggling eyes with the triangular pupils arranged in a very similar position to those of the clawed toads. Their coats can only be described as mud-coloured with a few olive green spots and splashes here and there. They are, however, extremely agile, nearly as nimble as frogs in their movements, and champion climbers. The first three arrivals were put into a deep enamel saucepan as a temporary expedient, and left covered with perforated zinc and glass, not weighted down—next morning there were only two! However, a week or so later we acquired another couple to console us, which made up a very jolly little family, only one of which can be easily identified by its markings, the placing of which has suggested 'Mr. Sadler'.

We have never heard their mating call, which is said to resemble the plaintive bleat of a lamb, but during the summer we have often been amused by one or more voices uttering a sound which has been likened to the soft repetition, in a high treble, of that rather unfriendly word 'twerp' or, alternatively, to the protesting squeak of a slowly-revolving wheel. Of course, this may be our interpretation of the lamb-like note which we have failed to detect. Quite often

## THE TOADS

if one of the toads is displeased with another it hurls itself on to the offender's back, grips it firmly under the arms and obviously administers a good hard squeeze, the while the victim emits a crescendo series of 'twerps', but the feud is soon forgotten and all is peace again.

It is rather hard to understand just why the fire-bellies received their Latin surname—*Bombina*—from which come their less frequently used English names Bombinator or Bombardier, all of which are derived from the modern Latin, *bombino*, meaning to buzz, from which also Bumble (or, more properly, Humble) bees take their name, *Bombus*. So far we have been unable to trace any explanation, or any suggestion of their making any sort of buzzing or humming sound, or of their participation in any kind of bombardment, so it seems probable that it may have reference to their colour scheme, though possibly less for its military association than for an obscure comparison with the appearance of a bumble-bee.

These most amusing creatures are certainly easy to feed (mealworms, which they adore, earthworms and any odd flies are adequate), require only a small space, live several years and may even breed, and would seem to be almost fool-proof as the beginner's pet. An ordinary wooden box, with a piece of zinc laid in the bottom to prevent rot, and strips of glass mitred at the corners and fitting into grooved slots or moulding affixed to the inside of the top of the box—to provide the all important un-climbable barrier, while leaving the centre top open for light and air and the entrance of some of their native food—makes a simple, inexpensive, yet perfectly adequate vivarium. So no-one need be discouraged from keeping them who is not fortunate enough to have our more elaborate type of outdoor accommodation, into which ours were finally put in October, so that they

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should have the benefit of the hibernating chamber. If they are to spend the winter indoors, the addition of a double handful of loose moss in October will provide a cosy bed into which they can creep for a winter's sleep should they feel so disposed.

## Chapter 14

### THE GREEN LIZARDS—PART III

ALL the while the comings and goings of the last chapter were taking place, we had been assiduously cultivating more intimate relations with the lizards in the sanctuary, the main avenue of approach being, of course, through their stomachs. For a while we continued to make use of the feeding-tin, until our frequent appearances began to be accepted with more equanimity and not so many darts for shelter at every movement, and then we started to throw the food as nearly as possible in front of each individual, which was very quickly approved as a most sensible innovation. After each had a share, a few extras were put into the communal tin in case second helpings were needed. Very, very gradually we leaned nearer and nearer, talking quietly to them all the time, until we were taken more or less for granted, and most of them remained unmoved at our approach.

The next step was to pick up an earthworm with our longest pair of forceps and offer it to Pete, the most imper-turbable of them all and, much to our delight, after a little preliminary padding with his front feet he took it readily. The next attempt provided a great surprise—a tempting morsel was being dangled in front of Garry when Mrs. Toby, always the nervous restless type, darting about rather like a mechanical toy, rushed in and grabbed it before he had made up his mind—a triumph indeed. Now to dispense with the forceps and hold the wriggling worm in our fingers not always an easy job! But to our great satisfaction this, too, was

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accepted as a quite natural proceeding, so that in a very short time all the green lizards would take food freely from fingers or forceps.

At first their approach was invariably preceded by this curious movement or 'patting' with the front feet, which seems to be used as a symbol of their intention to stand their ground in face of possible adverse circumstances. Two males will use it as a preliminary to a skirmish, a female uses it on the approach of a male; in fact both sexes do it indiscriminately when occasion demands, almost as if using it as a kind of test of the current situation. When two males approach each other, it is amusing to watch the stiffening of their necks and bodies in a defensive position, which is vaguely suggestive of the pose of a bowman.

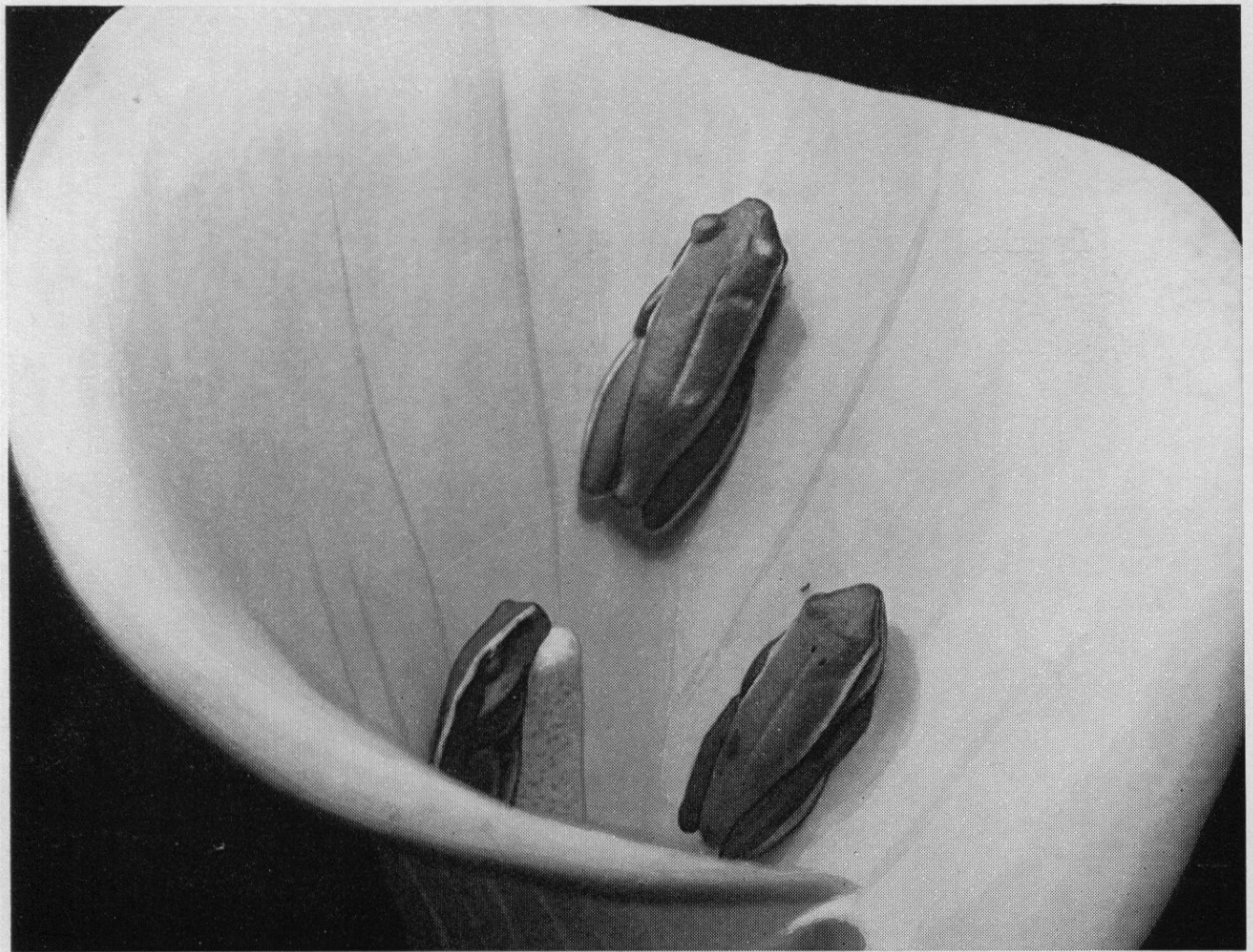
That they suffer from the very human weakness of mouth-watering is fairly certain, for the sight of a particularly juicy-looking worm provokes a very active spell of anticipatory licking of the lips, a quite different action from the tasting and smelling with the tongue which is peculiar to snakes and most lizards, and which is rendered possible by means of an extra organ situated in the roof of the mouth and known as Jacobsen's organ. It is hard to say which sense is used in the detection of food—for instance, of a straying mealworm which is out of their range of vision: it appears to be acute hearing, but there may also be a sensitivity to minute ground vibration.

The general procedure with any item of food, but particularly with earth or mealworms, is to chew it thoroughly from end to end through their mouths, and then swallow it whole, head first, with much body wriggling to accommodate the larger specimens, after which there is a meticulous wiping of the mouth—especially after a meal of slugs—on the nearest plant mat. A hungry green lizard



PLATE 16

Arum lily frogs : *Hyperolius horstocki*





Pouched frogs : *Gastrotheca marsupiata* (female showing egg sac on the left)



will consume as many as a dozen mealworms at one sitting, and the smaller ones can quickly dispose of six or more.

It is an attractive sight to see them take the equivalent of morning tea in dainty sips from glittering dew or rain drops. Contrary to the general idea, they are thirsty little creatures, and the traffic to and from the pool for refreshment is surprisingly heavy.

By the middle of August the green lizards were coming freely on to our hands for food, sometimes two together but more often separately, as the males respect each other more or less in order of precedence, and do not approach when another is in possession. Finally they would climb high enough to lick my bracelet and, if the weather was at all cool, they would curl round and settle down for a little snooze in the comforting warmth, quite prepared to stay until they were forcibly ejected. When they began to climb my arm and attempt to sit on my shoulder, we began to wonder if they had not designs on me as a kind of escape route—an unkind suspicion which was later fully justified!

'Make haste slowly' is a good motto to follow in all one's dealings with lizards and any other of these small people. Do not try to go to them. Respect their innate dignity and let them come to you, which they will do as soon as you have secured their confidence; or at any rate they will treat your presence with a sangfroid which is bred of the confidence. When you handle them, hold them with the very lightest grip and they will make very little attempt to get away. Squeeze them and they will immediately struggle to escape, and probably administer quite a pinch in the bargain, though this will not draw blood and is not to be feared.

As a final test of their confidence, I climbed into the

sanctuary with the mealworm tin for the customary mid-morning feeding routine, but even this did not cause any disturbance. Mrs. Toby came and sat on my feet while Garry investigated the tin and Pete made his usual leisurely meal. To add to the amusement, a robin who had discovered the advent of the mealworms, came and sat on my shoulder, and then stole from my hand while Pete was feeding from it. From this time onwards this robin and future generations of his progeny, quite literally flit with saucy audacity through these pages, most of which have been written outdoors. As soon as he heard our step he appeared as if by some conjuring trick and, if we leaned over the reptiliary wall, would sit fearlessly on any available portion of us, awaiting his chance to dive into the mealworm tin. He would take mealworms freely from our fingers and open hands, or from my lap, and robbed the feeding-dishes shamelessly under our very noses, and finally became so tame that if I was writing, and paid no attention to him, he would settle on my book within inches of my moving hand and wait until he got his titbit.

We had frequently remarked that at one moment there were lizards plastered on the walls in all directions to catch every last gleam of the sun before bedtime, and the next moment there was not one to be seen anywhere—but that we never saw them go! However, by the middle of August we had so far gained their confidence that on three occasions Mrs. Toby allowed us to see her choose her sleeping quarters, which were evidently selected afresh quite constantly. After examining the already-mentioned pink plant, which appears to be the choice *par excellence* of many of the inhabitants of the sanctuary (after it had flowered, I thought it should be trimmed back; but when I arrived with the shears one evening and ran an exploring hand under it before starting

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operations, four pairs of startled eyes were turned upon me, and I beat a hasty retreat, leaving the plant to its untidy fate—which experience leads me to add *never* tread on a prostrate plant of any kind in your reptiliary!), she passed over a creeping veronica, and finally settled on a very narrow ledge under a mat of thyme where it did not seem there could possibly be room, and it was amusing to see her creep carefully in and finally dispose of her tail. On the next occasion a mossy phlox was her choice, and the third time she elected to share the half-flower-pot also beloved of toads and salamanders.

## Chapter 15

### THE CLOSING SCENE—END OF THE FIRST YEAR

FOR a while now life in the reptiliary followed the normal pattern, until at the beginning of September thundery conditions seemed to augment the restlessness and desire for one last fling which appears to animate all these creatures as the hibernation season approaches. All the green lizards began to test every avenue of escape, with the exception of placid Pete, whose nervous system is evidently the most evenly balanced of all; so any plant which could by any stretch of the imagination help them was ruthlessly sheared to ground level. Mrs. Toby, ever restless and now darting like quicksilver from point to point, firmly made up her mind to repeat last year's escapade, and at last, after many abortive attempts, an ominous stillness in the reptiliary made it clear that she *had* joined the company of the 'A.W.L.'

Esmeralda's complete defection had indeed been a blow to our rather hard won faith in their homing instinct, though obviously no alterations to the walls of the sanctuary could be attempted until most of the occupants were safely asleep; so it was a great relief to find, after a few days, that Mrs. Toby had reappeared as unobtrusively as she had left, evidently having decided that, after all, the outside world could not compete with the amenities of the sanctuary. Time has proved that there is no need to worry about these lizards when they escape out of doors—in this part of England, at any rate—as they can always find adequate shelter, food and water. This is one of the advantages of reptiles as pets over most other kinds of animal, in that, except in a few

cases, all the normal items of their menu are readily available to them without human agency. This is not the case with, for example, foreign birds, which cannot fend for themselves where their particular food does not occur.

It is true that in spite of many specimens having been liberated in Britain, the colonies have gradually died out; but this is not because the lizards themselves cannot survive, but because our normal summer temperatures are not high enough to hatch their eggs to provide the future generations. It is quite obvious that all the lizards and other creatures mentioned in this book, whether tropical or otherwise, become less sensitive to the vagaries of our famous British weather with each succeeding year of their lives.

Another factor which probably affects their survival, is their unfortunate habit of mistaking a mild spell after a period of severe weather for the beginning of spring, and their consequent premature emergence from hibernation. Quite frequently when the sun goes down they find themselves too cold and weak to return to their lairs, and consequently come to an untimely end. We have learned to keep a sharp eye on the reptiliary on such occasions, and have saved several lives in consequence. We usually bring them indoors until spring is sufficiently well established for it to be safe to turn them out again. Incidentally, the indication of a green lizard's probably having spent a British winter outdoors is a brown wartlike blemish which occurs on the skin, but which appears to cause them no harm or discomfort.

Jackdaws and cats are the worst of their natural enemies, but they seldom venture far from adequate cover. Passing traffic is also a threat, as we found to our cost when one of our finest lizards was recently run over. (Others in the past have caused considerable surprise to drivers!) Opposite

our house is a high sloping bank—a real sun trap—and at the top some brick steps, which make an ideal basking place—this at a distance of some hundred yards from the reptiliary and forty-five from the garden wall, and only approachable for most of the season through very thick grass. During the last few weeks we have been able to establish the fact that four green lizards in turn have visited this rendezvous, and been back in their rightful milieu the next day. How do they find their way to this delectable spot in the first place, and how do they pass on the information to the rest of the clan?

Although we rather regret this extension of territory, because of the traffic hazard, we have actually come to accept their exits and entrances with reasonable equanimity, as every spring sees a reassembly of the clan. (You will note that the reptiliary is still not escape-proof, especially when very hot weather brings an excess of energy to the lizards). Those who sleep in the sanctuary usually re-appear looking rather thin, and often rather muddy, but soon regain their normal immaculate appearance. At the back of the old tennis court in the further garden is another steep and very sheltered bank, and a prowl along here on a sunny day in early spring often reveals one of the absentees, and sometimes we are allowed to pick it up and return it to the sanctuary. If they do not return of their own accord as soon as they awaken, they are almost certain to come a-wooing before very long, and it rather fun to meet one drinking at the pool or sun-bathing on a suitable shrub—preferably something small-leaved and twiggy such as the pineapple-scented *Philadelphus*.

It is interesting to find that the attitude of these creatures towards their human friends when they awaken, generally about the end of March, is identical with that of the previous

## THE CLOSING SCENE—END OF THE FIRST YEAR

summer. As the season draws on, so their always unpredictable affection—if one can call it that—becomes rather more uncertain. Their waning interest in food at that time has, of course, a great influence on this situation. Their tameness seems at all times to be influenced by weather conditions—storm and wind make them much less approachable—as the twisting of the air currents makes it difficult to determine whence danger approaches.

As we looked back at the end of the first year of our association with reptiles as pets, we were amazed at what we had learned. At first one feels as though one will never be able to cope with all the problems of providing a 'home from home' for each of these individuals, but gradually the pieces of the puzzle fall into place, and one glimpses the picture as a whole, and finds that the hazards approached in fear and trembling have become matters of second nature.

Towards the end of September, night temperatures began to approach forty degrees, and it was in any case, owing to other occupations, a scramble to get the feeding done before darkness overtook us, so the tank population was taken indoors to the corner of the sitting-room which had been assigned to them for winter quarters, and the tortoises were brought in at night. It was at this time that I threatened to wear my favourite pair of forceps as a necklace, so that they were always available where necessary to proffer a dainty!

As a matter of curiosity, we took to counting our steps from the house to the sanctuary at the other end of the lawn, with a net result of forty-four. As long legs are the rule in our family, these may be approximated as so many yards, and a little elementary arithmetic proves that only twenty of these journeys are necessary to have provided a mile of walking—beyond this rather astonishing sum we have not

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pursued our calculations! Though as the first trip to see what is going on usually takes place around eight a.m., and the final one about eleven p.m., it seems we are not likely to lack pedestrian exercise . . .

Ever since we had packed the hibernating chamber in late October, and found it rather damp, we had been fussing about the comfort of the inhabitants. At last we wrote to our mentor in these matters, who immediately put us up to the very latest idea on the subject, the cork mentioned earlier. So at the beginning of December we tackled the job again, and were interested to find that while nearly all the toads were making full use of the amenities, the lizards were conspicuous by their absence—though whether this was on account of the damp, one does not know.

When we had finished our job, we lifted all the bark and tile shelters in turn, but failed to disclose any livestock other than the three early-to-bed newts, looking most unprepossessing in the almost shrivelled condition in which they spend the winter. It certainly seemed as if the lizards had taken full advantage of the interstices deliberately left between the bricks of the so-called rock garden at the north end of the bungalow for just such a purpose. Their often very bedraggled appearance before they have dried off in the Spring sun in succeeding years lends very considerable support to this conclusion.

One incident which occurred during the operation gave us considerable pleasure. One of the fire bellies was sufficiently huffy at being disturbed to show what he could do in the way of shock tactics, and we were irresistibly reminded of physical exercises as he tucked his little hands behind his head and his feet behind his back in the 'knees bend' position, a pose which he held for some time before he decided that we were impervious even to such impressive



defensive measures, when he hopped quietly away. As I have said, once these little creatures have settled down in captivity, it is almost impossible to provoke any of them to display their specialised defensive mechanisms.

Meg missed her self-imposed tasks of guarding the tortoises, and of creeping behind me round the farther garden, to see if we could surprise truant lizards into betraying their whereabouts. This latter is a trick she picked up as if by thought-reading on the day we discovered Esmeralda's errantry. As soon as a warning hand has been raised, she adopts this approach—in direct contrast to her usual headlong dash when the gate is opened, to see if any obliging trespassing cat will make a strategic withdrawal, a game perfectly understood by all parties concerned.

News of the addition of mealworms to the other attractions of the establishment had evidently been passed round, and we became aware that a constant watch was being kept upon all our doings from the shelter of the under branches of three dome-shaped box trees which stand opposite the garden door and kitchen window, by another bright-eyed bird, who was christened Back-Door Robin to distinguish him from Reptiliary Robin. At first he was very shy, but a patient and determined onslaught on his defences with the mealworms, which to robins are irresistible, has turned him into a red-breasted bandit. If we were late in getting up, he was on the windowsill, testing the strength of his hypnotic gaze; as soon as the kitchen door was open he was sitting on the back of a chair; he flew beside us when we took a trip round the garden, so that we were forced to carry a mobile canteen of assorted dainties wherever we went . . .

His territory and that of Reptiliary Robin adjoined, being separated by a small path in the centre of the flower

border, the far boundary of Back Door being a small maple beyond which he dared not alight. Finally an armed truce was arranged between them, and we had robins feeding from both hands at once—particularly in the snowy weather. Would they presently arrive with a brood of potential mealworm enthusiasts? One of the innumerable sparrows who throng our eaves and deprive us of every primrose bud that ventures to appear, adopted the same strategy, possibly as a result of his observations, for he took to following the robin wherever he went; but any attempt to come indoors with him met with fierce resistance.

By the end of October our total strength had expanded to seventy (this number being, of course, considerably higher than it would have been had the salamander adventure not taken place). Thirty-four of these would be spending the winter indoors, five lizards and one fire belly were still 'A.W.L.', evidently making their own arrangements about hibernation, leaving the remaining thirty to take advantage of what was provided. It is always a surprise how so many manage to make themselves so inconspicuous in such a comparatively small area, though actually there is a space-per-head of over one square foot. It is worth noting, though, that some of the 'heads' are so small that, for example, four fire-bellies and several midget toadlets could be parked on one square foot with lots of room to spare.

From the very first the Lookout was peopled at all times of the day and certainly far into the night, and it seems almost as though all the members of the community share the human aspiration of reaching the topmost peak available, though in this case it is likely that the driving force is not the urge for achievement but the view which it affords of a wider sphere within and beyond the walls. The next season the roof furnishings were rearranged so that an even better

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observation point was provided, and this has the added advantage that our approach is not so likely to take the occupants of the sanctuary by surprise. There is always a row of enquiring lizard heads peeping over the top, or Ulysses astride the log like the carven prow of a Viking's ship; or, with the moonlight casting their shadows on the wall like an Egyptian frieze, the three salamanders, heads held high, on parade in single file.

As during the summer months the night shift, comprising the toads, salamanders and newts, took over about half an hour after the day shift of lizards had retired, so with the shortening of the autumn days and the advent of the cooler nights, the same set became more and more in evidence, while the lizards began to retire quietly from view except for a short spell round midday. Up to a point the terrapins can be included with the devotees of daylight, but after a return to the pool for supper at about sunset, the black ones frequently emerge again to sleep on land—a practice they continue while the nights remain reasonably mild, and long after they have lost all interest in meals.

We had constantly been impressed by the prevailing harmony within the sanctuary—true we had no potential 'lion' nor, so far, any 'serpent in the Eden'—where animals of widely differing characteristics treat each other with the utmost unconcern and sometimes disrespect. It is at this season, however, that this point is brought even more clearly home to us, when a miscellaneous assortment of species piles up to enjoy every possible scrap of sunshine, and we often yearn for a camera of our own powerful enough to record some of these most entertaining pictures.

Ulysses graciously allows his rather large expanse of shell to be used as a portable sundeck, not only by one or more at a time of his relatives, but it is not unusual to find a

green lizard draped around his neck like a feather boa, or Grassy and Brownie stretched out side by side on the convenient eminence. (We have often been surprised when picking up Charles and Jane at the warmth radiating from their shells, even after the sun's rays have left them.) The smaller lizards think nothing of climbing on to the backs of the larger ones and lying full length, and sometimes there is such a tangle of terrapin and lizard heads and tails that it is hard to discern their identity.

During the summer, a mullein seedling had appeared on the front slope of the hibernating chamber and been allowed to remain, as its three- or four-foot spires of brilliant yellow flowers could not be turned to any fell purpose, and it was Mrs. Toby who discovered its potentialities as a suntrap and staked her claim to a perch high up among its rather wide leaves, an example followed by Mr. Green after darkness had fallen.

Nearly every evening visit left us wondering whether this spirit of camaraderie reigns to the same extent in the wild, where possibly the respective paths of these nocturnal pedestrians do not converge so closely, even though their European habitats do coincide to a certain extent. It would seem that these mostly self-sufficient creatures find comfort, if not warmth, from the feel of living—though cold-blooded—flesh beneath their feet, and that it is not merely the expression of their intention to gain the highest available vantage point. In any case it is too constant an occurrence to be accidental.

Practically every available combination of the occupants of the reptiliary has been observed, but there can be absolutely no doubt that the fire bellies are the chief comedians of this party, and their rather quizzical expression makes their antics even more ludicrous. There seems to be nothing

#### THE CLOSING SCENE—END OF THE FIRST YEAR

they love better than a 'piggy back', for which their favourite victim is a salamander, as offering the most convenient perch to which to cling through thick and thin, and the only effective method the latter have of dislodging their riders is to take a vertical step down from one log to another, which sometimes, but not by any means always, does the trick. The display of gymnastics necessary to retain their seat on the slippery steed is most laughable. With equal nonchalance they sit firmly on Spotty Toad's head or Mrs. Green's back, and neither party has the least objection to our flashlight being turned on them.

A crested newt was discovered one night head-to-tail on Mrs. Green's back with his tail curled round her neck; and on another occasion, placidly resting his chin on a fire belly with another perched on his back, while Mrs. Green found Spotty Toad's more ample proportions a convenient parking place on occasion. The only ones who do not seem to indulge in these tricks to any great extent are the salamanders themselves, though should there be any obstructions in the course of their stately progress, they are apt to walk over them or push them aside bulldozer fashion; and should two salamanders meet face to face, there is sometimes a little sparring match with their front feet until one or other gives way.

Despite the shortening days there was no lack of life among the indoor colony, which continued to thrive and furnish plenty of interest. The baby salamanders increased steadily in girth rather than length, but were now content with about three meals a week. The clawed toads, too, expanded steadily, while the newts learned to recognise their chief benefactor.

And so we came to the end of our first year's trial-with-error.

## Chapter 16

### THE SECOND SUMMER

QUITE a lot of work was waiting to be done before the increasing warmth of the spring sun tempted the sleepers to show themselves once more. First and foremost, another attempt must be made to make an impregnable lizard stronghold. We had followed the example of other builders in having the wall of the northern half of the enclosure built one course higher than the rest—presumably as an extra protection against the more unpleasant winds, or maybe just to break the stiffness of the line. We were to find out that in this, too, we had been unwise, as it means there is a vertical drop of about seven to eight inches between the two levels. Although big lizards cannot turn upside down to negotiate the overhang, they most certainly can cling to the side wall with their long claws and nip neatly round this vertical section—a solution we never suspected until we caught the culprit in the act some two seasons later.

Anyway, the top course of bricks was removed all round. An extra course was added to the northern section to allow greater height above the hibernating chamber, and then the top course was replaced over sheets of zinc, about twelve inches wide, bolted together at the corners. Once more we thought we were masters of the situation. During the coming months, however, Garry set out to prove that this was not so, and he undoubtedly acted as a guide to some of the other happy wanderers. When enlightenment came, a

further width of zinc was bolted to the existing rim to cover the vertical portion and its approaches on both sides.

Towards the end of the previous season, it had become apparent that if we were to indulge our passion for the toad family to any great extent there would soon be a serious case of overcrowding; besides which, they could not be expected to breed while they were sharing their quarters with rapacious terrapins. Plans for 'Toad Hall' began to take shape, but this time 'Do it yourself' was the slogan. Common sense and a spirit level seemed to be the most important items of equipment. A very weedy piece of ground between two large plum trees would just take an enclosure of a size almost identical with that of the original sanctuary.

A six-inch foundation trench was dug all round the site and filled with a mixture of cement and coal dust—a wonderful solution of an overdue disposal problem. This was a precautionary measure against digging activities. Then a visit to the builders' merchant provided us with eighty breeze blocks, cement and sand at a total cost of about five pounds—and we set to work. No one told us to do our corners first, so there is a slightly peculiar join in the bottom course; but as amateur builders we are rather proud of the finished job—especially as we managed to halve the blocks for the top course. Unfortunately this latter was built to the original pattern, but any future erection will be made the same height all the way round.

In the north-east and warmest corner, a square chamber was dug in which the two inner walls were made of bricks and continued one course above what would be ground level. Against the east and north walls of the building itself, fairly large round drainpipes were set to slope from ground level down to the chamber to give access. We now believe that a honeycomb pile of bricks, lightly cemented together to

## LIVING WITH REPTILES

keep them in place, and stuffed with plenty of dry materials, would be just as effective in providing the necessary facilities for hibernation. The cement floor was made to incline slightly to the south, and four or five sticks were driven in before the cement was laid and removed after it had set, to form drainage holes. Incidentally, the zinc overhang on both buildings provides a most useful area which is nearly always dry, and which, in this case, helps to keep the approaches to the underground chamber from direct rainfall.

Right across the southern end a pond was dug, about two and a half feet deep in the centre and sloping gently off on both sides. Rough brick 'pots' were made across the corners to facilitate planting. Both these operations were carried out before the main walls were built, with a consequent great saving of energy.

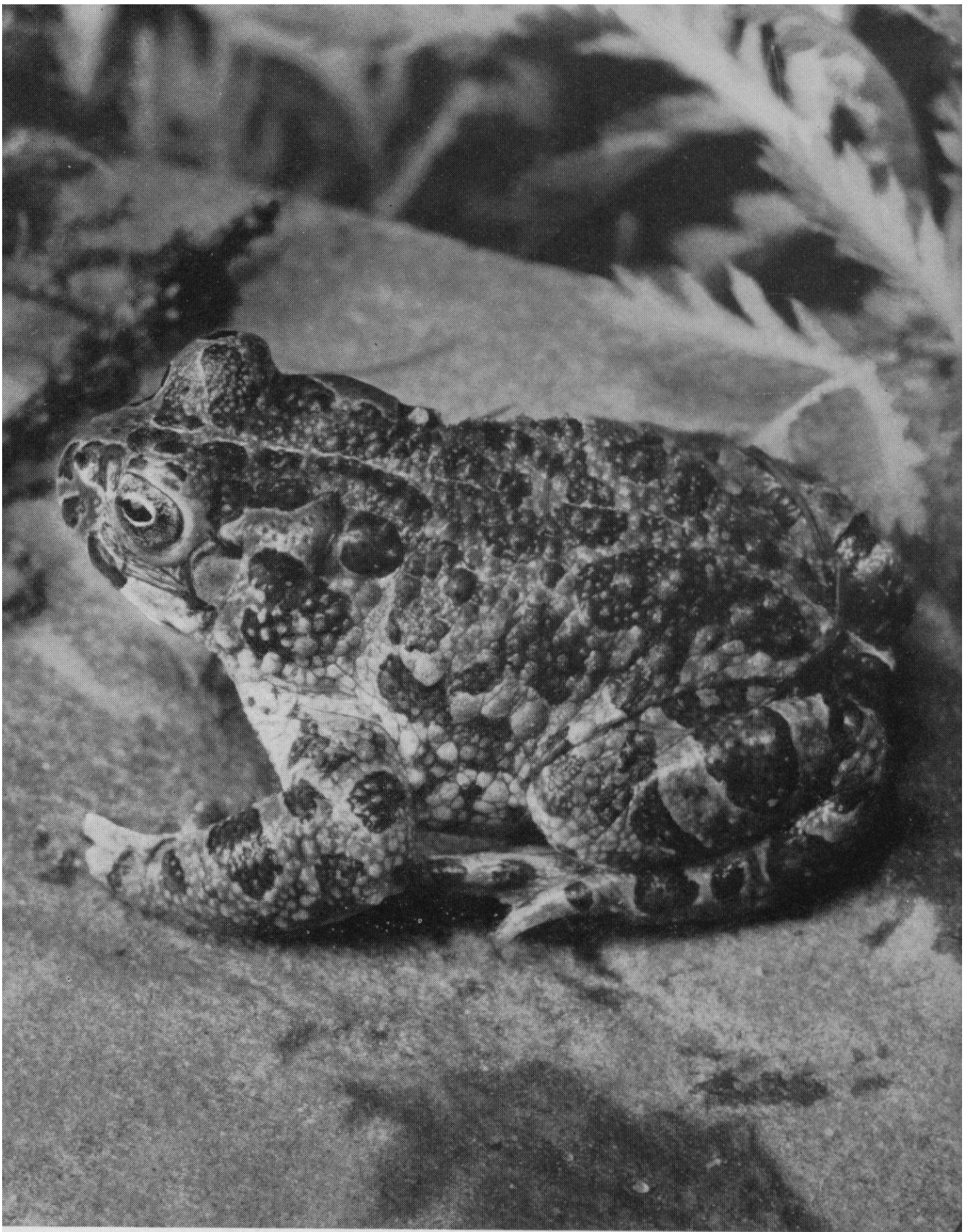
The furnishings consists chiefly of ridge tiles half buried at strategic points, tiles fixed aslant over the drainpipe entrances and plenty of rotting logs. The hibernating chamber was filled with cork and a stout lid laid over it. The plants are shade-lovers—ferns, marsh marigolds, a rather rampant but very attractive variegated form of the yellow dead nettle and, best of all, the white Chinese coltsfoot which holds its enormous umbrella leaves aloft for five or six months, most popular for shelter or basking places. Primulas—various kinds—water forget-me-not and creeping jenny flourish abundantly in and around the pond from which masses of starwort (*Callitriche*) and Canadian waterweed have to be removed at frequent intervals.

By the beginning of April all the building operations were completed and a pair of toads which had been rescued from a swimming pool were introduced as the first tenants. This honour they reciprocated by making memorable our





Natterjack toad : *Bufo calamita*



Green toad : *Bufo viridis*

second Easter Sunday by laying us an enormous quantity of spawn which by the middle of June turned the pond black with tadpoles, most of which were transported to neighbouring ditches. A promising start!

To our delight, on March 3rd, Pete reappeared in the sanctuary, and from then on many visits were paid every day to see who would be the next sleeper to awaken. He was quickly followed by Grassy and Brownie, and then at short intervals all the rest of the gang were hailed with great joy in spite of quite a sticky winter. Indoors, too, we were thrilled to be able to record a hundred-per-cent. emergence. One is apt to imagine that the hibernation period is one long unbroken siesta, but actually there are many intervals of at least semi-awareness. On a bright day a green lizard may show itself, a terrapin will come to the top of the water, toads and salamanders emerge for a nocturnal prowling on mild nights, and the tortoises will rustle round in their box.

During April the terrapins were returned to the pond and by May 1st they were beginning to feed again. Two of the precious baby salamanders were put into Toad Hall as 'guinea pigs', and when they showed every symptom of contentment with their lot, the rest went to join them. There is no doubt that an outdoor enclosure of some kind reduces responsibility in practically every way except that of providing sufficient food, and makes it possible to study the life secrets of these little people in conditions as nearly natural as possible.

Now that such commodious premises were available we started an intensive enquiry for further species of toads, but unfortunately a very inclement continental spring had reduced imports to almost negligible quantities, and we were not successful until October, when we managed to acquire a pair of yellow-bellied Toads, *Bombina salsaa*. These

joined their kin in the reptiliary where their antics could be better observed. They are quite unperturbed by human activities and are even harder to distinguish than the firebellies until one catches a flash of yellow under a moving foot or leg owing to their most successful emulation of wet cement, very faintly peppered with olive green. They, too, have the rather peculiar physical characteristic of a round tongue which cannot be protruded from their mouths, as well as triangular pupils, which latter feature is rather more easily discernable in their case because of the greater contrast between their dark eyes and lighter skins.

When, in mid-summer, the situation seemed hopeless, we compromised with a pair of the easily obtainable Edible frogs—*Rana edulis*—which are bred, and in some parts naturalised, in England. These are quite the best kind to keep as once they can be induced to spawn in any pond it is unlikely that they, or succeeding generations, will leave its precincts, though too large a colony may not be very popular with the neighbours when the breeding chorus is at its height, as even one male makes an astonishing amount of noise. They are more attractive in appearance than common frogs, though it needs practice to be able to distinguish between them. Most of them grow rather bigger, and never seem to look quite so gaunt as the common frogs often do in the later summer. The most obvious and reliable differences are their more pointed noses, and the light stripes which they usually have along their backs, irrespective of whether their skins are green or brown or a medley of both—their back legs, too, are, as a rule, more conspicuously barred. Actually their toes are completely webbed but they do not display this to the casual observer.

At first sight the spawn of an edible frog gives one quite a shock, both in relation to the size of the parents and to the

## THE SECOND SUMMER

ultimate development of the tadpoles. In contrast to those of the common frog, the embryos are quite microscopic, and at least twice as numerous. Neither do they rise to the top of the water in the same way, but remain under the surface. Development at this stage is very rapid, the tadpoles hatching in just over a week, after which the rate of growth seems to depend on the kind of weather the season provides.

These two were not satisfied with the accommodation provided and removed themselves to the lily pool, where they have settled quite happily, basking in the sunshine on the edges until something disturbs them, when with a distinctive 'plop', they make themselves scarce. As one becomes familiar with their appearance and habits one can nearly always see their sharp noses and goggling eyes watching one from among the weeds. Edible frogs are so useful in destroying garden pests that their capture is prohibited in Belgium.

It would be almost impossible to confine any species of frog within a vivarium such as ours unless the vegetation were kept strictly to ground level, but we have found that they soon settle down and make little or no attempt to escape, even when sitting on vegetation almost level with the wall top. To us it would seem sheer cruelty to attempt to keep any of these large, agile frogs in a small enclosure, as they would be almost certain to injure themselves in the course of their tremendous leaps before they had become accustomed to it. Of course, the ideal way of establishing any kind of batrachian in a locality is to introduce the tadpoles so that to them it is forever home.

The only other additions we made to the original sanctuary were more green lizards. Some people shake their heads when we profess our affection for these, our first love, and mutter allegations of their wildness, but

nothing will shake our allegiance. We have found them consistently satisfactory, and although we have had some tough winters, there have been singularly few losses from that cause. Although the individuals vary considerably in temperament, they are mostly extremely easy to tame and it is not at all unusual to spend part of a summer afternoon with a robin on one knee and a lizard on the other—as we have photographs to prove! There have been business interviews, too, when the other party might have been surprised and disconcerted if he had known a green lizard was curled snugly up on my shoulder.

So every year we add one or two more females to the flock, but no more males while Pete and Garry are around, though after five summers with us, these are beginning to look slightly battered. When Emerald started his tricks again in May, we gave him to a friend, and he spent the rest of his days in a greenhouse with two wives all his own. Garry is now so thoroughly at home that he will come from where he is basking, eat his fill of mealworms from our hands and return to his lair. It is not the slightest use putting him back into the sanctuary, as he will be gone again in an hour—but how, no-one knows. Sometimes, when it suits him, he will stay with his mates for a week.<sup>1</sup>

Unfortunately, there were no youngsters to record as a result of all the wars and courtship displays, though all of the females in turn appeared with the tucks in their sides which show they have secreted a batch of eggs in some

<sup>1</sup> Since this book was written Garry has begun his seventh summer with us, and appears to be in the usual fine fettle. As he was obviously adult when he was bought, he was probably at the very least eighteen months old, which means that he is within three or four months of the completion of the ninth year of his life, spent entirely in the open under conditions as near to his normal habitat as possible. A good record for such a small creature.

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unlikely place. One sees them digging busily, but usually if they think they have been observed, they transfer their attentions to another spot and search as one may one seldom finds a clutch. Although the reptiliary is a real sun trap, it is still not consistently warm enough to hatch the eggs, which need a temperature of approximately seventy-seven to eighty degrees.

All too soon October came round again with its piles of basking animals in the sanctuary and the tortoises back in their box. The frogs seem to turn in for the winter long before the toads and make a much more thorough job of their hibernation. After all, when one is nicely settled in the mud at the bottom of the pond, it would be rather a bore to move until the water warmed up enough to be tempting.

## Chapter 17

### THE ZONURES—AND THE AGAMAS

AT this psychological moment there arrived a list of reptiles couched in the most glowing and irresistible terms, which finally snapped the last link of resistance against the insidious invasion of our territory by increasing numbers of tropical lizards which must, of course, live indoors. After all, we now had a pet-room, and what fun we should have in the hitherto rather dull winter months (herpetologically speaking, that is). Of course, most of these are rather more expensive than the green and wall lizards which we have been discussing, but then, most hobbies have a way of needing an ever-deeper dip into one's pocket after a time. In any case, one cannot make a financial assessment of the endless pleasure one derives from the companionship of these creatures.

So we fell willing victims to the wiles of the vendor, and our first purchase was a pair of black girdle-tailed lizards, or zonures, which is a less clumsy interpretation of their Greek family name, *Zonuridae*. This alludes to the large-keeled scales encircling their tails and turning them into formidable weapons which are not easily fractured. These delightful little lizards of the genus *Cordylus*, averaging six to seven inches in length and looking not unlike miniature crocodiles, come from the rocky zones of South Africa, where these same tough tails serve another good purpose as anchors when their owners have taken refuge in a crevice. So entranced were we with them that we sent post-haste for a pair of the brown zonures, of which the black are but a



variety, to give the added attraction of colour contrast in their vivarium.

Of course, their advent set us another problem—adequate housing. Bought vivaria were obviously out of the question, being very costly, so the only thing to do was to assemble our materials and see what we could evolve. The golden rule with any type of lizard is, of course, to do one's best to reproduce its normal habitat, be it desert, mountain or woodland, and this is not as difficult as it sounds.

The basic requirement, unless one is an expert carpenter, is a stout wooden box—preferably oblong—which can be stood on its long side to give more floor space and less height. A very convenient size is about 24 by 18 by 18 inches which will hold ten or twelve smallish lizards quite comfortably. Pieces of grooved moulding can be fixed to allow a large piece of glass to slide either up or down or sideways—the latter being definitely less likely to lead to an untimely decapitation when a lizard makes a dash for freedom or the support slips. An insurance against such a happening can be provided in the shape of a length of copper wire, fitted with a strong hook, and suspended from a convenient spot, to hold the glass which is already raised by a substantial block. It is a good thing to have a shallow board at the bottom behind the glass to keep debris being too freely scattered when it is opened.

The next step is to line it with sheets of tin—an inexpensive item—and paint them white, otherwise the reflections seem to bother the occupants. The purpose of this lining is, of course, to reflect the heat, and represents a considerable economy. All that remains to be done is to bore a hole near the top towards the back through which to run an electric flex wire. At one time we used screw-on fittings, but recently

we have installed the pendant type so that the distance from the occupants can be better regulated by a screw hook on the outside of the box. If a metal shade is used over the light it is almost certain that the lizards will find a way to climb on to it and enjoy its warmth. The outside of the box can be painted as best suits the rest of one's furnishings.

This type of cage can be adapted for all needs—in some cases it may require greater height for climbing lizards, but this can be allowed for in the initial choice of box. It is possible to heat from underneath in something of the same way as when heating a tank; but as lizards need light as well as warmth, there is not a lot to be gained except in a very big cage where a similar fitting screwed into an upturned flowerpot and stood on the floor will ensure uniform warmth all over the cage. An absolute essential is that nothing obscures the view of the inmates of what is going on around them. All lizards are intensely curious—which is why so many of them allow themselves to be caught—and are in any case much less nervous when they can see everything that is happening. The more the merrier in a cage too—within reason, of course—for they seem to give each other confidence.

With regard to the furnishing of the desert vivarium, or, for that matter, any other kind, the first question which will have to be decided is whether one is going to sacrifice a certain amount of appearance to ease of maintenance. A thick layer of sand which holds heat well is the obvious requirement, but a busy housewife cares little for the perpetual gritty deposit which filters through the cracks and is scattered round the floor by the ever-active inhabitants. Cleaning out the cage is a major operation, not to be undertaken lightly by anyone addicted to hay fever. Granulated cork is lighter in weight than sand, but just as dusty, and

not an ideal substance to mix with food—as it inevitably does, a matter which has caused us quite a bit of anxiety in the past.

Now utilitarian measures prevail and the homely newspaper takes pride of place. Admittedly not decorative, but light, easy to burrow into for warmth or security, and so very simple and inexpensive to replace as often as necessary. Actually it will not be very noticeable if a miniature rockery of firmly-placed bricks or pieces of stone is built towards the back of the cage with hidey-holes behind and between them.

Most tropical or subtropical lizards need a temperature of seventy-five to eighty-five degrees, and it is easy to experiment to find the necessary wattage. Unless the vivarium stands in a very cold room, it is unnecessary to have the lights on for more than ten hours a day. Should the night temperature be likely to fall below sixty degrees, or to the danger level of fifty-five degrees, it is quite easy to substitute a fifteen or twenty-five darkened bulb for the night. (An extra fitting is best, as electric-light bulbs do not stand frequent removal.) If it can be arranged that the box receives some direct sunlight, this is a good thing but not essential.

Their permanent home being completed, the black and brown quartette of zonures were duly installed and it was not long before they were joined by a pair each of armadillo and slender zonures. Both these come from Namaqualand, and the former, *Cordylus cataphractus*, certainly looks remarkably like a miniature prehistoric monster. Their light brownish-orange scales are thick and spiny, those over their ears being particularly prominent, and their little black-lipped mouths are very noticeable. The slender fellows have smaller, closer scales than all the others and

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are rather mousey brown in colour. None of them can vie with green lizards in physical splendour, but they are great little characters with a charm all their own, and they are very tough and long-lived for their size.

In a short time they all become very tame and would eat mealworms or maggots freely from our fingers. They also love flies, and some of them will eat raw meat. As soon as they began to climb on our hands when we opened the cage, we started to leave it open while we were sitting in the room. A close fitting guard was obtained for the grate for use during our temporary absences—warmth being, of course, a magnet to any lizard—and in summer the fireplace is blocked by a closely fitting piece of hardboard lest anyone should try to reach freedom by that route. A series of bridges of asbestos board or bark were laid from the cage to the sideboard which stands under the window, and to the armchair, especially covered with a thick rug of which claws can take a firm hold, as a most convenient ladder for lizards exploring.

Soon we began to be able to recognise their various footsteps: in particular, the armadillos have a very distinctive little patter, and when they are coming towards one, walk and sound rather like mechanical toys. The west window-sill was quickly discovered and many of them spent their afternoons ranged along it. As many lizards do, they object to soiling their cage if it can be avoided, and each has its own established spot to which it repairs.

One February evening as I was sitting at the other side of the room, idly watching their endless 'busyness', I suddenly saw what looked like a very tiny lizard head amongst them—though a closer look revealed nothing. Sitting quietly again, where I could observe more or less unnoticed, I waited, and very soon there came creeping

out to bask under the lamp two beautiful baby brown zonures, which proved to be three inches and three-and-three-quarter inches long respectively. Imagine our excitement! We had had no idea that a birth was imminent—in fact we did not even know which was the mother; but we were lucky enough not to lose her afterwards, which is what frequently happens when the lizard's life cycle is completed. The babies were hurriedly removed to a cage by themselves in case there were any cannibals around, and there they immediately displayed all the adult characteristics.

For food we were lucky enough to have in stock a supply of fruit flies—more of which will be heard later. This ease of breeding is, of course, one of the great attractions of keeping zonures as opposed to the anxieties of trying to hatch the eggs of other species. They normally have two babies at a time, which are more or less self-supporting from birth, being able to eat maggots in about a week and blue bottles at a month old. The period of the first moult at about three or four months is likely to be a tricky time with any baby lizard; but once that is over, there is a reasonable chance of success.

During this same winter we acquired four more lizards of a similar type which need exactly the same conditions but are rather larger in build. The first were crag lizards, —*Pseudocordylus*—bluish black with yellow markings, about eleven inches long, rather like overgrown zonures and almost more attractive. There are two ways to a lizard's heart and of these it sometimes seems as if warmth is more important than food. One of these crags (alas! both are gone now, and not yet replaced) loved nothing better than to jump out of the cage on to our arms, climb on to the top of our heads and then, after surveying the world from that dizzy height for a time, to slide down and walk round our necks until the way

inside our coats revealed itself, and there the rest of the evening would be spent in profound slumber.

When bedtime came, the routine was always the same: a reluctant lizard was disengaged from a hold on our woollies—a long, long drink (one hundred and eighteen to one hundred and fifty laps at one go), a few mealworms and then, when put in the darkened cage, the same route through the slumbering forms of the other inmates and up to sleep on the top of the lampshade. We were heartbroken when we finally lost her, but, of course, in buying adult lizards, one never knows how much of their life span has already gone. If Craggie could not get out of the cage when she wanted to, she would pout and go and sit on the lampshade with her back to us and her tail hanging down in the most expressive manner.

All zonures seem to love a cuddle, though they do not always seek it so actively. As they only weigh half an ounce to one ounce, it is very easy to forget one has a passenger. One night as I undressed, something, which I took to be my belt, fell on the floor, but investigation showed it to be a slender zonure, fallen out of my coat, and needing to be returned to the pet-room post-haste, before she disappeared between the widely-spaced floor boards of a Tudor house.

The other new acquaintances were a pair of agamas from Israel—*Agama stellio*. They, too, were about eleven inches long, and although their colouring was not spectacular, the male's greyish brown back was beaded with white and blue rather as 'hundreds and thousands' are sprinkled on iced cakes. They are lively, vivacious creatures, moving as if on wires, dashing from place to place as if they haven't a minute to spare, in strong contrast to the imperturbable armadillos. This pair were devoted lovers, and when the female had been out on a tour of exploration she would rush

back to the cage, from which he could not be induced to set foot, and hurl herself upon him in what appeared to be an ecstasy at reunion. While she was out he would be expressing his disapproval by nodding his head up and down in the manner which is anathema to Moslems—who think the lizards are making fun of their genuflections towards Mecca!—and by wagging the tip of his tail like an angry cat.

Alas!—these, too, must be spoken of in the past tense, and this was a grievous tragedy which human aid could not avert. Mrs. Ag became gravid, and apparently it is a bad habit of agamas in captivity to withhold the laying of their eggs until it is too late, so that they become egg-bound and die. As others have done, we provided apparently suitable materials in all her favourite spots, inside the cage and out, but all to no purpose and we had to stand by helpless and see her die. Too late we were advised to try feeding her with earthworms which are always good because of their laxative effect. As not infrequently happens with lizard couples that are broken up, it was not long before he suffered a kind of stroke and died. Probably we shall take a risk again when the chance comes, and replace them, but risk it will always be with this highly-strung and excitable but most endearing genus.

At about the same time, the female black zonure died after being constantly harried by her mate—in such cases it is best to remove the bully, or the result is more or less inevitable. The smallest baby zonure failed to survive its first moult, and the second one slipped under a stone which had been moved and then replaced, getting itself trapped underneath and making me feel like a murderess. As in other phases of life, troubles never seem to come singly. There may seem to be a preponderance of deaths in this

chapter, but losses are in any case inevitable from one cause or another, and the larger the collection the higher the number is likely to be, and there is nothing abnormal about our average. Sad though they are at the time, each one adds to one's experience and ability to deal more capably with the animals which take their places.

But compensation was on the way. Frank has a favourite pair of after-supper slippers, soft and warm. One night he seemed rather fidgety—finally he said as he took it off, 'There must be a stick or something in this shoe'. The stick turned out to be a baby armadillo lizard—the prettiest thing one could ever hope to see, with its soft little scales in strong contrast to mother's armour plate. Mother had temporarily disappeared a day or two previously, and find her we could not; but after three more days she reappeared as if nothing had happened, though we thought we had searched every cranny of the room. Slippers (as of course he was called) flourished for a while, eating seven flies from our fingers at a sitting; but as he approached the critical first moult he, too, decided that life wasn't worth the effort of survival, which is, apparently, a not uncommon decision on the part of this species. Even so, we were glad to have had his company for a while.



## Chapter 18

### THE TREE FROGS

IN the early summer of the year which saw our embarkation on the venture of tropical reptiles, we made acquaintance with Green Tree Frogs—*Hyla* (wood or forest), *arborea*, pertaining to a tree—an association which will never come to an end if we can help it, for they are the most adorable little creatures. It is hard to say whether the gleaming green or the sometimes mottled silver of their skins is the more ornamental. So artificial does it seem in sunlight, that some time later a friend, seeing a particularly small specimen sitting on the edge of the tin in which I was taking it home, questioned, ‘Is it real?’ It did not take long to prove that it was indeed real as, with very little provocation, it took a prodigious leap and landed on her collar! This mite was christened Ha’porth, but the others are too alike in size to be able to distinguish them, especially as when they change their minds about returning to their favourite station they change their colour scheme to match their new resting place. One picks out one’s friends from a crowd by their attire, but not in this case.

The great essential in keeping tree frogs, at any rate indoors, is, as with the lizards, a really impregnable fortress, for the sucker-like pads on their feet make light of every form of barrier, even glass. An old fish tank with a tightly fitting lid of perforated zinc edged with strips of wood will meet the case. Do not be tempted to bend down the edges in the form of a box lid as zinc is very apt to crack after a while and renewal is an expensive item.

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It is quite simple for even the most amateur carpenter to cut a sheet of zinc slightly larger than the tank all round and tack strips of lath round the edges on the under side. (I know because I have done it!) This reduces the necessity of a weight on the lid, apart from the greater comfort in handling where there are no sharp, raw edges, and it increases the durability at least one hundred per cent. Perforated aluminium is now obtainable, and this is slightly cheaper and more pliable, besides being more acceptable to those who disapprove of the use of zinc as having a harmful influence on the inhabitants when rain drips through it. A piece of glass the same size as the lid can be laid over it, supported on corks or pieces of wood and anchored with a stone, which will not only obviate most of the drip, but prevent a flood in times of heavy rain. The ideal is, no doubt, a box made like a rabbit hutch with windows at the sides and a door of wire screening with mesh large enough to admit enquiring insects.

In passing, it is interesting to reflect upon the extraneous subjects which one is led to explore through the adoption of such a hobby as ours. These 'do it yourself' days have forced us to dabble in elementary bricklaying, carpentering and glazing, not to mention electrical engineering, and the results are efficient if not always particularly ornamental. Water life in itself is an endlessly fascinating study which cannot be ignored, any more than at least the rudiments of dietetics and first aid.

One can indulge one's artistic aspirations to the full in the decoration of the vivarium, with mossy carpets complete with growing seedlings, branches for climbing purposes strewn about in imitation of the woodland scene and, above all, a firmly fixed cluster, in a jar of water, of a nice broad-leaved evergreen shrub such as laurel, rhododendron where



Fire-belly toad : *Bombina bombina*



Male midwife toads—*Alytes obstetricans*—carrying their eggs

## THE TREE FROGS

available, skimmia or even holly, for them to hide in. Better still would be a plant established in a pot, such as ivy, an exotic fern with broad fronds, or even an ubiquitous hart's tongue fern, any of which would appreciate the humid conditions. The larger the pan of water which can be provided, the better, so that they can take their daily bath, and they will also appreciate a watering-can shower two or three times a week, as they revel in moisture.

Just before dusk, or even in broad daylight on damp days, great activity prevails, and the introduction of a few live flies from a narrow-necked bottle through a cork-stoppered hole in the zinc will soon provoke a tremendous display of gymnastics which can be most amusing. The frogs appear to launch themselves recklessly into space, but always does at least one finger manage to adhere to a support, and the little creature hangs nonchalantly by one apparently treble-jointed limb, whilst unhurriedly finding footholds with the others.

Our worst headache as to spring-cleaning operations arose with the tree frogs. It seemed to our inexperience as if it would be almost an impossibility, after we had seen the activities of which they were capable, but we quickly found that in broad daylight their one idea is to make themselves as inconspicuous as possible. We used to take the precaution of moving our tank into a closed room, but all that usually happens is that if they are forced to move they sit round the rim of the tank, or if one becomes too drastic, leap on to a curtain or even on to one's dress, and find a nice convenient fold into which to creep, opening their mouths and making a funny little sound of protest when a return move is suggested.

One wonders if they make as little resistance to capture in the first place; if so, it would account for the low monetary

value which is placed upon these tiny lives. Actually it is incredible that so many of such seemingly fragile bodies manage to survive all the hazards which they must suffer between their capture and their introduction to their future homes. Green tree frogs provide another example of most surprising longevity, fourteen and even twenty-two years having been recorded. One thing which puzzled us very much at first with these little people was how to distinguish the sexes; but once the male has been discovered with his vocal sac in action there can never be any more doubt. The shiny yellowish skin of his relatively enormous 'bubble' can be detected when not in use as a shadowed wrinkle under his chin, in contrast with the more granulated appearance of the remainder of his underparts, which look quite rose-coloured in some lights, especially on the thighs. From a distance their croaking reminds one of the quick quacking of a duck rising to a climax and falling away—a rather pleasant sound on a summer afternoon—which can carry some distance but is not really disturbing, providing the number of males is limited.

One slight drawback to keeping tree frogs is the fact that some specimens are rather choosy about eating anything but winged foods, which are hard to provide in winter, unless one has access to a regular supply of gentles. They are not very fond of the maggots themselves, often spitting them out in disgust, but like the occasional mealworm while spiders, caterpillars and other creepy-crawlies do not come amiss. Actually the easiest way to extricate oneself from this difficulty is to allow the frogs to hibernate. At a temperature of about forty-five degrees they will creep down into the moss and sleep snugly. If they are kept awake they need a day temperature of not less than sixty-five degrees, otherwise they will not feed properly and will die. So long as the

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atmosphere is sufficiently humid they can stand quite an amount of heat, at least eighty degrees, and will sit very happily on the base of a fifteen watt electric bulb for hours at a time. They also appreciate dappled sunlight. In the larger area of one of our friends' conservatory they seem to revel in one hundred degrees in the shade.

Incidentally, it is well to wash one's hands after handling tree frogs as the protective secretion from their skins is said to be potent enough to cause humans to sneeze, or to induce irritation of the eyes should it come into contact with them, though we, in spite of susceptibility to such influences, have suffered no ill effects from our often very close association. We are, however, suspicious that we unwittingly caused the death of a small lizard by allowing a tree frog to share its cage for a while and possibly pollute the water by exudations from its skin while bathing—the golden rule seems to be to keep such creatures apart in captivity.

After one of our little rascals had discovered how to manipulate a cracked piece of glass covering their tank in the pet-room, and was more often than not absent from home, we decided to give them their freedom and see what would happen—with very happy results. They rarely move from among the terrapin tanks where they evidently get sufficient warmth and humidity, and ignore the growing vegetation thoughtfully provided for them, and are now so tame that they frequently have to be moved out of the way during cleaning operations. So long as the room door is kept closed at night there seems to be no fear of their straying.

They have a little tank of their own with a four-inch depth of water and floating weed to which they resort for their evening dip, and every two or three days we release a few flies into the window for them, which are quickly

snapped up. We had a faint hope that they might consider breeding under these conditions, but it is rather unlikely, as they do not hibernate and the best way to achieve that would, no doubt, be to try to introduce some newly imported females in the very early spring. One day we are going to have a greenhouse full of these and other creatures which can enjoy its atmosphere.

About five years ago importers were able to obtain for the first time sufficient supplies of a most unusual tree frog from Ecuador to allow them to become available to amateurs. These are known as Marsupial or Pouched tree frogs—*Gastrotheca marsupiata*—and are certainly one of the most rewarding species to keep on account of their unique breeding habits which can be quite freely observed in captivity. The adult frogs are usually one-and-a-half to two inches in length and vary a great deal in their colouring some being a rather dullish brown with lighter markings on their sides, while others are bright green with irregular fawnish stripes.

They are quick to express their disapproval should a heavier than usual footstep cause the vibration of their tank, to which they are particularly averse, and the resultant squeak-cum-hiss, very reminiscent of a pressure gauge being removed from a tyre valve, can be quite disconcerting when one has forgotten all about them. They are also useful barometers in that the males are quite vociferous when damp weather is approaching, and we find their leisurely repetitive chorus attractive in contrast to the speechlessness of most of our menagerie.

For breeding purposes a large tank—securely covered, of course—is needed, with a pool holding not less than four inches of water in which there should be some strong-growing weed such as *Elodea* commonly used in fish tanks. Besides



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this, a good layer of moist moss and a jar of broad-leaved evergreen will be all that is needed. Sometimes they will sit amongst the moss and sometimes aloft on the leaves. They will very obligingly eat almost any insect one likes to offer them, from earwigs to mealworms. Another great advantage is that they do not require an average temperature of more than fifty-five to sixty degrees, and decidedly dislike anything which could be described as heat.

The females have a clearly visible U-shaped opening to the egg pouch, facing backward above their tail stumps. While they are wooing, the male frog somehow manages to insert the spawn into this sac, which extends right up to the top of the neck. So far, we have not managed to see this operation for ourselves, in spite of several late nights when they have been clasped together. The eggs can be seen and felt developing steadily under the skin, and some of the females become really enormous. Then the female begins to haunt the edge of the pool very insistently and finally one finds her in the water, hooking her long hind toe nails into the mouth of her pouch and releasing the lively little black tadpoles—a fascinating performance.

Our first hatch, in October, gave us about two hundred tadpoles which, for safety's sake, were separated into three batches. We had been advised to feed them entirely on lettuce, or algae from the ponds, but we experimented on one lot by adding the brown bread crusts so beloved of ordinary toad tadpoles, and this diet certainly produced larger and stronger specimens more quickly. Summer-hatched specimens mature in a shorter time than winter ones, which make a slow business of reaching a length of one-and-a-half to two inches before developing their legs.

When they emerge from the water, usually straight up the sides of the tank, they are transferred to yet another tank,

similarly furnished but with a less ambitious pool. For the first week or two fruit flies and hedge sweepings will keep them happy, and in an incredibly short time—generally about four weeks—they are quite capable of dealing with the smaller flies among the hatching gentles. Not all the tadpoles will, of course, reach maturity, but this is just as well, as they are apt to become a slight embarrassment. Sometimes, too, the eggs do not seem to be properly packed away, and they come out of the sac again in a dried up mass which, too, is not an unmixed blessing when, as in captivity at any rate, they are inclined to adopt a six-monthly breeding cycle.

Last summer we released about three dozen froglets in Toad Hall and for a while we used to see some of them every night perched on the vegetation, but gradually they disappeared and, of course, it will be some months before we can hope to hear if they are still around. We also released some tadpoles quite late in the summer and were hoping that after an exceptionally mild winter they might come up from the depths of the pond, but a previously undetected edible frog no doubt accounted for the failure of this scheme.

Amongst the other tree frogs we have kept the most attractive are the African arum lily frogs—*Hyperolius Horstocki*—whose name aptly describes their habitat. Their backs are a glistening biscuit colour, but when they sit, as they often do, on the glass of their tank with their little pink tummies outlined by the deeper orange pink of their feet and legs, they look not unlike a batch of sea anemones.

## Chapter 19

### THE TERRAPIN TALE—PART III

THE tantalising glimpse we had during that first year of the irresistible charms of the little green terrapins had only served to whet our appetites. We were now determined to obtain others and see whether our, by now, slightly greater experience would not enable us to conquer the acknowledged difficulty of rearing them. A pair were duly acquired at the end of April but as soon as we opened the box we were pretty sure we had met another defeat for it was immediately obvious that not only could one of them not open its eyes, but it was doubtful if it had ever done so in captivity and here was clearly nothing new that could have been caused by a two-hour journey.

Only one course of treatment to meet the case seemed likely to be harmless—if not beneficial—and that was bathing with lukewarm water and massage with olive oil. It was quite apparent that the little creature enjoyed these attentions and he was a pathetically good patient. Hopes ran high when he was seen to open his eyes, take a quick look round and then shut them again. Now perhaps we could coax him to feed and the battle might be won, but—alas!—nothing would induce him to break his long fast, though he did occasionally open his eyes. Finally he, too, went to seek the Elysian fields of the terrapins.

A nasty little trick many reptiles have is that of losing the habit of feeding, which is often extremely difficult—and can be impossible—to overcome. The only cure is to try every likely, or even the most unlikely, foodstuff in the hope

## LIVING WITH REPTILES

that something may stimulate the dormant sense—the more wrigglesome the offering, the more likelihood of success.

After quite a lot of rather acrimonious correspondence we acquired a black Button Terrapin (the official name for a baby European water tortoise like Ulysses) as a companion for the thriving survivor, Butch. This adorable scrap was promptly christened Buttons, and for a short while all went well; then he suddenly went off his food and joined the other little one in a too rapidly increasing cemetery. Happily Butch, apparently impervious to all these alarums, continued to thrive and soon became so tame that one only had to speak for his funny little face to pop up with almost a smile of greeting, if he was not already sprawled on a rock on his tummy with his legs spread fore and aft, gathering every gleam of sunshine and looking the picture of voluptuous enjoyment.

After a while he, too, appeared to be a little disinterested in his food, and it seemed that a possible cure would be yet another acquisition as a companion. By great good luck, although it was getting late in the season, baby terrapin number four came on the scene and quickly earned himself the name of Peek-a-Boo. His motto appeared to be 'Bob down—you're spotted', as for some time all one could see, and that only if one was very quick, was a little yellow face peeping out from under a frog-bit leaf—the exact size to be a perfect camouflage. His advent soon cured Butch's laggard appetite, and it was not long before the sight of the worm jar brought them paddling along the tank in a very creditable imitation of Ulysses' antics in the pool.

Their home was a new tank resplendent in blue paint and glittering glass, standing in a sunny window. The arrangements for central heating were simple and inexpensive. A strong low wooden box was obtained on which the

tank could stand comfortably, and an electric fitting screwed into the side (on the inside), and attached to the nearest plug. A large piece of board was cut away under the centre of the tank, a piece of tin laid in the bottom, and a twenty-five watt lamp inserted to keep the water at about seventy-five degrees. In very cold weather it sometimes needed a forty- or sixty-watt bulb. For a larger tank it is better to have an electric fitting at each end of the supporting box. A piece of glass laid over the top of the tank helps to conserve the heat and humidity. Of course, there are more expensive gadgets obtainable, but they are possibly no more effective, as this supplies both heat and light. An electric bulb can be suspended over their heads too, provided it does not touch the water.

Many people cover the bottom of their tanks with washed gravel, as terrapins find slippery surfaces hard to walk on, but this is rather a nuisance if a siphon has to be used for cleaning, and it makes it harder to detect stale food. The ideal is a running filter, but this needs still another electric point and is not really essential. A fixed tank, where weight is no object, can either have the whole bottom washed with a thin mixture of cement and sand, or a small cement pool built in. These particular little people only needed about three inches of water around an island of rocks which fulfilled the requirements of a sundeck, with some floating weed for cover.

Great care must be taken that no part of the rock can slip down in such a way as to trap a terrapin underneath. Curious as it may seem, it is quite possible for a terrapin to drown in such circumstances. Probably shock causes them to breathe in a way which they would not normally do when submerged. After Butch had grown to a shell diameter of five inches, he managed to dislodge a piece of

tile and bring this fate upon himself, to our great disappointment.

Authorities say that once their juvenile difficulties have been overcome, the precarious hold of these green terrapins on life is strengthened, and they are as tough as any of the other species available. Be that as it may, Peek-a-Boo was eighteen months old when he sickened and died—and what an unconscionable time most reptiles take to die even after they have made up their minds to do it, a decision which nothing man can do will alter. At the present time we have another eighteen-month-old specimen which has so far outgrown one or two hunger strikes. The first sign of growth is usually an increasing density of the black markings round their shields, and then a thickening depth to their bodies becomes noticeable, as well as the changing of the pattern on the plastron.

The chief requirement for all baby terrapins, apart from a constant temperature of not less than seventy-five degrees, is daily individual feeding, and as wide a variety of diet as possible. Bloodworms are a specially favoured dish and of course *daphnia* and other 'hunting grub' as described later. Small tropical snails can be allowed to breed in the tank and will provide the necessary calcium. Why these should be exempt from suspicion as hosts of possible infection, when our local marsh snails are suspect, is hard to understand. Tiny morsels of raw fish or meat are most acceptable, and may be dipped in cod liver oil once or twice a week during the winter months, after which the animals will quickly become invisible if the tank is not cleaned out. Crumbs of cheese are quite a good substitute for the oil, but not all terrapins will eat it. Half a mealworm is more acceptable than a whole one, and it is a much appreciated gesture to break the skin of gentles before offering them.

This move will be found very popular with newts and other batrachians, who may otherwise ignore or reject them.

The inimitable attraction of these little terrapins is a great challenge which makes the extra expenditure of time and patience very rewarding. But unless you are able to give this, please turn your attention to more easily managed pets, or at any rate start with a larger size. *The Handbook of Tortoises, Terrapins and Turtles* by Ivor and Audrey Noel Hume states that 'even in the hands of experts two out of every three die within a year or so and some last only a few months'. Although we can now claim to keep two out of every three alive, this statement strengthens our conviction that importation of these babies should be prohibited—at any rate, below a certain size. The birth rate in the bayou of Louisiana is said to be enormous but, even so, man is certainly pushing the mortality rate too far out of proportion.

It often happens in our everyday lives that a straw in the wind fails to attract our attention, while other matters occupy our minds. All unwittingly our quest for toads led us to another turning point in our herpetological career. Enquiries were sent to every available address—the batrachian section of each list carefully scanned and if the result was negative the list was put aside. But one wily advertiser followed up with a letter which completely changed our outlook and led to an enormous expansion of interest, much to our mutual advantage.

The first and immediate consequence of this letter was the acquisition of a large terrapin from Ceylon—*Melanochelys*—which can be freely translated as 'dark shelled terrapin'. She is a lovely creature nearly eight inches long, and weighing two and a half pounds, with bright orange markings on her head. She has the rather unusual characteristic of being able to feed on dry land. Most terrapins take their food into

the water to eat it, but Mel can be lifted out of the tank and put down before a saucer of meat, and she will make very short work of it—in fact she will follow like a dog until she gets it.

Two years ago she caused us a lot of anxiety by going off her feed—quite a new departure, as normally she is ready for anything that comes her way. For over three months we tempted her without result, and no-one we consulted seemed able to suggest a cause or cure. One day as I came into the room my eye was caught by something peculiar in the tank—the cause of her discomfiture—an egg one-and-a-half inches long and three-quarters of an inch wide, weighing half an ounce! Then we remembered that, thinking sunshine might be good for her appetite (sunshine—with access to adequate shade—is a wonderful tonic for any ailing reptile), we had put her into Toad Hall for a while. It did not take long to unearth three more eggs which she had deposited under much more natural conditions, as terrapins usually scratch out deep holes in which to deposit their eggs. Two months later she laid another in her tank. No wonder she had been unable to eat—her tortoise-shell corset would not allow sufficient expansion for food and a clutch of eggs as well—but now her appetite was insatiable.

Unfortunately we made no attempt to hatch the eggs, thinking that two years away from her kin would ensure their infertility, but we have since discovered that eggs have been hatched after an even longer period of solitude. But we had learnt that if a terrapin indulges in a prolonged fast this may be the cause.

The next venture was an assortment of baby terrapins from America, mostly from the State of Arkansas, comprising a black or common musk, and the rarer brown or keeled musk—*Sternotherus odoratus* and *carinatus* respectively—one mud, *Kinosternon hippocrepis subrubrum*, and two painted,



*Chrysemys picta*, none of which measured more than one and a quarter inches. *Sternotherus* is a mixture of Latin and Greek meaning hinged breastbone, while *odoratus* of course refers to the protective musky aroma which has earned these terrapins the name of 'stinkpot' among fishermen. *Kinosternon* is another version of movable breastbone; *hippocrepis* means quite simply, shaped like a horseshoe, and *subrubrum* refers to the reddish colour of the plastron which is more pronounced in babyhood. It is the areas of soft skin separating the horny shields of the plastron which have given these species their generic names.

The black musk left us immediately and the mud succumbed also with fatty degeneration. The keeled musk, now nearly four years old and three and a half inches long, is quite the ugliest terrapin we have ever seen. As a tiny thing he was like a brown moth clinging to the sides of the rocks. Now he has a high, steep-sided limpet-shaped shell, and a most peculiar underhung profile to his spotted head, but we love him dearly as the most successful of all our American babies to date. When we acquire tortoises or terrapins—especially these smaller sizes—we put them on a piece of paper and trace their outline with a pencil so that we have a permanent 'shell-print' record of their original size, which is most amusing to look back on in such cases as this. Incidentally, no amount of teasing has ever induced him to give us a whiff of his scent.

The painted terrapin is one of the toughest species and has been naturalised in this country, but we have not tried this with ours, although in eighteen months they had reached a five-inch diameter. They are nearly as attractive as the green ones with their black and cream markings, and the lovely red edgings to the shells of the males. Unfortunately ours being all females they are not very colourful.

They like a great deal more green stuff on their menu than most of the other species, and will eat lettuce or watercress in considerable quantity every day.

At about the same time I bought a tiny Spanish terrapin which grew so fast it was almost incredible. At first he was segregated in a smaller bowl in Mel's tank, but as soon as we were sure he was quite healthy and feeding properly, he was released into the main tank. He later developed a real passion for Mel, hovering around her and kissing her head with little dabbling movements most amusing to watch. The courting of the painted terrapins and their kindred is very entertaining. The males grow very long toenails on their front feet with which to charm the female of their choice. At frequent intervals they swim backwards in front of her, fluttering these long nails with a movement reminiscent of geisha girls with their fans.

At the time of writing, our terrapin population consists of twenty-four individuals and ten different species. There are a pair of Sudanese terrapins, *Pelusios adamsonii*, with drab but prettily marked shells, and two little wisps of a goatee under their chins—the gentlest of all when taking their food. A hungry terrapin is no respecter of persons, and can give one a nasty pinch if one is not wary—this is where the blunt forceps for feeding come in handy—but never once have Sudie and Adam forgotten their manners.

The last to arrive four months ago were four baby Reeves' terrapins, *Geoclemys reevesii*, from Chinese waters. They suffer from an insatiable appetite (in fact one writer refers to them as the terrapins 'with the alarum clock tum-mies',) and spend most of their evenings watching my every movement, standing up against the glass, or side-wheeling furiously to and fro, until in mental self-defence I am driven to fetch the food, the sight of which starts all the others off

as well. These little ones have a most unusual ridge at each side of their carapace, but are not particularly distinctive in colour. They are, however, highly recommended as being very good doers, and able to spend their summers out-doors. Lack of tank space will undoubtedly prevent further additions for the present.

The treatment for all these terrapins follows exactly the same pattern as that described earlier. Heating in the larger tanks can be provided by immersion heaters with thermostatic control—not an expensive item. The great difficulty is to provide a barrier round the heater which a strong terrapin cannot move, for they will get at the heat if there is any possible chance, and they must not be allowed to do so, or they will burn their shells and this can set up a fatal infection. We use an intricate erection of bricks and tiles which can be removed for a thorough cleaning, but which are not generally returned to the tank in the right way to meet with the approval of the occupants, so that we are subjected to much attempted scene shifting. The larger tanks, together with any furnishings, need a thorough cleaning at least once every two weeks. Do not worry too much if the water goes green with algae, or if the latter starts to grow on the terrapins' shells—this is a natural and valuable part of their food. Too much will make them hard to see, but it never smells in the same way as water that is becoming foul, so let your nose be your guide.

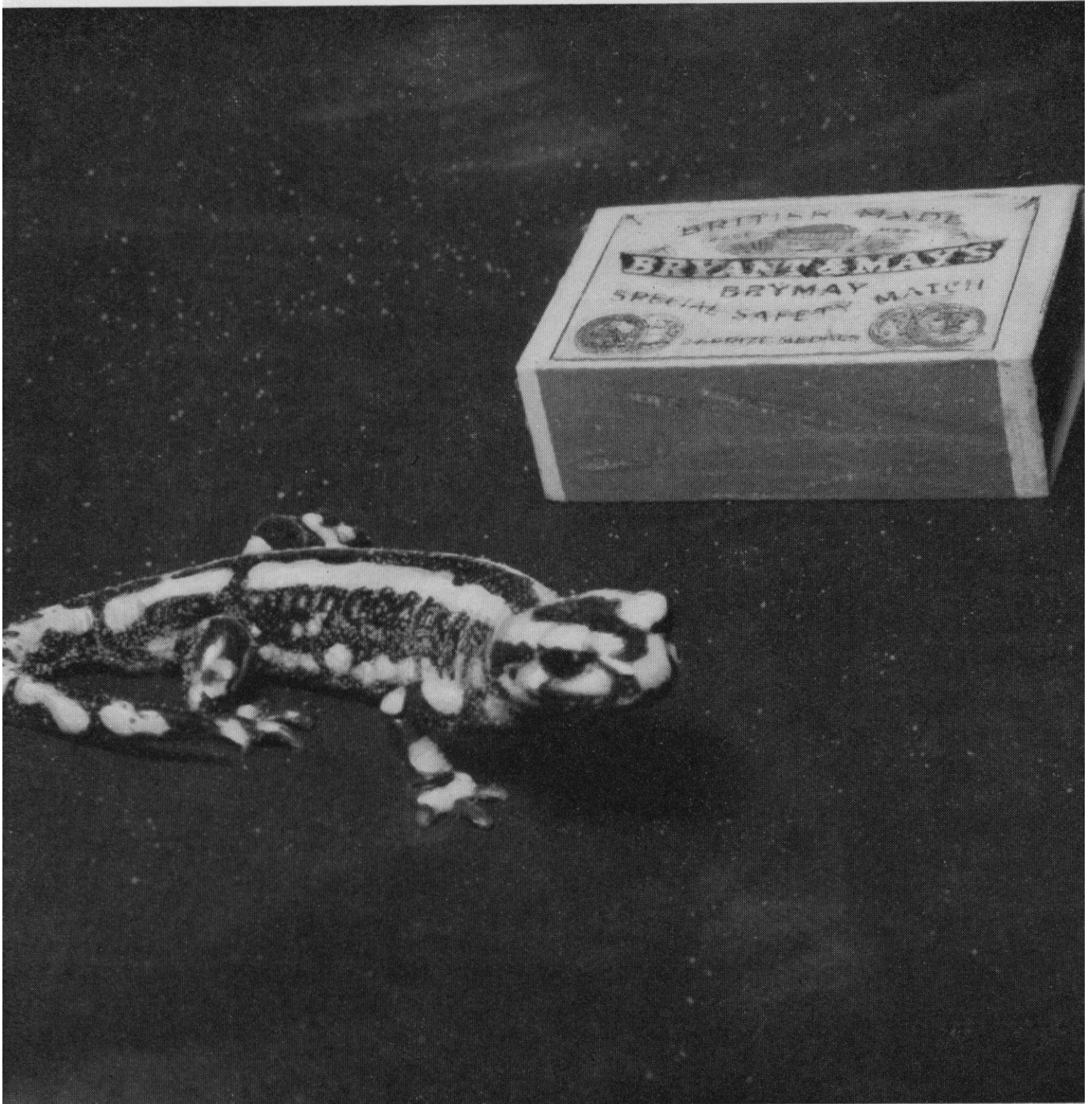
The great thing to guard against with all the terrapins (and tortoises, for that matter) is soft shells, which can usually be prevented by the regular addition of a smear of fish oil to their food. Calcium deficiency may also be overcome in soft-water districts by placing a lump of plaster in the water or grating cuttle-fish bone, beloved of budgerigars, over the food—fortunately this is something which we do not have to worry so much about among our chalk hills.

## Chapter 20

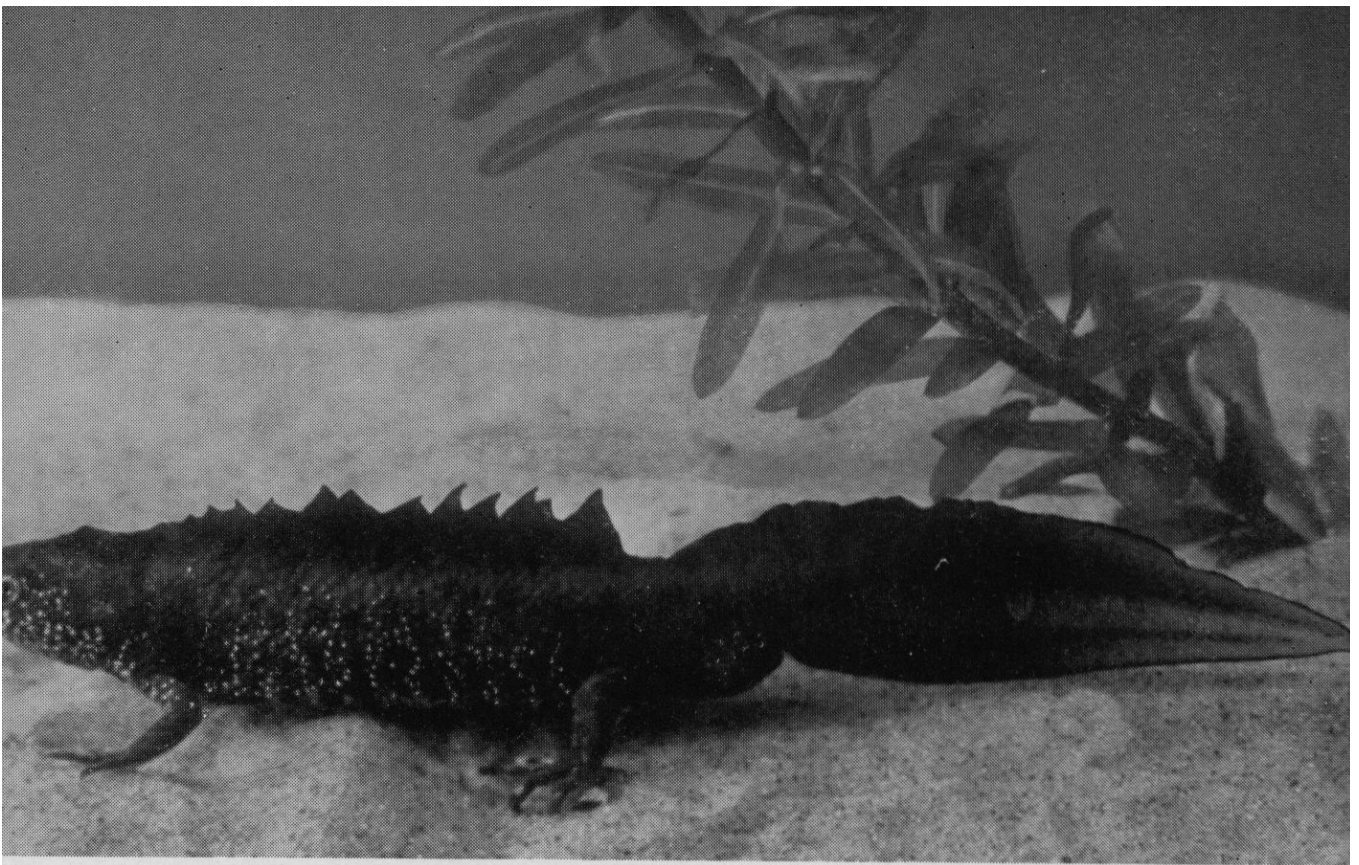
### THE THIRD SUMMER

THIS brings us to the third summer of our herpetological career, which saw more of our ambitions realised as regards additional species for the outdoor collection. After a most unpleasant winter, early March brought one thrill that never grows stale, the sight of a rather muddy green lizard emerging safely from the hibernation period. After several seasons one grows to recognise the kind of early spring sun which is almost certain to witness the recurrence of this first red-letter day of the year. After a few days in the sunshine they usually slough their winter soiled skins and regain their usual immaculate appearance, with their brilliant yellow waistcoats gleaming like enamel.

One of the earliest excitements was the arrival of a dozen or so common frogs, *Rana temporaria*, collected for us by a friend in the north of England where they are still plentiful. In these parts, they can now be considered a rarity, and a diligent search over a wide area has failed to reveal the seething masses of tadpoles which were a common sight in childhood days. Two obvious factors are, artificial watering places, which allow the neglected ponds to become choked, and an enormous increase in the swan population. This new family party was divided between the reptiliary and Toad Hall, and there most of them and some of their progeny still remain, in spite of the fact that the walls are no real barrier to their exit. On the second night they presented us with quantities of spawn, most of which, like the toad tadpoles, was removed to the most remote ditches available. It is



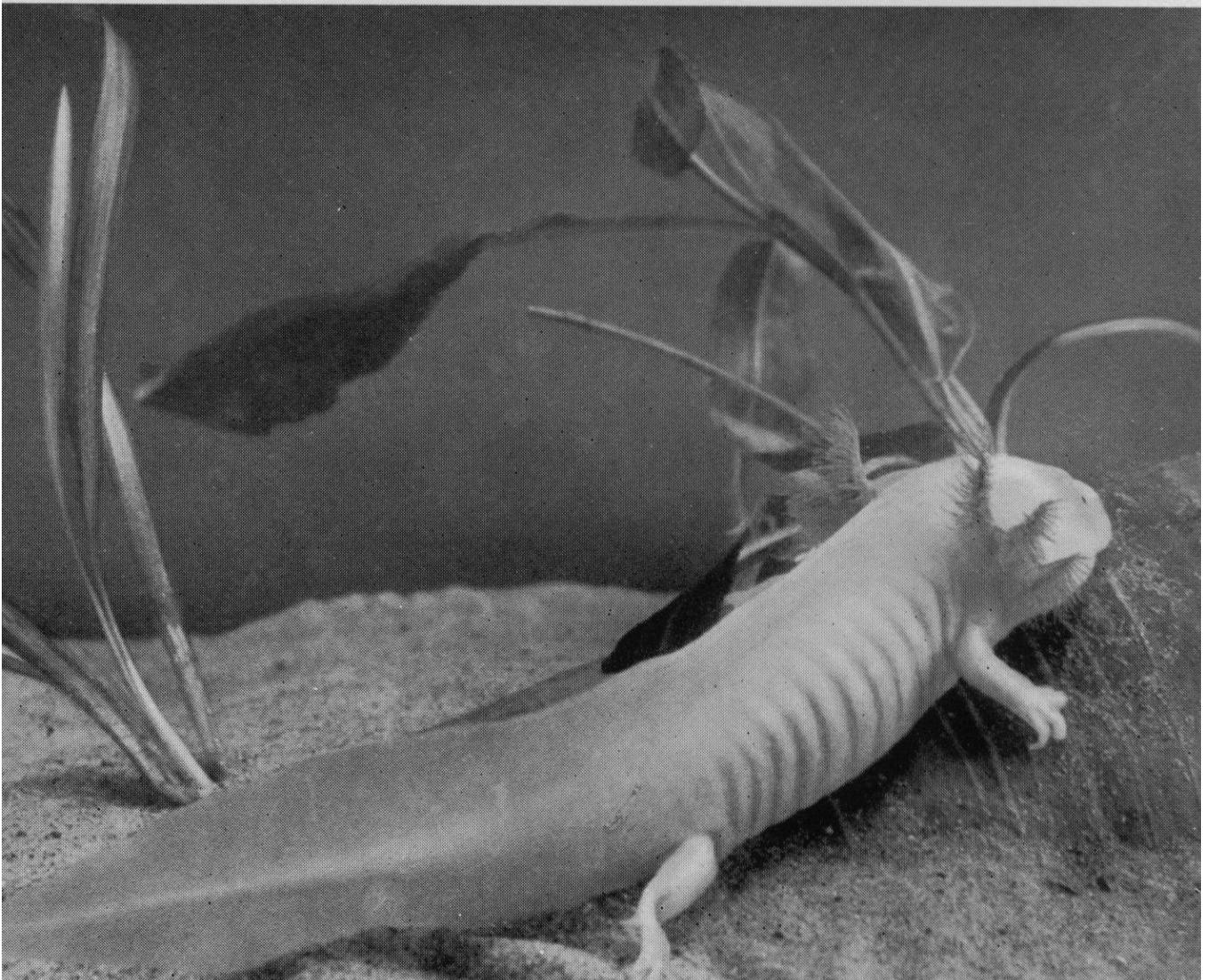
Golden salamander : *Salamandra salamandra*, variety *taeniata* (match-box as an indication of size and not as an allusion to supposed invulnerability to fire)



Crested newt : *Triturus cristatus*

PLATE 23

Axolotl (albino) : *Siredon mexicana*



### THE THIRD SUMMER

another recurrent thrill to hear their grunting croaks heralding the approach of spring.

In early May we heard for the first time the remarkably musical trilling note of the green toad. Our only regret is that the batrachian chorus lasts over such a short period in this country, though maybe we would not gain many supporters for this view.

Reading through the old diaries of this period I find constant reference to Brownie's activities: *Brownie on garden wall—Brownie at home—Brownie on rockery—Brownie under hedge—Brownie home again*. One morning I met Brownie running round the zinc, evidently just about to return home, but when he saw me he determined to keep his secret, turned tail, ran up the apple tree stump and spread himself nonchalantly out in the sun until the coast was clear. This little chap gave us our first proof that lizards have an excellent topographical sense, and make full use of it.

Slowly but surely we were working towards our goal of keeping a representative collection of British reptiles and amphibians, and at last we were able to mark off sand lizards from our list of desiderata. Their official designation is *Lacerta agilis*, but they are considerably less active than the walls or the little native *Lacerta vivipara*, and are quite our favourites among the smaller lizards. The males are very colourful, almost outrivalling the green lizards in their spring livery of brown, so dark as to appear black, and green and silver. The females are generally some shade of sandy or greyish brown with creamy spotted markings, and both are sturdily built, averaging about seven inches, with noticeably squarish blunt heads.

They are extremely easy to tame, feeding freely from one's fingers in a very short time. The famous French naturalist, Rollinat, made many experiments to test the

## LIVING WITH REPTILES

relative confidence of wall and sand lizards, but at this stage of our own initiation we certainly never expected to be able to emulate his courage in holding mealworms in his mouth! It was then a test of our fortitude to put some of the nasty wriggling, tickling creatures on our open hands and proffer them. It did not take many minutes of long-suffering before a confiding little pair of front feet, and later all four feet, were placed on our palms and the feast enjoyed at leisure. The ensuing seasons have, fortunately, overcome our qualms in these matters, and we now often entertain the less squeamish of our visitors by both methods of feeding.

Incidentally, we should not now put any smaller lizards in the sanctuary with the greens as they are likely to be bullied, if not actually eaten! We used a small alpine frame for several seasons but they are apt to get hold of the putty with their sharp claws and 'shin' themselves up a corner, so we got four sheets of strong glass and let these into the ground for about six inches, supporting them with wooden posts on the outside, making sure that the corners fitted exactly. This seems to have solved the problem of impregnability. It has plenty of shade plants, light soil, rocks and, of course, a little pool. A piece of glass is fixed over one end to afford extra protection in bad weather.

When—in mid-October—we were asked if we wanted a slow-worm, we replied in the affirmative, and were much amused to be confronted with a slender creature not four inches long, no thicker than an average knitting needle, golden fawn in colour above, with a black pin stripe down its back, and gleaming pewter underneath. This little fellow seemed rather too small to take its chance of becoming a tasty (if rather gristly) meal for a larger toad or terrapin, so it was popped into the only available receptacle, a goldfish bowl, with damp loam at the bottom covered with



### THE THIRD SUMMER

loose moss. There it spent its first winter very happily, with an occasional meal of one of the tiny slugs which can usually be found under a flower pot standing outdoors.

We had read of the blue-spotted slow-worms which are practically confined to the southern half of England. A few days later I found a beautiful specimen at my feet as I was walking in the further garden, which was promptly added to the collection. The blue is only visible at fairly close range, but some of the more thickly-spotted ones are most attractive. They are said to be all males. The normal coloration ranges through all shades of brown, though the female usually retains the dark stripe of infancy.

Slow-worms are the very simplest reptiles to keep, needing only a home with unclimbable walls, such as a tin-lined box about two feet deep with a piece of zinc laid across the bottom to prevent rotting, a layer of earth and another of moss (not too dry), a shallow water vessel, and a supply of slugs, which they prefer to any other fare which can be offered. They are really legless lizards—*Anguis fragilis*—whose unhurried movements make them much easier to catch than the legged ones, though they are even more prone to part with their tails if not handled carefully, hence their Latin christian name. Records are available of their having lived for the almost incredible period of forty years. It is hard to understand how they ever earned the misnomer of blindworms, for their eyes are as bright and ever-watchful as those of any other lizard. It is unfortunate that the people who kill them on sight in mistake for snakes do not wait long enough to see the movable eyelids, which are an infallible guide to their identity.

They are one of the earliest British reptiles to emerge from hibernation and are often abroad in February. They are much more widely distributed than one imagines, and

## LIVING WITH REPTILES

the easiest way to find out if they are honouring one's garden with their 'slug death' presence is to lay some pieces of slate amongst the grass on a sunny bank—nine times out of ten when these are lifted there will be a basking slow-worm underneath.

By this time another winter was upon us and we were ready to take refuge in the pet-room again which, except for feeding time, had been rather neglected for a while. The tree frogs' chatter died and they squeezed themselves into the crevices between the clumps of growing moss at the bottom of their vivarium, and were then banished to the communal hibernaculum in the cellar. Peek-a-Boo proved himself to be very aptly named, for when his shyness disappeared his harlequin waistcoat was almost permanently on view as he pushed his little head above the water, and peered round him in a most laughable manner.

## Chapter 21

### AXOLOTL

WITH the advent of the terrapin Mel, and the two-foot-six-inch tank necessary to house her, it was abundantly obvious that alterations would have to be made in our own establishment to accommodate her and what, equally obviously, was going to be our rapidly expanding indoor family. At first a stout table in front of the sitting-room window answered the purpose, but quite soon some second-hand aquarium stands came our way and, after a coat of paint, were stood endways on to the same window where the maximum of sunlight is available in the mornings. This position, of course, accelerates the discoloration of the water in all the tanks. The clawed toads' tank was put on the bottom tier below the level of the windowsill, and here they have flourished ever since, so that now we do not always put them out in summer.

A steadily accruing collection of second-hand tanks which we learned to glaze ourselves meant that there was always house-room available. Hence a warm welcome was accorded to the albino axolotl which was brought to us one day and whose gentle expression and entirely erroneous appearance of extreme fragility made an instant appeal.

The history of these creatures is very curious, the true facts about them having only been discovered less than one hundred years ago. At first sight they look like large newts which have not lost their gills, but they are in reality the larvae of a Mexican salamander which never attain adult

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form if they are kept in fairly deep water, so that they do not have to depend upon their lungs for breathing. They breed freely in this state, and have been known to live as much as twenty-five years. As they grow older the gills lose the attractive fringes which they have during their first months. Their Mexican name Axolotl is of Aztec origin and means 'water beast'—their official name is *Siredon mexicanum*.

Axo was three and a half inches long when he arrived but in two months he had added an inch. When fully grown, they are often ten or more inches long and thick in proportion. We considered introducing some newts for companionship but were reliably advised against this, as not only will newts nibble axolotl legs or toes, but the larger axolotls are liable to make a meal of the newts. For that matter, axolotls are not averse to removing each other's limbs on occasion, though as they can grow new ones this is not as catastrophic as it sounds. Then, out of the blue, came news of a very large pair of black or more properly dark brown axolotls in need of a new home—a matter that was quickly adjusted. Axo was delighted and gave them a warm welcome, but unfortunately only survived a few weeks to keep them company.

They live quite contentedly in a tank eleven inches square with about eight inches of water, which stands in a rather dark corner of the pet-room. There is no danger of their escaping from their tank, for their slender legs are not strong enough to bear their weight. In fact, when the water is siphoned out for changing, they look rather like boats stranded on a mud bank by the tide.

They really prefer earthworms to any other food, but are not at all fussy. They are always ready for a meal, and literally stand on their hind legs for it, looking rather like cats with fluffy tails, to grab it from our fingers, their manners

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alas! greatly belying their rather aristocratic appearance, though once the food is in their possession every mouthful is very carefully and thoroughly chewed. Their tank and that of the clawed toads stand next to each other, and it is amusing to see the noses pressed against the glass, and the glares that issue from each tank in turn as the occupants of the other are fed.

Rather to our surprise and greatly to our delight, Mrs. Axolotl celebrated the New Year by laying us about four hundred eggs on December 31st. There had been no weed in the water, but at the first sight of some lumps of jelly attached to the glass, a plant of rather tired-looking water forget-me-not was potted up and put in, and she wasted no time in festooning it with her much larger edition of newts eggs, laid and placed in the same way though not with quite the same meticulous care with which the newt presses hers to the host plant.

The embryos, surrounded by a ring of jelly of most superior adhesive quality, are black on one side and whitish on the other and develop very quickly in a fifty-five degrees to sixty-five degrees temperature. Those which are not attached to weed do not generally hatch very well. It is quite possible to see the succeeding stages with the naked eye—first the circle becomes a crescent, then the heads and tiny gills become visible; in about four weeks the little creatures, not much more than a quarter of an inch in length, begin to kick violently and can finally be seen swimming freely at the bottom of the container.

The ideal food for these mites, which will not require any for two or three days, are microscopic *Daphnia* or *Cyclops*, but when they are so inconsiderate as to hatch in January these are generally unobtainable. So one buys a tube of brine shrimp eggs, which are often used for feeding fish

fry, costing about two shillings and sixpence. In themselves, these are one of nature's miracles in that after several years' confinement in a glass tube they will hatch in about forty-eight hours if put into a glass jar with a dessertspoonful of salt to a pint of water, and kept at a temperature of about seventy-five degrees. Put the jar in place first, and then sprinkle the eggs on the top of the water, as they will not hatch if they are washed on to the sides of the jar. They are almost transparent when hatched but can easily be seen endlessly jumping up and down at the bottom of the jar.

Rinse them through a piece of silk (they will slip through most nylon stockings) *very*, very thoroughly until all trace of brine has gone, then tip them in to the babies, and it will not be long before you see the sort of soaring pounce which is evidence of feeding. (But do be careful of that rinse, for I killed a whole batch once by carelessness in this respect—at least that appeared to be the reason.) After two or three weeks of this they will take finely chopped *Tubifex* or white worms. Incidentally it is best to distribute a large hatch among several containers in case of accident.

Once she had started the female presented us with six families in two years but, of course, only a few of the fittest survive—and they are not averse to a little cannibalism. But they are tougher than one thinks: we once had the misfortune to break a small tank, and had to scoop the little creatures off the lino with a teaspoon—and every one survived! We were told that two blacks were unlikely to have albino children, but there were several whole or partly albino, though so far we have never succeeded in raising one to maturity—like all other albinos, they seem to lack stamina. Maturity, by the way, can be reached in six months. Axolotls are much more obliging in declaring their sex than most batrachians—the female is mostly rather larger, but

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while the male has a little cushion between his back legs and the base of his tail, she is quite flat underneath.

Although they do very well indoors, they grow at an incredible rate in an outdoor pond—our last batch seemed inclined to die off, so at about the half-inch size we put them into a newly completed pool and in three months they rivalled their two-year-older kindred. Axolotls are very temperature-conscious, and above all must have plenty of oxygen. Just as the golden rule with fish is an inch of fish to one gallon of water, so with axolotls it is not more than one to two gallons, otherwise you will find them fainting on the surface, especially if it is at all warm—then pop them quickly into a nice cold bath and they will probably recover. It is also mistaken kindness to bring them indoors from a pool for the winter—they are quite likely to die and as they have survived three inches of ice over them in water two and a half feet deep, we no longer worry about them. So far they have not bred outside, but we have great hopes of the coming season.

We did try the experiment of getting them to metamorphose into salamanders, for which injections are the usual method. They should be at least five inches long, and then one puts them into fairly shallow water and allows it to dry up. We were not very successful, and after losing two just at the critical stage, put the others back into deeper water and decided to postpone further attempts until we had a larger stock. So far we have never had the courage to try again.

## Chapter 22

### THE CHAMELEON CHRONICLE

OUR next venture introduced us to the charms of the most unique of all lizard families—the chameleons. Nine times out of ten this is the first name that springs to the mind of strangers who hear that we keep lizards, and it is surprising how many soldiers who served in tropical countries had a tame chameleon somewhere around to help them reduce the local fly population.

Our dealings have been exclusively with the true dwarf chameleon, *Microsaura pumila* (all of which really means small lizard), from South Africa and the slightly larger but not so colourful *Chamaeleo bitaeniata elloti* from Kenya. Their life span is not particularly long, but they make up for it in interest and entertainment value, being in any case much easier to deal with than the larger, green, so-called common, species which is more familiar in Zoos.

There can be little need to try to describe the several peculiarities of the chameleon's physical attributes. Their protruding expressionless eyes, which move independently so that while one of them is watching a luscious meal, the other can swivel around and keep a look out for an approaching enemy. Their amazing telescopic tongues which can shoot out at lightning speed to reach a fly which thought itself safe at a distance of about six inches. Their feet which, like those of parrots, have two toes facing one way and three the other, giving them a vice-like grip on a twig which in time of trial can be reinforced by their prehensile tails.

Actually a chameleon's ability to change colour is not



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nearly as great as popular opinion suggests; they certainly cannot, as has been facetiously claimed, emulate a square of tartan! In any case their blend of colour is such that it will merge perfectly with the leafy background of their home according to the strength of light which reaches them. Were it not so, they would not have survived the endless hazards which beset them.

The dwarf chameleon is a particularly beautiful little creature, the usual ground colour being a grassy green, with their sides decorated in brick-red and violet, and touches of blue and primrose on the throat and snout respectively. The Kenya chameleon is more soberly attired in shades of brick to brown, with lighter patches on its sides.

Their total length being at most six inches, they do not require a very large cage—the greatest necessity is, of course, height, to allow for the construction of an imitation forest. An inch or so of sand on the floor covered with a thick layer of moss will help to retain the necessary humidity. The moss can be readily renewed taking all dejecta with it. Plenty of twiggy branches should be arranged so that the animals can reach every part of the vivarium, as it would be very annoying to see a tasty dinner perching on the ceiling just out of reach of even such a long tongue. Growing plants or cut foliage in a narrow-necked bottle are a necessity, and it is well to have them hanging from above. Any of the tradescantias are ideal, or anything else with ample foliage which will endure the close conditions. This is a case where it is quite useful to have lights both at the top and bottom of the cage, as a water vessel placed under the lower one will help to encourage the necessary humidity.

A drinking-vessel will not actually be required, as they drink only from moisture on the leaves, hence the necessity for living foliage. They are thirsty little creatures, who

thoroughly enjoy a daily mist-like sprinkle from a scent spray or small syringe provided that the drops are never allowed to fall directly upon them. It is amusing to see them imbibe by rubbing their faces up the leaves, and they will quickly (for a chameleon) converge on the spot as soon as the shower has fallen. Always be sure that water in this form is available, as lack of moisture is the cause of many fatalities. (The first sign of sickness in a chameleon is the sinking of their prominent eyes.) There is no doubt that the correct balance of warmth and humidity is most easily attained in some sort of glasshouse, and under such conditions they prosper even more happily. They will eat almost any winged insect, flies of all kinds, butterflies, moths and spiders, and some will even take mealworms or gentles and crunch them with evident enjoyment.

There is something very restful about the calm unhurried pace at which a chameleon lives, in vivid contrast to the abundant vitality of most lizards. The slow, deliberate lifting of each foot in turn from the branch, sometimes with a pause in mid-air, is followed by the leisurely unwinding of the tail-hold, a slight shift forward, and an equally leisurely recoiling of the tail round a branch and replacement of the foot. Sometimes the little creatures will sway from side to side in emulation of a breeze-blown leaf, for quite some time between each footstep, or sometimes they will move in hesitant jerks like clockwork mechanisms. If they are alarmed they will either turn themselves broadside on, or flatten themselves to look like a large leaf; or they will puff themselves out and give a little 'huff' of displeasure.

Our pet-room has a wonderful collection of differently coloured flex festooning the beams, as each vivarium is lit individually, and this maze is very popular with our chameleon quartette, who protest vigorously when they are

returned to their cage. It is very hard to keep the temperature of any room really warm at night in such an old house as this—there are always cracks and crannies to let in draughts in spite of an ever-burning fire—and we were afraid they would grow too cold. It is also difficult to keep them supplied with water under such conditions, though the dwarf pair have learned to drink from a fountain-pen filler held up to them. They are very intelligent little creatures and quite capable of finding their way from all parts of the room to a knotted string suspended from a hook, which is their staircase to the aerial highways—or is this a result of an instinctive urge to reach an arboreal haven?

During the railway strike there was a complete hold-up in the supply of maggots, so we used to take the chameleons on our hands to the side of a shed where flies always congregate to sun themselves, and there they would cheerfully account for at least a dozen each. Finally we became smart enough to make life easier, if rather odorous, all round, by hanging a piece of stale meat in a convenient corner, so that an unfailing supply of flies was always at hand. They have enjoyed many a summer afternoon wandering on the struts of the garden swing and are unable to escape from any spot whence they cannot reach the ground, such as a hanging pot plant. We never leave them unattended in case a hungry bird of prey should be passing over.

When we first had them we used to put their cage out into the early autumn sunlight. One September morning after doing so I went off weeding for an hour or so. Coming back I glanced into the cage as I passed and—in the cliché—thought my eyes must have deceived me—But no—there on the edge of a leaf sat a tiny, perfect replica of a chameleon. It takes quite a while to see baby chameleons until one has got one's eye in, as it were, but after a while I discovered

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that not only was there one, but others scattered around on the vegetation, and slowly the figure rose to eleven. There had been a suggestion that she might be gravid, but as the gestation period is believed to be a year, and she was not very plump, there seemed to be no particular hurry about having a store cupboard ready for such an event. Incidentally, their birth cannot be said to be a very comfortable affair for them, as Mamma walks about most of the time pushing the new arrivals out of the way with her hind feet! Both of the species we have kept have had the advantage of being live-bearers; indicating that they are denizens of the mountains, or of the cooler Southern areas, of Africa.

The first step was to send a telegram, *Please forward baby chameleon food immediately!*—the next to have an exhaustive search for green fly, black fly, white fly or any other microscopic insect that might be lurking around; but this was the end of a cool, wet spell and life was very difficult for a day or two. The little brown fruit flies—*Drosophila*—which haunt rotting fruit were the urgent necessity, and there wasn't one to be seen. However, the S.O.S. received immediate attention, and within a few hours supplies arrived, but even then the miniature gentles refused to turn into flies quickly enough for our requirements.

So now we had to learn to breed fruit flies. At first sight it seemed terribly complicated, but it is nothing like as bad as it looks, and it simply has to be done if one has any idea at all of raising lizard babies—and, of course, they are a great help when froglets appear. There are several simpler versions of the same formula, but the resultant culture will need much more frequent renewal, and the aroma of cheese which occasionally floats around in the hotter months is likely to be intensified.

The first requirement is a packet of oatmeal—fine is

recommended, but Quaker Oats are more easily obtainable. The most difficult ingredient to get hold of is a white powder called Nipagin which only large chemists stock—failing this, Nipasept is a good substitute which lasts for months. Agar is the best form of gelatine to use, but this, too, is scarce and expensive, and any health food store will provide an alternative called Gelozone—a small tin of this goes a very long way too—as will the smallest possible tin of molasses.

Now for the recipe—the quantities given will provide for six to eight jars, which will be enough to keep in hand, though if one has a flourishing brood of anything between five and fifteen hungry babies it will be necessary to step up production!

First take:     13½ ounces of water  
                   1 small teaspoonful of molasses—  
                                   medium strength  
                   1 pinch of Nipagin

and heat together until it boils. In the meantime add

2½ ounces of water to  
 ¼ ounce Agar or Gelazone

and  
 5½ ounces of water to  
 2½ ounces oatmeal

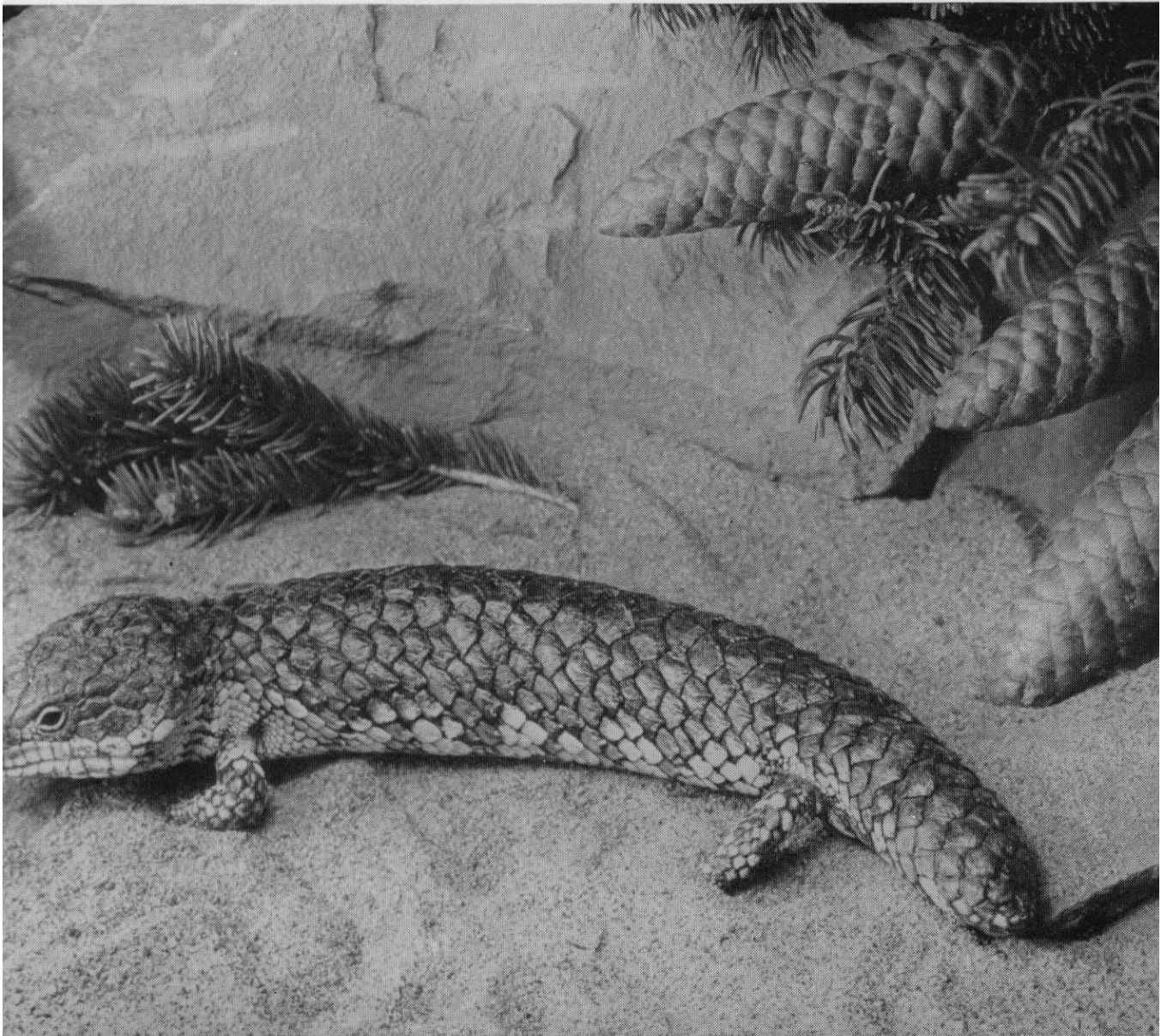
Having mixed these separately, stir them together and finally pour the boiling fluid into the mixture—after much experience I have found this to be the easiest way of avoiding lumps. Bring the mixture to the boil again, and finally simmer it for an hour. It is then ready to pour into any available jars, warmed first to avoid cracking, to a depth of about one and a half inches. (One-pound jam jars or cream bottles are a good size.) Allow this to cool, and then put two or three drops of yeast solution in each jar with an upright piece of cellulose, or blotting- or corrugated-paper for the flies to sit on.

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Now add about twenty fruit flies to each jar and stopper with cotton wool or muslin. How to get the fruit flies? Well, if there is any rotten fruit about, put a jam jar containing over-ripe banana in its vicinity, have a large wad of cotton wool handy, creep up quietly, with no vibration or shadow and with any luck you will entrap some, if you are quick enough with your cotton wool. If, as usually happens, it is the wrong time of year for this sort of thing, maybe a local technical college can help out. At first we were very puzzled as to how to transfer the flies from one jar to another, but if one gives the inhabited bottle a sharp tap first and then puts the bottle tops together on a horizontal plane, with the empty one towards the light, it is a comparatively easy operation, especially if one leaves them in a cool place for a while first, to reduce the exuberance of the flies—but be ready with the two ‘wedges’ of cotton wool as soon as the bottles are put down.

When feeding these flies to any baby lizards, put the jar in the cage before removing the stopper. It is a very wise precaution to have a twiggy ladder of some kind—bamboo is most useful—to drop quickly into the jar to save accidental suicides caused by falling into the sticky mixture, and finding no exit. Baby chameleons insist on walking round the rim if they can get to it, and it is surprising how far they can reach with the assistance of their tails. A piece of banana dropped into the bottom of the cage will attract the flies to more get-at-able positions, and in many cases will be appreciated as an article of diet on its own.

Let me tell you, raising chameleon babies is no job for the novice, but success does come with experience and after quite a bit of disappointment. Often there seems no apparent reason for one’s failure, though sometimes the babies may



Stumpy—stump-tailed skink : *Trachydosaurus rugosus*



Kenya chameleon and babies : *Chamaeleo bitaeniata elloti*



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have been premature, or weakened by **un**avoidable circumstances, such as, with our first batch, the shortage of food due to the railway strike. But of all reptile offspring surely these must be the most enchanting. In four days they will learn where their food comes from and as soon as one opens their vivarium—they must be parted from the adults—immediately these inch long scraps of independence line up along the branches which overhang the buffet and make short work of the insects as they fly up or run along the twigs.

In a bright light the little creatures are light fawn in colour, but at night—or if they are not well—they look like pale ghosts of themselves. The most fascinating sight of all is to see them settle for the night when their sunshine bulb is switched off. Our 'forest' was composed of bamboo sprays, which seemed to meet with approval, and they would solemnly clamber down to the safety of the ends of the whorled twigs too frail to bear the weight of a prowling predator, turn around to face upwards, and arrange themselves at the very tips, with their little tails tightly coiled like those of sea-horses.

## Chapter 23

### STUMPY, ZEBBIE AND THE OTHER SKINKS

WHILE the baby chameleons were holding the centre of the stage, the first skinks came to join the family circle. Far be it from me to be able to say which are our favourites among the inhabitants of the pet-room, but there is no doubt that the members of the skink tribe will always stand very high on the list for their engaging manners, and ease of management.

All skinks have an easily recognisable pattern. Their bodies are mostly rounded—more like snakes in shape—with smooth, glossy scalation which enhances the similarity of appearance. Their heads are rather blunt and merge into the body with very little shaping at the neck, and their short legs and neat feet seem sometimes rather inadequate for the weight they have to carry—in fact some species have lost, or are in the process of losing, these appendages. Their tails are mostly far from being an outstanding feature as they are in so many lizard species.

Our first acquaintances were *Mabuia trivittata*—three-lined skinks from South Africa—about nine to ten inches long, of a slatey blue-grey ground colour with lighter longitudinal lines and spots. Whether we have been extremely lucky, or whether they are always such friendly little creatures, we do not know, but we have only had one which was not hand-tame in an extremely short space of time. They would climb freely all over us, and once they had found the hearth, made straight for it as soon as the cage was opened, and would spend the rest of the evening curled

up by the corner of the grate, with their tiny hands tucked backwards along their sides—which attitude is the outward sign and symbol of the acme of lizard bliss! (A sharp eye had to be kept to see that no-one got ideas about moving nearer to the fire.) Their individuality was very marked—one would only move to come and look up when he wanted water poured into a little puddle for him to drink—another would take periodic explorations round the room between his baskings—and a third would fidget from place to place in the fender. At bedtime they would do anything to avoid being put in the vivarium, run up one's sleeve, or dive deeply into one's clothing.

The behaviour of one little chap was so predictable that I used to take him out to tea, nestling in my coat sleeve—but only where the hostess welcomed such guests. Still another entirely refused the amenities of the community bed and board with the zonures, and lived entirely among the cushions of my chair. Many a visitor who contemplated leaning back on the chair has had a hasty warning to look under the cushion first. When old age finally removed the last of the clan, the pet-room seemed strangely empty for a long time, and we look forward to a renewal of these friendships at the earliest possible date.

Of course, we have had to drill ourselves very strictly always to shut the door, but we have obtained a second line of defence in the shape of a piece of tin to fit across the lower part of the doorway, 'just in case'. At first Meg looked rather sadly at the invaders of her sanctum, but she soon learned to be amused at their antics—provided that she is safely ensconced on her chair. Occasionally a lizard goes exploring by that route, and she will endure it, rather unwillingly, if one keeps one's hand on her. One thing is certain, that she would never willingly hurt anything.

In the beginning, we were chary of leaving our cages open, as we could not see how we were ever going to get the inmates back to their rightful quarters. We soon found that they know perfectly well where they belong, and will almost certainly return there of their own accord—once they have had enough of visiting or exploring. Occasionally we have a green lizard indoors for a while, and this will select its own favourite retreat, usually in the fold of a curtain and there it can be found consistently. One slept for weeks in the same place on the mantelpiece. It is surprising how hard it is to find the lizard that means to remain hidden, even with the minimum of furniture in the room.

The next skink to be added to the family circle was Stumpy, beloved of all who see him. At first sight he reminds one of an animated fir-cone and as with the modern cars, one is not always sure which end is which. Their original discoverer thought this lizard had two heads when lying asleep coiled in a circle as they usually are. He is a stump or bob-tailed lizard—*Trachydosaurus rugosus* from Australia, and most of this many-syllabled name simply means rough-backed. When he arrived he was only eight inches long and comparatively slim—now he has reached his maximum growth of fourteen inches with a waist-line of nearly eight inches. His head is broad and blunt, and his tail about the same length, but much more rounded, and he uses this as a storehouse for the fat which he needs for his sometimes quite lengthy fasts before and after a slough. He scared us indeed the first time he refused to eat for some three weeks but now we take it as a matter of course—and what a beautiful fellow he is when he has disposed of his old suit and emerges in his gleaming immaculacy! The discarded skin is surprisingly thick, and often comes off almost intact—gloves and all! The scales, *really* resembling those of a pine cone, are brown

## STUMPY, ZEBBIE AND THE OTHER SKINKS

with a few creamy markings, his waistcoat reversing the colour scheme. When he yawns the wide pink cavern of his throat—and his dark purple tongue—make an awe-inspiring spectacle for the smaller lizards.

He adores banana, and will make short work of half a one held out with its skin turned back. He also loves pieces of meat or a nice juicy earthworm, while an egg drink goes down extremely well as does a luscious dessert of ice cream. For such a solid looking animal, however, he really eats remarkably little.

In a sense, these bigger lizards rather spoil one for the others—they have so much more individuality, apart from the fact that their life span is so much longer. Admittedly they are expensive, largely because of the air freightage, but reckoned over the years they are really cheaper in the end. In our particular case we do not have to be quite so vigilant about the escape routes which the cracks and cervices of such an old house as this provides in abundance. Incidentally, the larger fry among the skinks require the simplest of bedding—sand, cork or newspaper, provided it is something they can burrow into out of sight, with a nice large piece of bark or cork as an extra coverlet. A temperature around eighty degrees suits them nicely.

There was one awful summer day when the pet-room door was left open for a few moments. By the time it was discovered, Stumpy was gone. It was before the days of the piece of tin and, as always, the back door was wide open so, of course, no one knew whether Stumpy was indoors or out. Under the furniture and behind the furniture, under every rug, in fireplaces—every conceivable spot was feverishly searched two or three times, with agonised scourings of the garden at intervals; but it was too windy to hear the betraying rustle which he makes when allowed out under

strict supervision on summer afternoons. All hope seemed lost and the exhausted searchers had retreated in despair, when suddenly a faint sound reached me—surely a Stumpyish sound? Another silence, and then an unmistakable Stumpy snuffle, loud enough to be located. The grandfather clock in the hall had a block behind it, but the block did not quite fit, and Stumpy had found a way in. A dusty and disgruntled lizard was very quickly returned to solitary confinement.

He has never forgotten that he once walked out of that door, and knows perfectly well that it leads to freedom. He also knows whether it is open or not when he is at the other end of the room, and makes a beeline for it when it is; so when one day last Spring he made himself scarce again, we thought, when the usual frenzied search had failed to reveal him, that he must have slipped out when one of us went into the room—a trick he had tried before—and, of course, the back door was open *again* and the tin barricade *not* in use. At least he could not climb walls or stairs which confined our search to the ground floor, and it did not seem possible that such a comparatively large animal could be lurking undetected. This constant battle of the wits is an accepted part of the hobby—having something of the lure of the chase maybe!—and more often than not the stories have a happy ending. Of course these trials could mostly be avoided were the animals kept strictly confined to their apartments, but we are convinced that this freedom contributes largely to their well-being.

For ten days his photograph adorned a 'Missing' notice on the gate, and as the weather was cold and frosty our hopes were at a very low ebb. Then, on the eleventh day I was standing in the garden when Frank brought out, with the back of the tank towards me, the sand lizards for

their daily airing in the garden, and there, framed in the opening to the false bottom of the tank, where the fitting for the heater had been temporarily removed, was Stumpy's plump little face peering out! My joyous shriek of, 'We've found Stumpy!' left the sand lizards in imminent danger of being ignominiously hurled to the ground—while a mystified Frank tried to solve the riddle of what I had seen and where—and was loud enough to bring the neighbours to see what new contretemps had arisen. His propensity for exploration had led Stumpy to creep in when the tank was standing on the floor, and no doubt it was only the cold which had deterred him from walking out into unlimited space on any of the preceding days.

About two months afterwards, no doubt as a result of this semi-exposure, he developed a cold. At first we attributed the fact that he was sitting round with his mouth open to the fact that the weather was by then freakishly hot for England. However, we soon realised that it was something more than that; so, after we had taken professional advice, he was given a daily tablet containing sulphanilanimide drugs. After continuing with this for two or three weeks with no apparent improvement, we changed the treatment to three or four drops of Argotone, which can be obtained from any chemist without a prescription. But this preparation is not only very sticky, but stains everything with which it comes into contact, so we gave that up as well.

Being always rather chary of drugs, we decided to try instead a strongly-recommended herbal remedy for all kinds of catarrh—a mixture called Olbas—which certainly made him sneeze, thereby probably dislodging the mucus instead of allowing it to go to his lungs, and to this we attribute his final cure in the space of a few days. He was remarkably amenable to opening his mouth for the tablets, and by mixing

the Olbas with a little honey it was even easier to smear it round his mouth from whence he inevitably licked it. Reptiles, being tough, are often slow to show symptoms of their discomforts, so one must not be surprised if they are equally slow in their reactions to treatment. Colds and lung troubles are always to be dreaded and guarded against with these creatures—avoid draughts like the plague. One hopeful sign was that he never lost his appetite. In addition to his dosage he was put out in the sheltered frame on the lawn to get as large a quota as possible of sunshine and violet rays. We are certainly lucky to be able to relate that Stumpy has had no recurrence of the trouble.

Curiously enough, in the winter he scorns to sit in the hearth, but has a penchant for the coldest corners and most dangerous places—such as under the corner of the curtain, perilously near to passing feet—from all of which he has to be routed quickly and returned to his warm cage. Another proof of his excellent memory: one day a chair cover was caught up in such a way as to form a sort of tube. Stumpy found it—and incidentally gave us another fright, until we noticed the bulge. The next day he was there again. He has a favourite spot under a plastic tablecloth to which he returns again and again.

A great friend of ours who dearly loved all our animals, was in hospital for a long time and yearning to see them. Stumpy was put into an innocent-looking haversack and smuggled into the ward, where he had high old times popping in and out of the patients' beds as Sister came and went!

In the course of our 'lizard-sitting', we have been lucky enough to have specimens of two rather unusual species of skink staying with us while their owner was otherwise engaged. The giant skink—*Egernia dorsalis*, a great rarity from Australia, simply took possession of the premises,



## STUMPY, ZEBBIE AND THE OTHER SKINKS

spending his daylight hours on the south window-sill, reached via a convenient chair and table, and his evenings on the hearth. He was like an enormous sixteen-inch version of the little Mabuias, with the sand-coloured skin of a desert dweller. We hated the moment when the parting came. The second visitor was an Algerian skink—*Eumeces algeriensis*—another inhabitant of sandy places, whose sable skin was prettily decorated with orange hieroglyphs. He was perfectly friendly, but spent most of his time under his blankets, and was rather exclusive about his diet, which consisted almost entirely of beaten egg—until just before his departure, when he deigned to notice some earthworms.

The last newcomer to the fold belongs to a species on which we had long cast covetous eyes—a blue-tongued skink, *Tiliqua scincoides*, again from Australia, whose almost apron-shaped tongue is, as the name implies, a bright navy blue and very conspicuous in use. The body colouring tends more to slate blue, with darker diagonal stripes across the back, and creamy underparts; some specimens have brown barrings on their sides. Skinks, by the way, are mostly live-bearers, but so far our animals have arrived at too tender an age to breed.

Our first blue-tongue was an engaging little creature about eight inches long—though due to grow to about two feet—who would climb, without invitation, an extended trouser leg, to seek asylum in a nice woolly cardigan, every night of his life. We have a probably groundless theory, suggested by our experiences, that the individual lizards which seem almost to seek human companionship are not long for this world. Be that as it may, we had only had our Zebbie—short for 'zebra stripes'—a few weeks when he began to show disquieting symptoms of what we now know to have been rickets. We nursed him assiduously for five months,

dosing him with sulphanilanimide drugs, cod-liver oil, milk and everything else we could persuade him to take; but just as it seemed as though we might be winning the battle, he sloughed twice in a fortnight—an effort that was too much for him—and slipped away. With that complaint it was probably hopeless from the start.

We knew that his replacement was 'must', but it was nearly a year before opportunity knocked. Now we have Zebbie II, a beautiful fellow, nearly mature, past his acclimatisation troubles. He shares the family predilection for bananas, raw meat, worms, eggs and milk, and his idea of caviare is a couple of the nice large snails which are such unwelcome denizens among stones or at the base of a wall, so he is useful as well as ornamental. He and Stumpy share a cage with the greatest amiability, as well as the summer solarium on the lawn (Stumpy was isolated during his indisposition). His reaction to any sort of alarm is to tilt himself sideways, puff himself out, and emit a quite snake-like hiss, though after knowing us for a couple of months he is now beginning to dispense with this greeting when we pick him up.

So much for the Skink family to date.

## Chapter 24

### THE FOURTH SUMMER

OUR fourth summer saw the final achievement of a complete collection of British lizards and batrachians. As has been told, the three species of newt had already been acquired, also common frogs and toads—the edible frog is not a true native—sand lizards and slow-worms. Viviparous lizards abound in the neighbourhood, and we kept some in captivity for a while, both outdoors and in, so that we could learn a little more about them. In a mildly-heated vivarium they look most attractive—trotting about incessantly on their apparently never-ending business, and showing off their delicate range of colouring from silvery green to dark brown. They tame very easily and breed quite freely in captivity, producing their tiny, very dark brown babies about the end of July. These are so small that, unless fruit flies are available, we prefer to release them rather than have the anxiety of procuring food for them. In spite of their small size, the adults can manage mealworms, but enjoy them much better if they are cut in half. They also appreciate hedge sweepings, but have little use for ordinary maggots.

One notable characteristic of these lizards is their habit of entering the pool voluntarily and swimming across it to reach an objective on the other side, a thing none of the others have ever been observed to do, though they go down so constantly to drink. This is the reason why some reptiliaries, like the large one at the Zoo, are built with a moat all round the centre island, as an extra deterrent to

## LIVING WITH REPTILES

escape, though a refugee in flight does not stop to consider whether he is on land or water.

At long last we had been able to make contact with someone who had some immature natterjacks to dispose of, and he sent us eight of these most adorable little creatures—mites not much more than one inch long, with their neat yellow stripes down their backs. Smart people these babes were, too, who found the dining-table in no time! These toads favour a considerably drier climate than the common species; in fact their native haunts are sand dunes and quarries where they can burrow freely, so a nice little sand pile was tipped into Toad Hall. There they flourished until, a year later, we had a sharp September frost after a bad summer, which combination appeared to be too much for them, and they all disappeared, leaving us to wish we had taken some indoors and fed them up. However, they have now been replaced with another fine batch, as well as by a pair of adults, so we hope they will settle down and breed in due course. In any case, a few will be taken in in early autumn as a safety measure.

Their main colour is olive green with pinkish and yellowish markings; below they are grey, or rather white, spotted with black. Their chief characteristic is their funny little running gait, which makes them look more like a mouse than a toad, especially as they do not grow very large. They are not fussy about their food, and never say 'no' to a mealworm.

In the sanctuary, life was jogging along as usual, with Garry paying periodic visits to his harem, and Brownie turning up at home and abroad. Garry is now so tame that he will come off his pet bush to feed off our hands and then go back to finish his siesta. We have long ago ceased to return him to his rightful residence, but he comes back every

#### THE FOURTH SUMMER

autumn to spend the winter within the safety of its walls, so he has evidently found our human efforts to minister to his comfort entirely satisfactory.

The highlight of this summer was the hatching of our first green lizard's eggs. When it was apparent that she was about to lay, we brought the little female—a new one who had tamed very quickly—indoors, and put her in a vivarium with two to three inches of sand, a large piece of cork as a screen for her activities, and a fifteen-watt lamp for sunshine. After apparently shifting every particle of sand from one part of the cage to the other, she rested a day or two, and then—and this a pointer to the conditions they really like—made her final hollow in the damp sand where she had upset her waterpan. In a most obliging manner she elected to start laying that evening, in full view, so we were able to watch discreetly while she presented us with thirteen eggs in less than two hours. As soon as she had obviously finished, and was thinking of scratching the sand over the eggs, we removed her from the scene of action, so that we were able to pick them up one by one with a spoon without any difficulty. This is a tricky proceeding as they *must* be kept exactly the same way up as they are laid, on account of the air sac inside.

We followed the method described by another herpetologist who had been very successful, and put them in an open-necked jar of sand, covered them with moist moss, put a piece of glass over them and stood it in the tank with our smaller terrapins where the temperature is a steady seventy-nine to eighty degrees. One or two shrivelled and went mouldy immediately, and were removed.

The eggs were laid on June 19th, and for some time there was not much to note except that in a good light it seemed as if one could detect a slight darkening as of a developing

embryo. By about the beginning of August they were certainly larger than they had been originally. Then three more began to wrinkle and shrivel, and hopes, correspondingly, to fade.

If they followed the pattern of the other batch, they were due to hatch on August 16th, the date of the local flower show—a thing we are always much concerned with. After the usual hectic day that precedes such an event we took a last peep under the moss just before midnight and—behold!—two of the eggs (ones which had not sunk into the sand at all) had small bubbles on the top. Just as we were trying to decide what this meant, out popped a tiny head through the evidently already broken end of one shell. Weren't we thrilled—but what a time to choose! We watched for nearly two hours while the head advanced quite a bit, and the other nose appeared, and then we left reluctantly to get a little sleep.

At 7 a.m., the second baby was lying placidly on the moss looking curiously round at its peculiar surroundings; but the first one had evidently not been able to muster the strength to break free so, acting on the principle of do or die, I picked up the egg in my seemingly gigantic fingers and gently squeezed the little fellow out. It did not seem possible that such a limp little scrap could possibly hold on to the spark of life. However, they were put into a warm vivarium and by the evening both were quite lively. They were only about two-and-a-half inches long, and mousey brown in colour.

This was where the supply of fruit flies came in very useful. After about two weeks on this diet, we did a little hedge-sweeping, and watched in horror when, ignoring the microscopic flies, they went for all the largest spiders they could find and swallowed them avidly. After that, all the

#### THE FOURTH SUMMER

offerings were 'screened' as carefully as possible before being introduced, but often it seemed as if they must choke themselves.

The smaller one flourished for a time but could not survive the so-often fateful first moult. The stronger one grew apace for about six months, feeding freely upon anything that was offered except maggots, which no green lizard appreciates. He loved minced earthworm, and graduated to whole mealworms, which were just touched with cod liver oil, about once a week. But in spite of all this attention he, too, faded out when he had grown to about six inches.

We comforted ourselves with the reflection that as only two of the thirteen hatched, though the remaining eggs all contained nearly mature embryos, our conditions were quite evidently not near enough to the ideal, and that because of this the stamina of these two was impaired in pre-natal days. However, what can be done once can be done again, and done better, and we are eagerly awaiting the next opportunity.

A friend who hatched a clutch of sixteen and raised most of them, put his eggs into sphagnum moss, soaked and wrung as dry as possible, over damp sand in a tin which was covered with a perforated lid and under which a fifteen-watt bulb was kept constantly burning to maintain a uniform temperature of approximately eighty degrees. The condensation from the lid regulated the humidity. We propose to follow his example next time, as it seems likely that excessive moisture was our downfall.

## Chapter 25

### THE GECKOS—THE ANOLES—AND THE MARINE TOADS

FOR entertainment value among lizards, the very large and widely distributed gecko tribe are very hard to beat. In spite of being rather more nocturnal than otherwise, they love to pile up in the sunshine, real or artificial. In themselves they are no more expensive than any other lizard of similar size, but a slight drawback is that one really needs several specimens, to be able to observe their endless quarrels, love-making and stalking activities.

Like chameleons, they have several claims to distinction, the most notable being the ability of a good many of the species to walk on the ceiling, for which accomplishment they are specially endowed by nature with pads on their feet constructed on the principle of a suction cup. Some species are also unique among lizards in being able to utter a distinct cry, of which their name 'Gecko' is supposed to be an imitation. Probably none of ours were the correct species, for we never heard a sound.

Their eyes are strikingly unusual, being very nearly round and covered with a transparent skin exactly resembling a miniature watch glass, which they wash with their long tongues. Under this protective covering the eye can move freely, and the pupil contracts to a narrow slit like that of many another night prowler. The eyelids themselves have been reduced to tiny folds of skin.

Most geckos have soft bodies and the granular type of scalation. The tails of the different species vary a great





Blue-tongued skinks : *Tiliqua scincoides*



Anoles : *Anolis carolinensis*

deal in size and shape, but all shed them with the utmost rapidity at the approach of danger; however, it only takes them a very short time to make good the loss. Their colouring is, on the whole, rather drab, though generously ornamented with spots and streaks of darker hues.

They need a vivarium on the same lines as other tropical lizards, but like an extra depth of sand for the floor and prefer bark of some kind for their shelters. But beware!—they will dodge around the furnishings and be gone out of the vivarium in a flash, probably while you are looking the other way, and you will be very lucky if you manage to catch them again. We had a marbled gecko haunting our walls for weeks until it was rash enough to go to sleep under a cushion one day, and just for once my speed was better than his.

These easily-kept little lizards will eat practically everything that is offered to them, though, of course, flies or moths are the most popular diet, and they are not averse to a meal of their own children. However, one of their more engaging characteristics is their propensity for laying eggs in captivity, and these are said to be reasonably easy to hatch. The pair which ours laid for us had, unfortunately, been well and truly rolled in the sand before we found them, instead of being attached to a convenient piece of bark or something of that kind, in the usual way.

Another very appealing family are the anoles, of which the species known as *Anolis carolinensis* has the advantage of being one of the cheapest of tropical lizards, as well as being particularly amenable to captivity. They are often known as American chameleons, to which appellation they have no claim whatever, although, curiously enough, they can easily outdo the true chameleons as quick-change artists. These changes are, however, like those of the chameleons,

influenced more by conditions of heat, light and moisture in their surroundings, or by fear or anger, than by the particular colour of their resting place. They range between a brilliant velvety green and nut-brown, which makes them extremely difficult to distinguish in a well-furnished vivarium.

In appearance and habit they are anything but chameleon-like, for except when they stalk a fly as a cat might stalk a mouse, they move at an astonishing speed, jumping from branch to branch with great agility. They share with geckos the ability to climb at almost any angle as they, too, are fitted with sucker pads under their toes. Their average length of six to seven inches comprises a rather wedge-shaped head and a well-defined neck, slender bodies and long and tapering tails. The most outstanding characteristic is the throat pouch of the males, which they are able to distend at will, and which, in moments of stress, glows with a vivid crimson, being normally greyish white. Their scales are very small, and the skin feels rough to the touch.

These enchanting little creatures quickly become tame and have an endearing habit of returning constantly to the same spot however far afield their wandering may have taken them. One of our males appropriated the neck of the twenty-five watt bulb as his base of operations, and woe betide any would-be usurper. They require conditions identical with those for chameleons, though, instead of a twiggy jungle, they rather prefer an imitation tree in the shape of a mossy branch up and down which they will dash at great speed. Some specimens will drink from a dish, but this is not to be relied upon, and a daily spray should not be neglected. Like the true chameleons, anoles will thrive in a greenhouse during the summer months.

They are not fussy about food so long as it moves; but after reading of how a garden spider wound a web round the mouth of its would-be captor, and caused the death of the anole, we have always kept spiders off the menu. The killer may have been an extra big one, but there is no sense in asking for trouble. Like all small and very active lizards, they require more food than the bigger, more lethargic species which mostly need a danger-signal to speed them out of their normal indolent pace.

Anoles, too, breed very easily in captivity, pushing their eggs into the damp sand at any convenient spot. We were recently incubating two which were very nearly hatched when a couple of wretched woodlice somehow got in and hid among the damp moss. They had nibbled the outer parchment skin off the tops of both eggs before they were detected and although the eggs continued to develop for several days, they could not withstand the damage.

Another potential pet which may easily cross the path of a collector, as there are a good many on the market, is a marine toad, *Bufo marinus*. Curiously enough, toad-lovers as we are, these are the only batrachians which have been a slight disappointment to us, maybe because they have to be closely confined, and indoors at that. They are giants among toads, sometimes reaching a length of eight inches, with a width to match, who think nothing of polishing off a mouse for supper, or a small lizard, or a few dozen flies, so that there can be no question of the freedom of the pet-room in case of accidents to other 'happy wanderers'. Probably they could be kept outdoors in a good summer, but even so they must be isolated from all their smaller fellows. In fact their omniverous tendencies are not the only reason for keeping them incarcerated—they are known to produce one of the most virulent poisons of all the varied

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witches' brews of the amphibia, which can easily kill a dog or cat that has not learnt to leave toads alone.

Then again, they are strictly nocturnal creatures who spend their days sitting in damp mud with an occasional soak in the water pan, and their colouring is unexciting, being almost uniformly dark brown with whitish underparts though their large luminous eyes are really beautiful. Incidentally, the male has tiny bristles growing out of his rather smaller warts. Is it because we have too great a choice of pets that we do not seem to see in these handsome creatures at least as much charm as in the little chap under the flowerpot in the garden?

They are ridiculously easy to cater for, so don't be biased by our seemingly unfair criticisms; and after all, I have a suspicion we should not part with them very easily, even to the best of homes. All they need is a fair-sized tank with a fly-proof cover and a good thick layer of wet mould covered at first with plenty of moss. This latter can mostly be dispensed with later, as the toads grow tame very rapidly and do not bother to hide. They need an average temperature of about seventy degrees, and will devour flies, maggots and mealworms voraciously; but our pair have always disdained earthworms, however succulent. We have never been tempted to experiment with any of the larger delicacies, being averse to anything other than insects and worms as live food.

## Chapter 26

### MONITORS

THE story of the quest of the Komodo Dragon has been quite literally broadcast to the ends of the earth. Less widely known are the rather smaller, but still large, relatives of the famous dragon, the monitors, whose species are to be found on three continents. They can be quite formidable with their triple lines of defence, teeth, claws and whiplash tail, all very handy weapons when used at top speed.

We were lucky enough to have, for several months, the handling of a Gould's monitor which hails from Australia—*Varanus gouldii*—whose brownish ensemble is picked out with lines of yellowish spots. Monitors come next to snakes in the scheme of things and, like them, have beautifully-forked tongues of which they make the fullest use in their peregrinations. Also they have much longer necks than any other lizard, so that in this species their heads somewhat resemble those of a duck. It is almost always possible to find a likeness to a bird or mammal in every lizard, especially with the more advanced types.

When he came, we were told he would feed on strips of raw meat, but Moni had other ideas, and nearly reduced us to shadows of our former selves before he would break his fast. Carnivorous lizards are quite a tricky proposition, and it is best to start them feeding before handling them any more than is essential, but even this precept availed us nothing. The most luscious strips of meat strewn in the most conspicuous parts of the cage were just overlooked by

the basilisk stare, and trodden proudly in the dust, while he peered and pryed into every nook and cranny obviously seeking live food.

He came in November, when all lizards and most amphibians had long since hibernated. We tried fish, small rudd, swimming in his water pan. We bought white mice—Moni took a prodigious leap into one corner of the cage and the mouse into the opposite corner, and an armed neutrality existed. The books said a monitor would mostly do anything for an egg, so we tried small eggs and large ones, broken and unbroken, and they all ended in a glorious omelette of sand—we did not try them hard-boiled, which has been suggested since. Then on a mild day in December a slow worm in Toad Hall decided to take a sunbath, a decision which led to his final undoing! Incidentally, when we put food into Moni's cage, we put a large board in front of it to give him extra privacy and lack of distraction.

We laid the slow worm carefully on the log beside Monitor—not without a certain unspoken apology to the hapless creature, who might, after all, emerge unscathed—put up the screen and retired. Hardly had we turned our backs when there was a heartening crash and a series of scuffles—cautious investigation revealed that Monitor's long fast had come to an end. But where were we to go for the next meal? We tried the mouse again, but Moni fled in terror. Twenty-four hours later the mouse was still alive and well. Our efforts to remove it from the cage resulted in its escape into the room, where it spent the night ruining about twelve inches of skirting board. Then a roadman moving a heap of stones found a sleeping cluster of viviparous lizards . . . Once more the crash and scuffle, and his second meal had disappeared. Still the strips of meat were treated as less than the dust—literally!



## MONITORS

We embarked on mouse-farming by way of extra diversion, as we were unable to buy any locally; but of course it was the wrong time of year to expect them to breed. Finally, a friend sent me some partly-grown babies which Monitor found less formidable than adults. It was indeed a memorable day when he finally decided to try the first one, and though it was an unpleasant spectacle, it certainly led us to heave deep sighs of relief. From that time he never looked back. Only a few weeks ago we heard from his present owner that not only has he never touched meat, but will not now take a slow-worm, being content with two or three freshly-killed mice a week, and is growing apace. Quite obviously we should never have seen eye-to-eye in the matter of diet, as we abhor feeding with live food of this calibre, which is the reason why snakes with us are taboo.

In spite of the anxiety he caused us and the joy with which we found homes for our thriving colony of mice, we missed him very much when the time came for him to leave us. He had grown reasonably tame, and used to come out of his cage and slouch around the floor, poking his long neck from side to side, and then take refuge at the top of the highest curtain. He could move at a prodigious speed while really warm, but as he cooled off he became more amenable to being picked up and returned home. Although he would hiss furiously at first, this manifestation of displeasure gradually decreased in fervour, and never once did he use any violence against us.

He had to have a very large cage, as he was three feet long—a great proportion of this being tail—with a really deep layer of sand, a large branch for climbing and plenty of smaller ones lying about for hide-outs. He used to go to sleep in the most extraordinary positions with his head

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hanging down his back or at right angles to his body. He needed rather more warmth than anyone else, a minimum of sixty-five degrees being recommended, so that he had to have a night light most of the time, but he did not bother about temperature when he was on the prowl. Moni's cage being so large, it had to stand on the floor—all the others being at table height. After Stumpy and the giant skink had watched him for a day or two, they investigated his home one day, rather to his alarm (I think he is a coward at heart!) and finally decided to move in, since when Stumpy has never been back to his original apartment.

During the months of our acquaintance with Moni, a crippled robin adopted the pet-room of his own accord for winter quarters and we used to fear a possible encounter between the two, in case Moni thought the robin would make a tasty meal, but it never happened. We never expect to live again in such close contact with a robin. While this one, which we believed to be the male bird, was feeding his nestlings in the garden, we noticed that he had become lame. A few weeks later his foot began to shrivel, and finally came off at the joint, leaving a clean stump. Although we never had a really clear view, we are almost certain that he had got a hair caught round it while nest building. About the same time as he lost his right foot, some injury befell the other, and he lost parts of three toes on this as well.

It was one Saturday afternoon in September, when we had a good many visitors, so that the pet-room door was open for longer than usual, that Bobbins moved in. He had been coming freely in and out of the house all summer, and evidently thought the time had come to stake his claim for the winter. In spite of an open window encouraging him to leave, he refused to go, and spent the evening making himself thoroughly familiar with the premises—bathed in

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the lizards' community drinking bowl near the window, and finally composed himself to sleep on the corner of the curtain in front of the cellar door where perching ability on his bad foot was not required.

With only two exceptions he followed this routine every night until the following May. That evening he was singing lustily on the fence, but when we opened the windows (as well as the door) he refused to come in and, much to our sorrow, we never saw him again. No doubt his thoughts had turned to mating, and probably a cat took advantage of his disabilities. How much we missed his cheeky little personality it is impossible to say, and even the attentions of his children have never really compensated. The fearless confidence of these little wildlings is a very precious thing to possess.

He had his own little dish of grated cheese and crumbs, besides access to the earthworm tin and the mealworms in the cages, but what he loved above all else were the fat, grey cut-worms which are the deadly enemy of all gardeners. He would sit on the fender with his wings drooping, sunbathing in the glow of the fire. He would crouch on the mantelpiece and sing his confidential little 'whisper' song, or on the wireless—and shriek in competition!—and he loved to come in when the Hoover was going and croon to it. On very cold days he would refuse to go out at all, but would fly all over the house with us. During a snowy period we had another robin sleeping on evergreens in the hall, and what a chorus there was in the early mornings! Another robin, too, used to come to the windows and glare in; many a fight they had through the glass, but Bobbins always managed to slip in and out of the house unscathed. The robins being one of the last birds to go to bed, many a night we had to wait until it was nearly dark, with all the doors

and windows open, until the little brown shadow came flitting silently in.

After this digression, back to the monitors. At this moment we have a Gillen's pygmy monitor spending the winter with us, *Varanus gilleni*, a very rare and beautiful little creature from Australia, whose intricate patterning of light and dark brown immediately suggests a protective coloration of desert origin. Although he is fairly tame, we have never dared let him out of his cage, for he is so lithe he looks as though he could insinuate his twelve-inch replica of the original Moni into the minutest crevice and make good his escape. It was obvious from the start that he is a potential Houdini among lizards, for on his second day he was found walking round the floor, having extricated himself from an apparently fly-proof cage.

He, too, has been temperamental about his food and, like his predecessor, scorns raw meat. Once, but only once, did we catch him with a mealworm in his mouth, and he, too, appeared to be living on thin air until, again, in mid-December, a friend presented me with some budgies' eggs which met with instant approval. When he feels in the mood he will eat, or rather lap, ordinary beaten egg from a half shell, but he was beginning to lose his rounded contours when the local 'beef hunters' appeared in early spring with some baby viviparous lizards. Small as is his mouth he managed to deal with two of these at once, but how I hate having to give them to him! If opportunity knocks, I am sure we shall fall for another monitor, for they are most attractive creatures, but its stay may be short if it will not deign to accept the kind of food we think it should have.

A little while ago a Pakistani told me that the local species of monitor—*Varanus salvator*—is known as the thieves'

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best friend. These very sturdy lizards, which can attain a length of seven feet with a bulk to match, never loosen their grip on a yielding surface, so the would-be Raffles ties a rope round the lizard's body and throws the creature on to the thatch of the bungalow whose skylight he wishes to enter, then shins up the fast-fixed ladder, returning by the same route. His story did not relate whether the rope is finally removed from the unfortunate reptile, and it has since occurred to me that the animal would not be entirely quiescent while the noose is being tied . . .

Incidentally, the name 'Monitor' was acquired more or less in error. The Arabian name for these lizards was wrongly interpreted as meaning a warning lizard, hence the title. There is quite a bit of confusion between these and iguanas in some countries, so that one is not always sure which creature is under discussion as, for example, with the 'goanna' of Australia, which is a monitor.

## Chapter 27

### THE FIFTH SUMMER

THE spring routine follows a regular pattern in each succeeding season, and the beginning of our fifth summer was no exception. The green lizards and their lesser kin reappeared in full strength, and it was still quite early in the year when the first frogs, and then the toads announced their courting intentions. Unfortunately, after a wonderful beginning, the weather conditions steadily deteriorated, and the summer went down to history as one of the most unpleasantly cool and wet for many a long year. This did not, however, preclude the introduction of a few newcomers to our ever-increasing flock.

The first to appear on the scene were a pair of midwife toads—*Alytes obstetricans*—which we hoped would add another note to the batrachian choir which we are gradually assembling! No doubt the midsummer gloom was largely responsible for our disappointment in not hearing the bell-like call with which they are accredited, though their wide distribution in Europe would lead one to suppose that they would not be too fussy about temperature. If they do not find Toad Hall to their liking for breeding purposes, maybe one of these springs we shall get a chance to buy a male with his precious burden of spawn safely looped round his hind legs, and have the pleasure of rearing a batch of tadpoles. This is one of the rare examples of parental care amongst the batrachia, and particularly noteworthy for the fact that the job has been delegated to father toad. They are not very large toads, one and a half to two inches long being the

average, and their rather smooth skins are almost shiny. Our pair, at least, are whitish grey in colour which makes it easy to pick them out with the torch, but, as with all toads, there may be considerable variation in this respect.

Interesting transient guests who spent several weeks with us at this period were a family of blue scaly lizards (*Sceloporus cyanogenys*), natives of North America, who, unfortunately, delayed the arrival of the delightful babies shown in the photograph (facing page 66) until they had left us again.

All this while there had been an unacknowledged hankering, which had always been denied, to make friends with a snake of some kind. Not that we are in any way averse to them, but because of the bogey of live food. Many times we had looked down the dealer's lists, only to be put off by the little notes which usually follow the descriptions, 'feeds on mice or frogs', and many a time we had hovered over the beautiful little specimens of continental grass snakes outside pet-shops; so, when a small boy arrived in triumph bearing a young grass snake, *Natrix natrix*, in an enormous box, we decided the time for the experiment had now arrived. We installed the little creature in a glass tank with plenty of moss and small logs, gave it a fair-sized water pan and put a heavy brick on the glass lid.

At that time there was a flourishing batch of toad tadpoles on hand and quite a few newts in the pond, though by far the greater number were crested newts which do not appear to be palatable, probably on account of their gunpowder-scented emanations, though they are much easier to catch. A few of the tadpoles put in the water pan disappeared quickly, and so did the smooth newts when we reluctantly introduced them.

Then, as usually happens when there has been a dearth of anything, grass snakes began to appear in all sorts of

places, and we acquired three more in rapid succession, the last two being fully-grown specimens. By this time it was mid-July, the tadpoles had become froglets and the newts had left the pond, so we had no alternative but to take the snakes to the most secluded spot we could find and release them. Our acquaintance had been short, but it was sufficient to confirm our suspicions of their fascination, though we do not think they could ever supplant lizards in our affections. It would be interesting to know how they feed when they come—as several small ones since have—to stay in our small garden pool where there are no tadpoles, newts or fish.

Incidentally, grass snakes are much maligned for the odorous discharge they make when they are first handled. True, the sickly sweet aroma is not particularly pleasant, but it is not nearly as bad as many people suggest, and it soon wears off. Maybe the day will come when we shall acquire a baby boa-constrictor, and train it to sit in our pockets, but as this would almost inevitably mean mouse-breeding again, this is a temptation we believe we shall be strong enough to resist, and we expect to continue with our serpentless Eden unless a worm-eating snake comes our way. More inevitably the day is drawing nearer when we shall fall for a member of an order of reptiles to which we have not yet been formally introduced, a possessor of a fine set of teeth, in the form of a crocodilian of some kind.

Towards the end of the summer we were able to strike another name off our wants list, *Lacerta lepida*—the eyed lizard. These can almost be described as outsize green lizards, but are even more beautiful. They are natives of Southern Europe and have the great advantage of taking kindly to indoor life, not being, apparently so dependent as their cousins on the direct action of the sun on their skins.



## THE FIFTH SUMMER

Ours arrived as tiny creatures about four inches long, and have increased steadily in length and girth, so that now they are almost halfway to reaching the adult size of approximately two feet. Older specimens are sometimes awkward about starting to take food in captivity, but these babies have no such qualms, and make short work of a batch of flies or anything else that comes their way. They were distinctly stand-offish at first, but soon began to take food freely from our fingers.

Their ground colour is usually more olive green than that of the true green lizard, and is overlaid with a network pattern of black interspersed with yellowish dots. The 'eyes' consist of large blue spots, often edged with black, scattered down the sides of the body, the males being the more brilliantly adorned. Some specimens are so delicately coloured as almost to resemble mother-of-pearl.

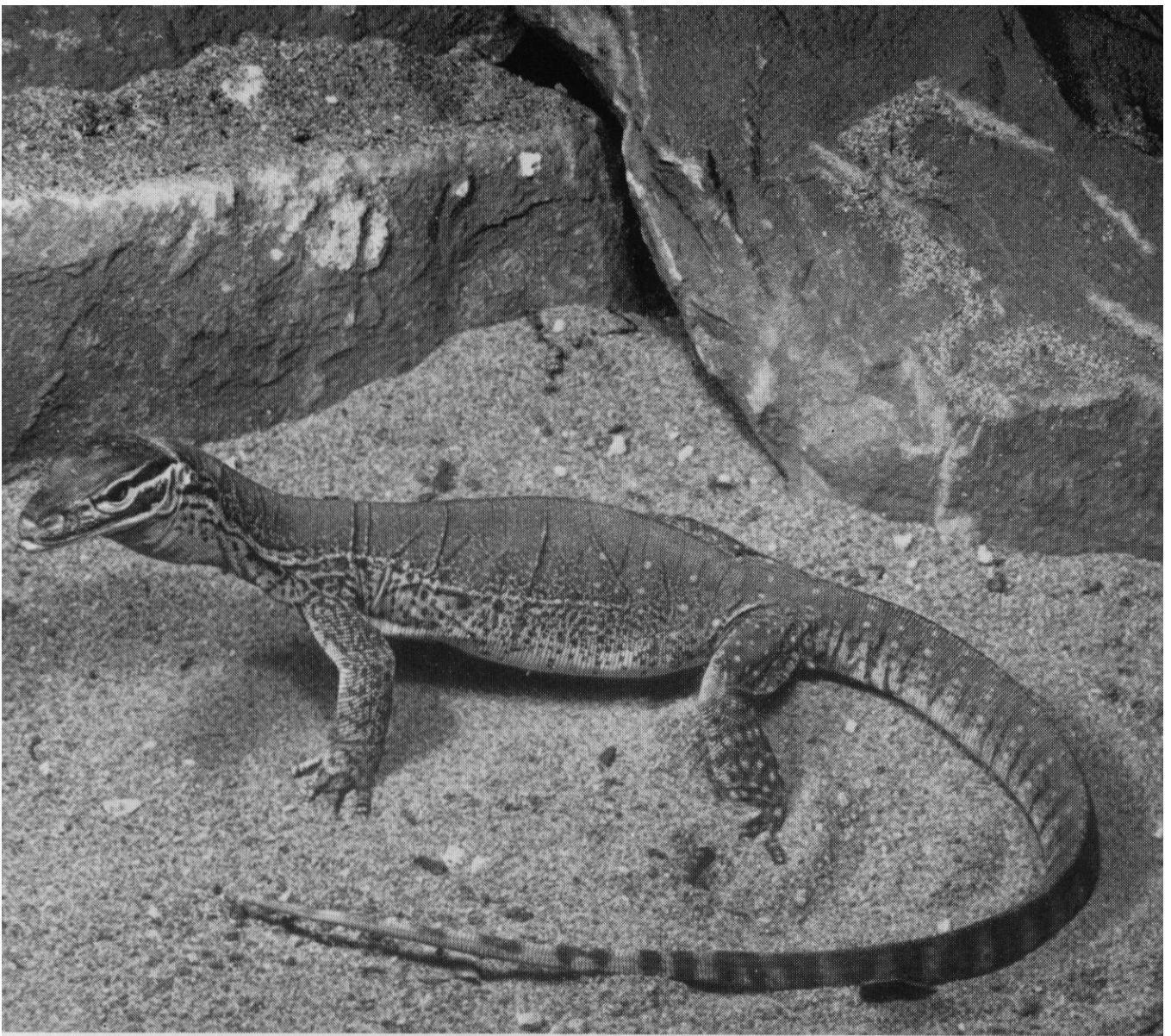
It is unlikely that these lizards could come safely through a normal winter outdoors, so if they are ever given the freedom of the reptiliary they will be taken indoors in the autumn, which will only be possible if they become as hand-tame as the greens. This freedom is a slightly doubtful proposition, however, as, by the time they reach maturity, they are not to be trusted with smaller creatures of any kind, as they are not averse to a meal of mouse or fledgling. In these circumstances they will almost certainly be provided with special summer quarters in the shape of a roomy portable cage, mostly consisting of wire mesh screening. Their winters will be spent in the pet-room in a cage heated to about eighty degrees to keep them feeding, as we should not attempt to hibernate them until they are fully adult, and maybe not then, unless we hope to breed from them.

## Chapter 28

### THE TORTOISES—PART II

IT is quite some time since we turned our attention to the quietly and steadily increasing tortoise population. Charles and Jane, as befits the founder members, flourish 'like the green bay tree', and though there is little apparent increase in size, there is a gradual increase in weight at the end of every summer. This is generally reduced by an ounce or so during the winter, but is soon made up and surpassed again. They know intimately every inch of the area, and can almost unfailingly be found in the evenings in their favourite dormitories. They unhesitatingly accept the spring and autumn routine as a matter of course. As soon as they leave off feeding they are lifted into their winter boxes of granulated cork, put out in the sunshine every day for a while if it is warm enough, and brought in at night. As soon as they begin to disappear under the cork, they go down into the cellar until the following March or April. After this the same procedure is adopted until all danger of frost has passed.

Unfortunately, Judy fell a victim to one of the bad summers when there was not sufficient sun to tempt their appetites, and she just did not wake up from her winter sleep—a fate which befell the pets of several other tortoise owners. The Littlest One, on the contrary, has doubled her size, and possibly next season will be large enough to graduate from the small enclosure to the garden proper. She is not, however, lonely, as fate, in the guise of the R.S.P.C.A., brought her a mate all her own—a little fellow



Moni—Gould's monitor—*Varanus gouldii*

PLATE 28

Gillen's pygmy monitor : *Varanus gilleni*





whose owner had to move to an upstairs flat and could no longer give him his freedom. Judging by his shell, Jo is no youngster, but he is just as friendly as his companion.

Shortly after Jo's advent a batch of six chelonians was gathered into the fold when their owners decided to take a post in America. Two were European and two were Spanish terrapins, and all resented being awakened from their mid-winter slumbers in January to make the journey. However, they were quickly popped into a box of cork where they went to sleep again without any trouble, and it was Mid-April before they were ready to explore their new home. So now our terrapin community numbered eight, and they adjusted themselves very quickly. Although Blackie is the leader of the gang at feeding time, during the daylight hours at any rate, the black ones are infinitely more retiring than the Spanish, and are the first to hurl themselves into the pool at the slightest disturbance, while the grey ones sprawl phlegmatically around. It is hard to discern whether Blackie or Ulysses have increased in size at all in their six years' sojourn with us: both are considerably smaller than the more recent arrivals.

The fifth member of the troop was a Carolina box tortoise, *Terrapene carolina*—the generic name being a pointer to the fact that, though closely allied to water tortoises, these creatures have adopted a terrestrial existence. They have acquired their popular name on account of the fact that the plastron and the carapace are joined with such flexibility that both the front and the back lobes of the former can be closed so firmly that no enemy can possibly effect penetration, no vestige of head or feet or tail being left unprotected.

Box tortoises are one of the best kinds to keep in an enclosed garden, being quite as hardy as the more universal

## LIVING WITH REPTILES

Greek tortoises, needing the same treatment and having, in most cases, a much more attractive shell. The carapace is beautifully domed, with rather steep sides which are boldly marked in variations of a sunray pattern of brown and yellow. The legs are slender as is the long neck, which, while they are on the prowl—usually at dusk or in the early morning—is held very high, showing clearly the strongly-hooked upper lip. They are the gardener's friends par excellence, as they share the terrapin's love of animal food, and their normal menu consists of snails, slugs, maggots, caterpillars and earthworms. They also like a certain amount of soft fruit, such as partly rotten banana, and sometimes a small piece of lettuce, but they are quite fit to be trusted in the kitchen garden.

We had been warned that our Boxie was suffering from eye-trouble, but that as she would not hibernate she had had to live under rather too dry conditions. A short spell in the humidity of a warm tank carpeted with wet moss soon relieved this condition, which she helped to cure by sitting in the water pan with her head under water. Her appetite returned, and we thought we were well out of the wood—but we were only at the beginning of our troubles. She developed a swelling at the back of one ear which increased so rapidly in size that obviously expert advice had to be taken, if such could be found. So after a preliminary enquiry, we took her along to the Zoological Gardens, and there the trouble was diagnosed as being the tortoise equivalent of a human mastoid. It was uncertain whether Boxie would survive an operation, but as it was equally uncertain whether she would survive without it, the risk was taken and the swelling opened and thoroughly cleaned.

It was a rather unhappy little tortoise that travelled back from London and which then developed white films

## THE TORTOISES—PART II

over her eyes as if she had gone blind. At last, just as we were wondering whether someone should not put her out of her misery, it became evident that her sight was returning. Very soon, with a little help, she was able to eat some small earthworms, and gradually she appeared to return to normal. Incidentally, owing to the seemingly endless length of time for which most reptiles—and tortoises in particular—can hold their breath, if it is necessary to have them ‘put to sleep’, they must either be given an injection or have a little ammonia mixed with the lethal gas, to force them to inhale.

But alas! for poor little Boxie, as soon as the poison was cleared from one place it seemed to concentrate in another. Quite suddenly one day a foot began to swell and then another, and finally, a few days later, happily we found her in a sleep from which she would not awaken. Actually it is probable that all these troubles were symptoms of sheer old age but, as always in such cases, we missed our long-suffering little patient very much. Another gap to be filled one day . . .

Last but not by any means least of that batch of newcomers was Bella—the adventuress. Bella is technically *Kinyxis belliana* from the tropical jungles of Northern Africa, and she is certainly a ‘character’. During the six years she had spent in her last home, she had got into every possible scrape, and her change of domicile over the last two and a half years certainly has not altered her in any way. She is a large tortoise—nearly nine inches long and weighing three pounds fourteen ounces—with a domed shell which is not particularly colourful, the darkish brown shields being lighter in the centre and round the edges, but whose deeply-chiselled concentric rings are very striking, though I should be sorry to try to assess her age from them. These tortoises have

## LIVING WITH REPTILES

the posterior portion of the carapace hinged so that it can be partially closed, but Bella's hinges are now too stiff to be of much use to her. Another characteristic is the forked extension of the plastron under her chin which she uses as a formidable weapon when another tortoise, or indeed any other obstruction, gets in her way.

Being of tropical origin, Bella cannot, of course, hibernate, and as she naturally gravitated to the warmest spot in the pet-room, it took a very little while for her to establish herself on the hearth where there is only a low curb—no obstacle to one of Bella's determination. Her only luggage had consisted of a red flannel blanket which she was supposed to use as a mat by day and as a coverlet when she was put into her box at night. This worked very well for a few days, and then she decided that she preferred to stay where she was for the whole twenty-four hours. There was never any real doubt as to who would win the ensuing battle, for the noise of her onslaughts on the box would not let anyone sleep, and it took a very long time for her patience to become exhausted, even when she was banished to an unheated room for a while in a vain attempt to reduce her energy. So there she sits from November until April, in the hearth, her red blanket arranged as a draught screen beside her, so still for hours at a time that only an occasional snore betrays her as being anything but the ornament for which many visitors mistake her.

Just as in the summer months, when she is bored with the fare which the garden provides, she comes round to the back door and sits ostentatiously plucking at plantains until someone takes pity on her and gives her a half banana, or a sliced tomato, so, in the winter, about twice a week, she will turn her back on the fire, and make it clear that she requires sustenance. One might think that having a tortoise



## THE TORTOISES—PART II

on the hearth would lead to a certain amount of mess, but if she and her food and water are placed on a shallow sanded tray all is generally well, as the intake of food leads to almost instant elimination, which rarely occurs at other times. There is always a pan of water available in case she feels the need, but this stands on a piece of rubber sheeting. Bella's main winter menu consists of lettuce, banana and/or tomato, but she will not decline soft tinned fruit if nothing else is available. This all sounds extravagant but really amounts to very little. One of her favourite summer foods is the fallen flowers of the Himalayan balsam which flourishes in various parts of the garden, and of which she makes her rounds of inspection every day.

She is always getting herself into dilemmas of one kind or another. One day I arrived on the lawn just in time to see her floating on the larger pool which now, much to our regret, has to have a fence—as inconspicuous as possible. Another time, she scrambled up a high fence, obviously with the aid of a heap of bricks, and fell over the top between the fence and a shed. We were at our wits' ends as to how to extricate her, until we persuaded a small and rather frightened visitor to let us lift him over to rescue her. Her latest escapade, from which she has only just come back, was in emulation of Winnie who never returned. On July 2nd a gust of wind blew open an insecurely-fastened garden gate—of course Bella found it first, and followed the same route as her predecessor. Oh!—the miles we walked, hoping to catch a glimpse of the familiar silhouette, but the weather was very hot and Bella full of energy. Our anxiety was the more acute because it did not seem likely that a tropical tortoise would realise the necessity of digging herself into security for the winter, such a course being totally unnecessary in the land of her birth.

## LIVING WITH REPTILES

However, fortunately her story has a happy ending. On July 31st she was discovered on a stubble field two miles away 'as the crow flies', and finally reached home again on August 2nd. The distance is surprising in a way, though not so much so when one considers the speed at which she can cross the lawn; but her short legs had to negotiate harvest fields and long, thick downland grass which tires even a dog. Baby turtles make unhesitatingly for the water when they are hatched—escaping tortoises almost inevitably head for rising ground. Since her return, two more tortoises have been discovered on the Downs; one found a new home and the other, happily, was returned to its owner—one would expect them to escape detection in such surroundings. The heat of a good summer is the undoubted cause of their finding escape routes which they would not normally bother to do.

The next tortoise to cross our path, now two years ago, was a baby Brazilian—*Testudo denticulata*—then measuring about two inches, but now a solid little dumpling as broad and high as he is long. On account of the ghostly noise he makes when he is trotting round the floor for his daily exercise in the winter, he was christened Tippy-toes. To keep him company we managed, six months later, to get a tiny specimen of the so-called Greek tortoise, *Testudo Hermanni*, a bonny little creature whose shell is prettily picked out in brown on a cream base. He also was two inches long, and then weighing only half an ounce; but now he turns the scales at two-and-a-quarter ounces, though still answering to the name of Tich. Tippy-toes, being an immigrant from thick jungle, does not really care for direct sunshine, and is inclined to tuck himself well out of sight.

When adult, these Greek tortoises may be treated in the same way as the Algerians, and turned loose in the garden

## THE TORTOISES—PART II

in summer; but all baby tortoises, whether tropical or otherwise, need the same treatment: to be kept in a heated vivarium at seventy-five to eighty degrees, and fed with as great a variety of diet as possible. They will eat lettuce, brussels sprouts, and dandelion, as well as soft fruit such as bananas and oranges; and Tich looks for his meat ration, which Tippy-toes will not touch. Everything should be cut, or torn up, very small, so that they have no difficulty in getting the food into their mouths, especially as quite often the weakness of their focusing powers at this age makes feeding even more awkward. They also need a very shallow water vessel sunk into the ground level of their cage, so that they can get into it easily for a bath or a drink—an inelastic waistcoat will not allow negotiation of any but the lowest barrier. A smear of cod liver oil and a sprinkle of grated cuttlefish on their food once or twice a week will do much for their well-being. Other excellent body-building foods for tortoises and terrapins (and for lizards) are grated cheese, or portions of raw herring, though not all the specimens will tackle these.

Quite recently Tiny Tim has come from Africa to complete the tortoise trio, another two-inch atom with brown, highly-polished, sculptured shield and a pinkish plastron, who rejoices in the name of *Chersine angulata*, which refers to the sharply-angled apron-front of the plastron, which sometimes leads to their being known as bowsprit tortoises. This one will be able to take over Tich's duty of providing companionship when the latter is big enough to share the adult routine of hibernation. In the meantime, all three will spend their summer afternoons on the lawn in the alpine frame, and the winters in their cosy quarters in the pet-room, with a regular constitutional round the room, and an occasional siesta on the hearth. Incidentally,

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Tich's special aids to identification are a horny claw-like tip to his tail, and thighs which are innocent of the tell-tale spurs of *Testudo graeca*.

Another homeless waif joined us last year, one Della, who reminds us of our lost Winnie, but who, after rescue from being used as a football, was brought to us for sanctuary. Also, Snudge and Whiffles, cherished pets of a family emigrating to South Africa, came to take up residence, and might already be mistaken for the oldest inhabitants.

So now very often the sharp click of shell meeting shell mingles harmoniously with the distant drone and whine and clatter of country life in an age of machinery, which increases by contrast the languorous enjoyment of a deck chair in the shade.

## Chapter 29

### IG AND DRAG

FINALLY, we come to the gentleman in green who, with his devoted companion, steals most of the limelight in the pet-room. It was nearly five years ago, on an unusually bitter November night, that we unwrapped from his flannel swaddling clothes the sixteen-inch Iguana who, after twenty-four hours' travelling, would not have survived very much longer. In fact, so deep was his coma that at first we thought he was dead, until a feebly twitching muscle proved that it was not really too late. Only a fellow herpetologist can really understand the mental stress of the would-be recipient of an animal that must be kept warm, while waiting in impotence for rail transport to do its worst. The journey from terminus to terminus in London is a hazard to be avoided at all costs if possible.

Anyway, as soon as the tell-tale movement had given us reassurance, we adopted the usual procedure of cuddling him up inside a warm, woolly waistcoat, where he could absorb body heat in the greatest comfort. It is a fatal mistake to expose a chilled reptile to a sudden access of heat—start with gentle warmth, and gradually increase the power to allow for the necessary readjustments. It is a very pleasant experience to feel the energy returning to the torpid limbs, and in Ig's case it was less than an hour before he was clambering up the imitation tree trunk in his first residence.

Actually, Ig's original cage was a tactical error in that it hindered the taming process by several weeks. We had

adapted a large birdcage by glazing the sides and enclosing the domed top with polythene to exclude all draughts. But little Master Ig was very well aware of the fact that, because of the very small door right at the bottom of the cage, it was only with the greatest difficulty that he could be touched, and he certainly made good use of this knowledge and refused to budge from his eyrie except for hasty sorties for food. As soon as we realised what was happening we obtained a tallish, but narrow, second-hand cupboard and set to work to let windows in the sides and front. As soon as the transfer was effected, he immediately gained a great deal of confidence, and began to come out of his own accord to investigate his surroundings.

We had been told that iguanas would sit on our shoulders and become so trusting that, in course of time, one could do anything with them, and we have certainly proved this statement over and over again. At that time his favourite food was boiled carrot (he still loves it), and the sight of a few thin slices coming his way would soon entice him out of his cage. At first he would only venture outside; then he became brave enough to go and look into other cages, then he explored the easy chairs. Finally, with a great deal of patience and the aid of mealworms which he had only recently discovered, he was induced to climb on to my lap, and from there by degrees he progressed to the top of my head or the back of my neck, or anywhere else that took his fancy, provided one made no move to touch him. Then he started paying visits to the desert vivarium, and spending the evenings sitting on the top of the lampshade until he grew too big to do so. At first, the rightful inhabitants found him rather awesome, but they soon grew used to him and vied with him for possession of this delectable spot. All lizards seem to enjoy visiting other cages when

## IG AND DRAG

they get the chance, though, of course, this is only allowed under strict supervision at first.

To make Ig used to being handled, just before his cage was finally closed for the night, we used to put our hands in very, very slowly and stroke his back or side with a soothing 'night-night'. It was fourteen months before he really appreciated this attention and left off dropping his dewlap to warn us off. Now, at a length of thirty-three inches and a very considerable weight—I think he would object to being put on the scales—he likes nothing better than to come and sit on our laps and to have his head and neck rubbed and stroked for as long as he can persuade us to continue, the while he closes his eyes in voluptuous enjoyment. It is quite obvious that if he could but purr he would out-rival any cat!

The accusation has been levelled that animals in miniature Zoos such as ours 'quickly degenerate into perambulating stomachs'! (Well, aren't we all to a greater or lesser degree?—we, ourselves, are not always entirely aesthetic!) While this is undoubtedly true of some of our lesser lights, such as the batrachians, and probably of most mammals, and while food, is, of course, almost the only means of establishing friendly relations in the first place, we would earnestly beg to claim that the behaviour of Ig and many of his confrères is a complete refutation of this impeachment. It is not even warmth which attracts Ig to personal contact, for he must be far warmer in his cage than elsewhere, and many a time if he is offered food while ensconced on our persons he refuses it.

So we were very pleased to come across the following passage, in support of our opinions, in a book by an eminent student of such matters:

Many of the animals not commonly made pets respond

## LIVING WITH REPTILES

gladly to the kindlier conditions life with human beings provides. Even in zoos, which are at best little more than model prisons, they develop an awareness and an interest in people of which we would never suppose them capable if we knew them only in the wild. And it is not by any means merely an interest in the food which human beings sometimes provide. . . .

It is true that the early stages of Ig's attachment were of necessity cemented with titbits, but we contend that he has now progressed beyond this stage; in fact, he does not now consider any article of diet sufficient inducement to come out for, if he is not in the mood.

Iguanas have the advantage of being almost exclusively vegetarians, though a little animal food does not come amiss, and is good for them. Being, by nature, browsers, they do not as a rule eat very much at one time, but come down at frequent intervals for a snack. For this reason it is well to have a small heater at the base of the cage in very cold weather, so that they do not go hungry rather than leave the congenial warmth at the top. Ig's preference is for the rather spicier salads such as watercress, nasturtium and dandelion leaves, with lettuce as a standby. Never be tempted to adorn an Iguana's cage with any foilage that could possibly do them harm, such as rhododendron or yew, for example—in fact for such purposes, evergreens are always best avoided. He also likes banana, sweet grapes or any other soft fruit and, of course, his boiled carrot, as well as the occasional feast of earthworms, mealworms or maggots. The greenstuff should be as fresh and crisp as possible, though it will, of course, soon go limp in the heat and it is best to wait until the cage has reached maximum temperature before feeding any reptile, so that its appetite is fully stimulated.



## IG AND DRAG

It is true that the indulgence of curiosity has been the means of teaching humanity its most useful lessons, and there is no doubt that this applies equally forcefully to the animal world. At any rate, it certainly explains how Ig acquired his taste for what he looks upon as the most epicurean of all repasts—a slice of well-buttered brown bread. When the injured robin was living indoors, a saucer of grated cheese and crumbs was kept on the sideboard for his benefit, and it was not long before Ig began to share it. After that he came to investigate everything he saw us eating from a plate, until he finally decided that bread-and-butter was the *pièce de résistance*. He does not want it every day, but will eat nearly a whole slice about three times a week in the warmer months and it is, of course, very good for him.

Ig likes a temperature of at least eighty-five degrees, and always has a night-light during the winter months to ensure that it never falls below sixty degrees. Though he could possibly stand a greater decrease for a short period, especially now that he is acclimatised, the danger to be guarded against is the loss of circulation in the very long toes—Ig's longest hind toe measures two and a half inches—which might then drop off and start a fatal infection. Incidentally, when handling an iguana or, for that matter, any heavy reptile, make sure that their tummies are firmly supported so that they feel safe, otherwise they will wriggle about and perhaps inflict some nasty scratches quite unwittingly. Ig has never attempted to use these formidable weapons against us, but he cannot help their penetrating our skins when he climbs on us. The net result is only like the tickle which follows a kitten's scratch, and soon wears off. Neither has he ever threatened us with his whiplash tail which, being one of his defences, he is not in the least likely to dispense with in the disconcerting manner of some lizards. Actually he is

nothing but a coward at heart and, like quite a few of his relatives, acts on the premise that what he can't see isn't there, so that he closes his eyes and turns his head away from anything he does not like.

Although possibly he might have grown to the normal five to six feet of an iguana in its native land if we had used an infra-red lamp on him, Ig is almost the only one of our lizards who has never given us a moment's anxiety over his health. Never a fast or a hunger strike to alarm us—true, he sneezes quite a bit in cooler weather, which leaves a chalky looking deposit on his nostrils and on the glass of his cage, but this is quite natural. He sloughs almost continuously to make room for his expanding frame, and this is, of course, at all times a sign of reptilian good health. The skin of the upper part of his body usually comes off first, and then the lower, and he loves me to pick the little pieces off, though one must never force this. Should the skin of any lizard show any reluctance to come off while they are sloughing, put the animal in a lukewarm bath, or spray it with faintly warm water, and this will usually do the trick. It does not often happen, but sometimes sitting too near the light causes the skin to become unnaturally dry. Ig will let us use a small spray gun, but newly acquired reptiles are apt to mistake the sound for the hiss of an enemy.

It is not necessary to describe the actual appearance of an iguana, with the serrated crest along its back, and the tubercles from which it takes its former specific name, *tuberculata*, scattered over its head and neck. The invariable reaction of those who have stroked our Ig—an experience which is unique in itself, as the majority of those in public captivity can only be seen through glass—is of surprise that his blue-green finely-scaled skin feels like tapestry, or the old-fashioned material known as alpaca, and that the formidable

## IG AND DRAG

looking spines of his crest are really softly flexible. It is interesting to note that it is very often the youngest among our visitors who are the least diffident in the matter of touching the apparently fearsome monster. He inevitably detects any reluctance, and retaliates by drawing himself up and dropping his dewlap, whereas when he picks up a sympathetic vibration he remains relaxed, and closes his eyes in pleasurable anticipation.

Some iguanas are very much more brightly green than others, with irregular stripings of blue. In both cases the bodies and tails are banded with a camouflage pattern of dark markings, which are much more conspicuous at a low temperature. Their pink tongues are slightly forked at the tip, where they become almost rose-coloured. As Ig increases in size, so he has to have progressively larger quarters, and a broader shelf on which to rest his not inconsiderable girth. They like sloping branches on which to climb, as well as a wide log, or its equivalent, on which to sprawl. A very typical attitude is to climb to the top of a vertical branch, press the body to it, flex the back legs at the knee joint with heels together, and let the front legs hang limply straight down by the sides. Ig has a large water pan in his cage which helps to provide humidity, but he has never been known to sit in it, as might be expected of one whose first thought, at a hint of danger in his native habitat, would be to drop into the stream over which he would most likely be lying. But lizards are strictly individualists in every way, and another specimen might well reverse this procedure.

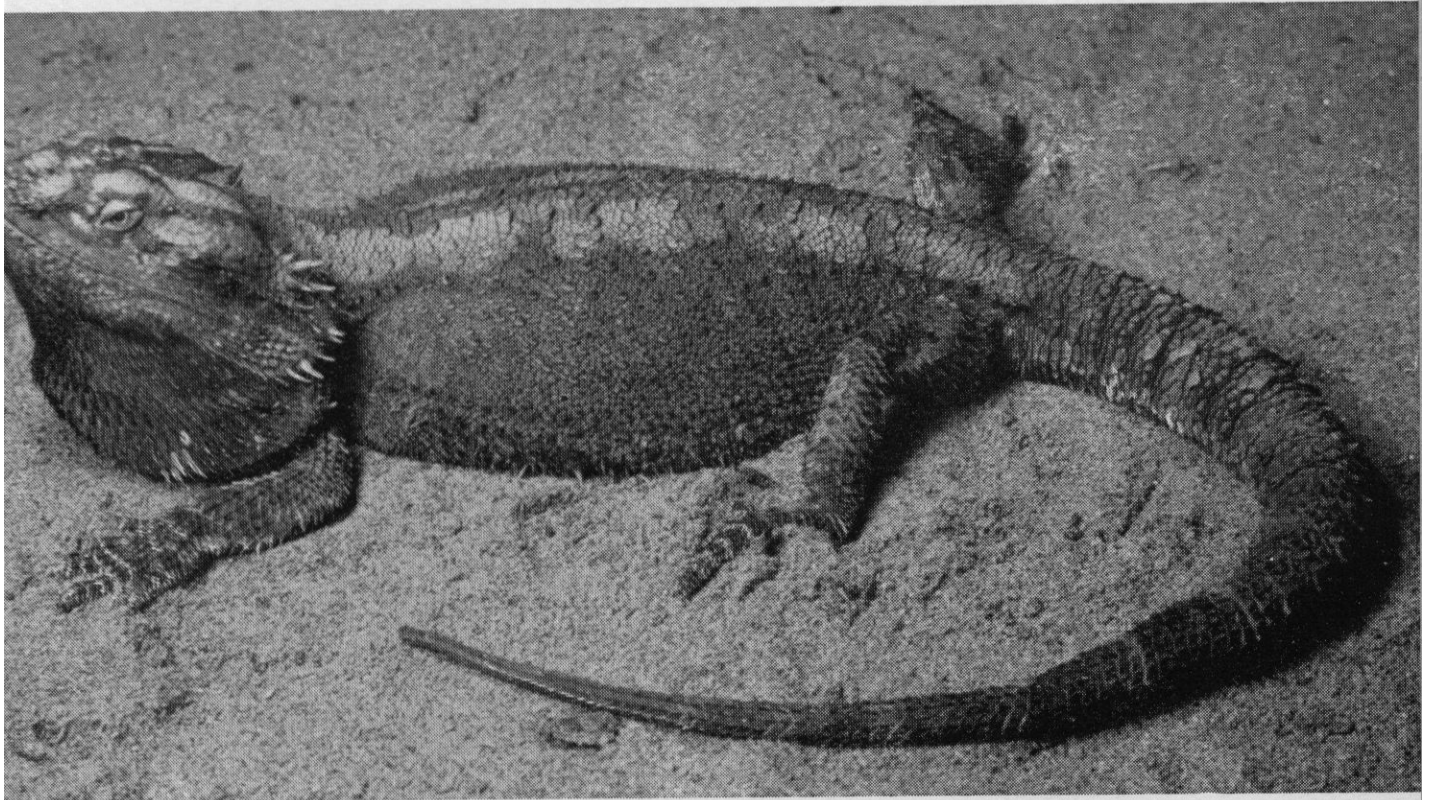
Possibly another deterrent to undue familiarity with Ig is the presence in his cage of another lizard, commonly known as Drag, who looks every newcomer over with a disdainful eye and is always ready to take up the cudgels in defence of his friend. His full, and rather awe-inspiring,

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name is *Amphibolurus barbatus*, which can be freely translated as bearded lizard, and he is a member of the large family of agamids native to Australia and generally known as dragon lizards, hence his nickname. Very soberly attired in brown and yellow, which brilliant sunlight reveals as really ashy-grey and orange, these creatures are remarkable for the spiny frill or beard which reaches from ear to ear, and which can be filled with air and expanded like the ribs of an umbrella when danger threatens. This can be quite alarming when at the same time they open their mouths widely to reveal the brilliant orange interior. Actually we have never been privileged to see this, though he does occasionally erect his beard to make sure that it is still in working order! Now that he is becoming elderly, his beard is nearly black and most impressive.

We had often heard how bearded dragons and iguanas could be kept in the same vivarium and would strike up a friendship, so when, after Ig had been with us just a year, we had the offer of a dragon, who had at some time had a leg broken and was needing a good home, we were only too ready to adopt him. At first Ig regarded him with considerable suspicion, but they soon settled quite amicably, though both are males.

After he had been with us a few weeks, I walked up to the cage one day and discovered to my amazement that his leg had quietly dropped off at the thigh joint, and that now, instead of being hampered by a dragging limb, he was hopping about in a very sprightly manner on his remaining three legs. One can tell from outside the room when it is he who is trotting around the floor. There was never any sign of pain or discomfort, or of an open wound, showing how admirably nature takes care of her injured children.



Bearded dragon : *Amphibolurus barbata*

Bearded dragon with beard expanded



The Pet-room—Ig, Stumpy and Dragon



Dragon's chief diet should really be flies and other winged insects but, possibly because the effort of catching them is rather too strenuous in view of his disability, he now very rarely bothers with them, even when they venture to sit on his nose. It is always recommended that no lizard should be fed too freely with chitinous material—that is, insects with hard skins such as mealworms, or hard wing cases such as beetles—but when the animal takes the law into its own hands, there is very little one can do about it. For a long time he would only eat mealworms, and would not look at the gentles which we tried so hard to persuade him were good for him, but now he will condescend to demolish a few occasionally. He will not touch earthworms, but woodlice, grasshoppers, small snails, moths, cockroaches and cockchafers afford him an ascending scale of gastronomic pleasure. How I wish lizards would eat many-legged food with their mouths shut! At one time we bred cockroaches for him, but when the last one had gone, the stock was not renewed—foul things! He also seems to find nourishment in stick insects, which breed too freely. Ig and Drag are very polite to each other at feeding time, and perfectly understand the technique of taking mealworms from me turn and turn about.

Unfortunately for me, having regard to these favoured articles of diet, Drag expects to take all his food from my hand, a domination he was weakly allowed to exert when he staged a fast at one time. This is quite often an indication of something amiss with a lizard which does not make this a regular habit as do the skinks, so every possible scheme was tried to get him going again. We had read that bearded dragons are often badly or even fatally afflicted with roundworms, so when, later on, he seemed to be having digestive trouble, we decided to try the effect on him of microscopic

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doses of santonin, which is recommended for tortoises in a similar condition. Very fortunately he has followed Ig's example, and taken to eating wafer-thin slices of boiled carrot when they are waggled in front of him, so it is not difficult to get him to take a few microscopic crystals in this way, and it certainly seems to do him good. Incidentally, dragons have no cannibalistic inclinations whatever, and can be safely trusted with any other lizard large enough not to be mistaken for an insect.

Slowly and almost imperceptibly, but none the less surely, Drag has constituted himself as Ig's guardian angel. Now he just cannot bear Ig to leave the cage on any pretext, and does his utmost to prevent his doing so. At the slightest hint of Ig's intention, Drag stamps his front feet and nods his head vigorously up and down in the agamid lizards' usual way of displaying, but Ig just ignores this demonstration and pushes him out of the way. Sometimes he shows his displeasure at the interference by shaking his head equally vigorously in an almost rotary fashion from side to side, in comical contrast. When Drag finds his warning has been ignored, he hurls himself on to Ig's back, grabs a spine-hold with his teeth—much to the detriment of Ig's appearance—and rides pick-a-back until Ig manages to dislodge him, when he retires nodding and stamping with great vehemence. He never removes his basilisk stare from Ig all the time the latter is out, and finally rushes down to meet him on his return, herding him into the cage in a manner worthy of any sheep-dog. The affection, if it may be so termed, seems to be quite one-sided, and Ig does not appear to care what is happening to Drag when *he* emerges from the cage to sit like a graven image on the south windowsill for hours at a time so that visitors regularly enquire 'Is it real?' At night, Drag is only happy if he sleeps in close touch with



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his friend, below him on the pole, or tucked in between Ig and the side of the cage, with his head resting lovingly on him. Curiously enough, neither of these two animals ever make the slightest attempt to escape and are seemingly quite content with their mode of existence.

Unlike Ig, Drag loves his bath, and will quite frequently take one while he is seething with frustration over Ig's disobedience. He uses the pan which the robin found so useful, wriggling round in it, immersing himself and splashing water recklessly around for several minutes before he trots off to dry in the sun, where he displays the further characteristic of making his body almost circular in shape by expanding his ribs into the loose, softly spiny folds of the skin which covers them. As always, one can see in both these animals resemblance to other forms of life. Ig's head reminds one irresistibly of a bird—perhaps of a hen with her serrated comb—and, after all, birds are the reptiles' lineal descendants, so that he *has* a close affinity; while Drag has something of a little brown monkey or a squirrel in his appearance, particularly when he is eating, the rather pouchy 'hinges' of his beard heightening the illusion. Ig, at any rate, can discriminate between certain colours, for he often tries to nibble a green jumper which I wear, but takes no notice of anything else.

Both these creatures are intensely curious, and all the occupants of the pet-room are kept under constant scrutiny—nothing escapes their attention. Ig does occasionally take a little nap, but Drag's supercilious gaze follows every movement. This superior expression of his arises partly from the protective thickness against sand of the eyelids which fringe his dark pupils with their golden irises, and partly from the fact that agamas can only focus with one eye at a time, and need to tilt their heads to do so. Ig has

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the most beautiful eyes of any lizard we have seen—almost human in their shape and expression. When, last spring, a V.I.P. in the shape of a blue merle Shetland pup came to join our ménage, these two peered down from their lofty eminence for three whole days, until they had convinced themselves that she was comparatively harmless. Her temporary appropriation of one of the easy chairs which Ig looked upon as his own, was obviously a heinous crime. However, they quickly realised that, apart from a tendency to be a little too playful, Caburn Coral could be treated as casually as is Meg, and it was only a few days later that we surprised Ig sitting on the famous chair with his front feet comfortably cushioned on the sleeping puppy's fur. Drag, too, was able to resume his calls on the skinks in the ground-floor flat.

There is no shadow of doubt that all lizards—and these two in particular, being possibly further up the scale of intelligence—love the sound of the human voice; sometimes one could almost delude oneself into believing that they understand what one is saying. Although this is certainly beyond the bounds of possibility, their changes of expression clearly indicate that they can differentiate between the shades of meaning which the tones of the voice can portray.

Only a few weeks ago a friend, who has watched Ig's career with the greatest interest, made us the delightful present of a baby iguana only twelve inches long, whom we hope will turn out to be a female companion for our original specimen. Like him, she started to feed and grow with never a moment's hesitation; in fact at present her appetite is almost insatiable, and she is already able to make it quite clear when further supplies of salading are urgently required.

For a while she is sharing a cage with Tiny Tim who is, as yet, too small to be trusted to the rough and tumble of

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community life with the other small tortoises, as he might be tipped over accidentally and be unable to right himself. Baby Ig has, however, already visited her distant relation in his lofty abode, and appeared to be completely unawed by a rather cool reception—though when Ig started to shake his head after she had walked nonchalantly along his back, she removed herself to a convenient ledge with one swift leap. Her negligible weight gives her the advantage of lightning speed in time of trouble, and it is amazing how quickly all these creatures learn the whereabouts in the room of their own particular sanctuary, and take advantage of the knowledge when danger threatens.

## Chapter 30

### THE MENU—AND THE MEDICINE CHEST

NOT the least of the problems that beset the novice who embarks upon the keeping of reptiles and batrachians is the bewildering variety of available fare, reminiscent of an epicure's menu, which is suggested—especially if one has not previously studied the commoner aquatic insects; but, after a few weeks and with a little research, these troubles begin to resolve themselves.

It must be remembered that though an open reptiliary will provide a good deal of natural food, which can be augmented by tucking something malodorous into a convenient corner, at the same time there are many hungry little mouths concentrated in a comparatively small area, so that the food supply will need constant replenishment. All but one or two of the items which are discussed here can be easily obtained, even in the smallest garden. It is not necessary to procure them all, though variety in diet is as great an advantage to these creatures as it is to humans. No doubt the caloric values vary as do those of human menus, but in our humble estimation live foods are infinitely preferable to any other, as containing essential and easily digestible vitamins and roughage. It is astonishing, too, the amount of food even the smallest of these creatures can tuck away; but always remember that a well fed reptile stands the best chance of surviving the hibernation period. Very few of the animals mentioned in these pages disdain earthworms as a diet. They form the staple food of toad, frog, newt and terrapin. Tree frogs will, I believe, take them

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at a time of dire necessity, though as a rule these live more or less exclusively on spiders and winged insects. Most lizards eat them greedily, possibly because normally worms are only abroad in the hours of darkness when lizards are asleep.

Therefore the first and foremost of the requirements is a plentiful supply of earthworms. In theory that sounds simple, but in practice they prove to be extraordinarily elusive at times, especially in well drained soil such as ours. In hot weather they go down to the moisture level, but a lump of kitchen refuse, particularly tea-leaves, covered with an old sack or its equivalent to keep a constant degree of moisture, will usually ensure a good supply. In the very cold weather, too, this is usually a productive spot, or close under the edges of a compost heap where frost does not penetrate too easily. In between these extremes the ideal is a weedy patch, preferably in the shade of a fruit tree, in an inconspicuous corner of the kitchen garden, where the ground has not been disturbed for some time, and where there are some large, leafy, rosette plants for extra shade.

We have found the edge of an artichoke bed an excellent hunting ground for our worming activities, with a marvellous yield of monsters and midgets. Conscience tells me that these valuable humus-makers should not be removed from the garden, especially on our light chalky soil, but so far we have not listened too carefully, though we are always fearing an excess of sentiment over their sometimes unavoidable vivisection. In heavier loam or clay the situation is easier, for we read of wormcasts spoiling the lawn, but it has to be exceptionally wet for us even to see one.

We are reliably informed that the very best method of capture to use in those circumstances is to direct a beam of light along the lawn and grab the worms whose bodies will

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glisten in the light—an excellent form of sport if the worms move as fast as ours do when the flashlight discovers one foraging. Maybe proficiency comes with practice, but we have yet to discover how to make any one of them relax its tenacious grip on the entrance to its underground passage, amongst the grass roots—an almost impossible feat as thrushes so frequently demonstrate. Certainly it cannot be done without giving timely warning to the rest of the local community to disappear. Sometimes if one thumps arable ground with a heavy object such as a spade, curiosity will make even worms come to the surface to their ultimate downfall. In the height of summer, at about the same season as the youth of the reptile world begins to add worms to its diet, one will probably come across a worm nursery, and then a set of numbered jars allow one to have the correct grade—from Ulysses to baby size—to hand with the minimum of trouble.

Bloodworms are mentioned in connection with every aquatic animal, and here again any self-respecting rain-water butt or garden tank can provide the needs of a very large family, provided it is not kept too meticulously free of the mud and dead leaves which are essential to the infant midges' welfare—for this is what the bloodworms really are. Garden tanks and some ponds are also fertile sources of two other much appreciated articles of diet of the same family and of rather similar habits. In the pupal stage all three hang briefly from the top of the water, for all the world like notes on a printed stave of music, until the perfect insects emerge, leaving their 'ghosts' floating.

These brilliantly red worms, then, which look so sinewy and do not give the impression of being very nourishing, but which are so popular with the pets, have most interesting

habits of their own, though not, we feel sufficient to make them, as was suggested in one book of reference, attractive pets on their own account! They vary in size from tiny threads to about three quarters of an inch long, and their sole method of locomotion is to curl and uncurl in the form of a figure eight, this movement being performed less gracefully as they grow older and stiffer. These creatures make little tunnels for themselves in the mud, and in clear water in a good light these can be seen dotted all over the bottom of the tank with many of the worms standing in the doorways, waving the mops of hooks and spines which are attached to their heads, and with which they filter from the water what they require for nourishment.

It would be laborious to extract bloodworms from the mud one by one, but there is a very simple method of getting them out. Buy a metal strainer which has a fairly coarse mesh, take a sweeping of mud with this from the bottom of the tank, stand it over a jar containing just enough water to touch it, and it will be found that the bloodworms wriggle through the mesh and sink to the bottom of the jar all ready for use. The supply will not fail until December, if then, by which time the requirements will be fewer.

Rather earlier in the season the gnat larvae which later form the musical score, make their appearance as little animated ceiling brushes whose short handles fold and unfold in a manner reminiscent of the squeakers which one sees—or used to see—blown out of the windows of charabancs on the way home from the seaside.

The third member of this trio is known as the 'phantom larva' because one has to take a very close look at a dipper of water before one can detect it, and then all that is visible looks like a very slender glass bead narrowed at both ends, but capable of moving either way at lightning speed—none

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the less, these make tasty morsels, particularly for small terrapins, who love them.

Ponds will provide several other titbits—particularly in early summer before their numbers are depleted by hungry natives—which will not come amiss to any of the aquatic youngsters. *Daphnia* and *Cyclops*, both loosely known as water fleas and held much in request by fishkeepers, can be easily recognised by their similarity of appearance to the land flea, and are often present in such numbers as to turn the water brown. These have a decided preference for ponds near cowstalls, whose dunged content they much appreciate.

As a matter of fact, once either of these creatures has been introduced to one's outdoor pools they will reappear spontaneously even after the latter have been drained and recemented, though they have a nasty little habit of re-appearing a week or two *after* they are urgently needed. A sweep with a fine net will produce enough to keep one's animals busy for many hours chasing their ever-dancing prey. They can be bred but do not take kindly to human interference, and are also difficult to store, as their life span is short and the mortality rate high. If an attempt is made to breed them, do not put them in any container made of zinc or copper or they will surely die—an old wooden bucket or shallow china dish is ideal. They need plenty of food, one of the easiest forms being the infusoria resulting from steeping handfuls of hay in water for two or three days. This, by the way, is also useful for feeding newly-hatched tadpoles.

Weedy fresh-water streams will produce water lice, *Asellus*, unmistakable as the aquatic counterpart of the familiar woodlouse, and the fresh-water shrimp, *Gammarus*, the latter remarkable for its unique habit of swimming on



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its side, its constant jerky movements giving the impression of intense preoccupation with urgent business. The terrapins find the last four species, all of which are known as crustaceans being close relatives of crabs and lobsters, particularly palatable, besides supplying them with the calcium so essential for their own shell-building.

For the town dweller, the thin soft worms, *Tubifex*, which are dredged from river mud, and known familiarly as 'rhubarb' owing to the strong resemblance of a mass of these wriggling thread-like creatures to a well cooked stick of that commodity, take the place of these fresh-water insects, as they have the advantage of being cheap and easily obtained from aquarist's stores. They are accepted by newts and the clawed toads, but on the whole we have found them unpopular with our menagerie, who are probably spoiled by their good country fare.

Scarcely anything that creeps or crawls comes amiss: wood lice, spiders, beetles, green and black aphids, earwigs, cockroaches if you have them available (which is one of the tribulations we have been spared even in this old house), all are welcome. Ants and their eggs, too, are much appreciated, and we often see lizards coming away from a nest, which has been established in the reptiliary from offerings thrown in, licking their lips. The swarm of flying ants which sometimes erupts on a hot day is a toad's idea of an epicurean banquet. Moths, too, are a splendid food, and a mixture of brown sugar and black treacle, with a dash of rum, spreads an appetising aroma which will attract quite a few if it is brushed on to a tree trunk and visited with a torch.

Live flies are very welcome, and now that fly-traps are again available it is quite easy to catch a good supply and also much easier to introduce them into the cages than it was in the days of the home-made variety, whose method of

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manufacture it is no longer necessary to describe. The most alluring fly-bait seems to be vinegar and sugar. A simpler method of obtaining flies is to buy six pennyworth of gentles from a shop which sells fisherman's bait, set aside some to pupate and hatch out as flies, and feed the others to the toads who adore them, though many lizards are not very keen.

One can breed gentles—in fact one sometimes does it accidentally—but it is a messy business and hardly worth while except in emergencies. The best way is to pierce an old tin with holes large enough for flies to get in, cover the bottom with sawdust and suspend a piece of liver or meat from the lid and leave the insects to do the rest in a dry shady place. In warm weather the first batch will be ready in four days. The bought ones originate from the continent and do not disintegrate so easily when put on a fisherman's hook. The softer skins of the British variety make them preferable as food. One word of warning: never keep gentles where the sides of their container can get moist, as they can climb anything when it is wet, and you may well arrive to find the cupboard bare, and a not very pleasant fauna scattered about the premises! It is easy to keep them in a closed box with minute airholes, as overcrowding and lack of oxygen seem to have no effect on them. Actually the greenish, noiseless, mature flies are much less unpleasant than the true bluebottles, and do not make straight for the meat safe. It is a great advantage, too, to have a food which can be used in three forms (terrapins and *Xenopus* will eat the chrysalids), especially as the emergence of the flies can be controlled by the temperature in which they are kept; that is, the refrigerator if required as gentles, or the airing cupboard for flies in a hurry. Or, of course, a happy medium . . .

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The other great standby for reptile-keepers when either time or conditions do not allow prospecting, is mealworms, loathsome creatures like outsize wireworms, which are eagerly devoured by most of the family. Clawed toads are not wildly enthusiastic about them and some terrapins eat them rather as an unwilling child eats its greens, especially if there is any hope of a juicier morsel such as an earthworm; but to lizards they are certainly the *pièce de résistance*. For anyone who wants to get on intimate terms with his pets they are the best bribe—an expensive luxury perhaps, but one which will provide an immense amount of pleasure in return. These, too, can be bred, but it is rather a slow process and not to be embarked upon if speedy results are required. The larvae take a long time to pupate; in fact each stage is lengthy, and the whole cycle takes at least six months. Actually we have found that the larger species of click beetles, the mealworm parents, find the granulated cork at the bottom of the cage an ideal breeding place if it is not disturbed too often, which is not necessary as all dejecta can easily be removed from the top layer.

Another food which is cheap to buy and, once bought, easy to keep in stock, is the little white worm known as *Enchytraus*, which is said to inhabit dustbins, chicken runs, or compost heaps, but so far we have not come across any natives. It is sold as a 'culture' in a slab of moist loam, and all one has to do is to put it in a container with another layer of earth above and below, put a piece of crust soaked in milk on the top and cover the whole with a close fitting piece of glass, and the numbers will increase at an amazing rate. During the summer it is well to keep it covered, or you will find yourself breeding gentles, probably of the fruit fly variety—useful, but a nuisance. The worms come up to feed on the bread, and can be picked off with the forceps.

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This is an ideal food for newt and salamander larvae, and almost essential in bridging the gap between their aquatic and terrestrial lives in captivity, though unfortunately frog and toad tadpoles seem to treat it with scorn.

Scraps of liver and scraped fish are often recommended as foods, but these must be fresh and the greatest care must be taken that nothing is left to pollute the water. Live foods seem invariably more popular and are, of course, much less likely to have this effect. The larger terrapins, however, much appreciate fish as a treat, though indifferent to liver, and the smaller ones can be tempted with either when the wriggling of even the tiniest worm seems to be too much trouble for them to overcome.

Skinks will eagerly devour your larger snails, and so will the terrapins, particularly if their shells are cracked for the smaller specimens. Most of the inhabitants of Toad Hall relish the whitish grey slugs which abound on a newly-mown lawn after dark, and with the aid of a tin, a spoon and a flashlight we throw one hundred and fifty slugs into Toad Hall and the sanctuary two or three times a week during the summer months, and they are never seen again. Quite a few lizards appreciate slugs, and it is amusing to see the protracted face-wipings after the sticky meal.

It should hardly be necessary to add that *never* must any slugs, flies, or any other food be offered that is likely to have come into contact with any kind of insecticide, D.D.T. preparation, or meta fuel.

Incidentally, lizards greatly appreciate a little pan of demerara sugar, which they will lick with great enjoyment, and many of them will lick and nibble a slice of very ripe banana, which is good for them and which serves the dual purpose of bringing extra flies within their reach, as does a ripe apple, pear or plum.

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The ideal method of feeding is, without doubt, direct from the fingers, and it is, of course, the royal road to winning the confidence and affection—or more properly, the cupboard love—of some of one's pets; but in many cases it will be necessary to progress towards this in easy stages, and a definite technique will be evolved as described in the lizard chapter; a pattern which can be followed in every instance.

There are cases when the food, especially worms, is too small to be held comfortably in the fingers, or where it would be obscured from the recipient's view by what must appear to them to be gargantuan monsters to be avoided at all costs, and then forceps will have to be used. But do be careful to choose the smoothest pair available, and then try to ensure that the food is held so that the tender little mouths will not come into contact with the hard metal, which may harm them—though this is not easy, as in most cases the sight of anything which wriggles proves that there is no nonsense about manners in the reptile world.

Warnings are frequently given not to overfeed, but our experience is that, as with other animals, instinct tells reptiles when they have had enough and, as a rule, they leave one in no doubt when this stage has been reached. Clawed toads seem to have an unlimited capacity but, in time of uncertainty, it is quite easy to institute a system of rationing on the principle of little and often, which would be their habit in the wild. Conversely, I think we often underestimate the needs of some of the smaller animals, who are quite capable of consuming worms as long as themselves. A safe rule would seem to be to provide enough food to keep the creatures from seeking to escape to look for it.

The contents of our medicine chest are not—apart from those already mentioned—a very comprehensive

selection, as our livestock has been, on the whole, happily free from the ailments or injuries which are, in any case, the exception and not the rule among such healthy creatures. It may not, however, be inopportune to mention that any wounds which may be observed do need careful attention under these relatively more artificial conditions of life. The fact has also to be faced that sometimes there is nothing that human aid can do for an ailing reptile or batrachian.

Friar's balsam ranks high on the list, not only as an inhalant in cases of colds or other respiratory troubles, but as an antiseptic dressing for cuts and sores. No preparation containing carbolic must on any account be used, as it has properties which are fatal to all reptiles. A solution of permanganate of potash or very weak peroxide of hydrogen may also prove useful in such cases.

For eye troubles we have found bathing with tepid boracic lotion, followed by a tiny drop of warm olive oil as good as anything. Tortoises often have difficulty in opening their eyes or their mouths after hibernation, but the above treatment will soon put matters right. An occasional wipe with a rag dipped in olive oil will improve the appearance of a tortoise's shell, particularly in early spring, and will prevent undue dryness. The novice might be alarmed at the frequency with which lizards appear to change their skins, and at their often very bedraggled appearance while it is taking place, but this is actually a sign of good health and causes them no inconvenience. The brilliance of a green lizard's skin directly after a midsummer moult has little to equal it, for it gleams like finest enamel.

Cod-liver oil, both as liquid and as capsules, is an essential as a regular article of diet for all lizards, tortoises and terrapins. It is the magic potion which makes freely available the vitamin content of the other foods. Fortunately

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these animals do not show such aversion to it as humans are apt to do.

Rather surprisingly, paraffin is another useful commodity. Should any amphibian show signs of woolly white, or any other kind of fungus, brush them over very gently with a soft brush dipped in paraffin, rinse them with clear, cool water and then put them in a tank with plenty of mud at the bottom. Similar treatment is recommended in the case of red mites being detected among the lizards, with the omission, of course, of the mud bath.

Another useful commodity is a tube of penicillin ointment, though, as with humans, this should only be used sparingly in cases of obvious necessity. To obtain this or the half grain sulphanilamide tablets which are the great standby for respiratory diseases, it will, of course, be necessary to persuade one's doctor to give one a prescription, a course which I have not found difficult.

## Chapter 31

### THE SIXTH SUMMER

**B**Y the time our sixth summer crept upon us almost unawares—that near-tropical summer which broke practically all existing records and will surely never be forgotten by anyone who experienced it—we were beginning to see that if we wanted our various amphibia to perpetuate themselves, we should have to aim at rather more segregation of the species. We had already eliminated newts from Toad Hall, as they are suspects number one where cannibalism is concerned, though this still leaves us with common frogs which are not entirely above a similar suspicion, but against whom we cannot yet entirely harden our hearts, as unfortunately they drift away if they are released.

The edible frogs found their way into the axolotl pool last year so that we shall have to keep a very close watch if we are to find any larvae there, though no doubt the axolotls will take their revenge when the edibles spawn again. In the sanctuary the terrapins would make short work of anything in the nature of a tadpole. Other reptile keepers often express surprise at the continued safety of the fire-bellies which paddle at the edge of the pool, and the newts which inhabit it during the breeding season, but so far these suspicions remain unfounded. No doubt the 'gunpowder' smell of the crested newts takes care of their survival, and probably the other newts have similar defensive measures—the fire-bellies and the salamanders carry their warning colours on their persons. It is surprising how, in such a comparatively small area, so many can make themselves



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invisible for so long a period, and the reappearance of a smooth newt in 'land' attire makes it almost unrecognisable.

Further complications occurred among the pond populations when a friend had to find a home for a thriving colony of painted frogs, *Discoglossus pictus* from the Mediterranean region, sometimes known as Spanish frogs. These are very similar to edible frogs in size and general appearance, with the same sharply pointed noses and even more triangular bodies. The sexes are more easily recognisable than in most species because the female has hardly any webbing between her toes while the male has them webbed for about half their length. There are two colour forms, one which is almost devoid of markings and generally rather dark or rusty in appearance, and one which mostly has three fawn stripes on a darker background, or some variation of this pattern. Their Latin surname refers to their short disc-shaped tongues.

As these frogs are said to be able to feed under water, Toad Hall, which is reserved for salamander, natterjack, midwife and green toad nurseries, was obviously not the place for them, so they have been put into the sanctuary, where we hope next spring to find their masses of eggs close to the water's edge.<sup>1</sup> They are the easiest of all frogs to persuade to spawn in captivity—they will even do it in an indoor vivarium. Couple this with an omnivorous appetite, and here again is an ideal pet, especially as, having no vocal sacs, they can only 'whiffle', and are thus less likely to be unpopular with the neighbours.

At this time yet another new and pleasant surprise was

<sup>1</sup> We did, and were interested to note that the jelly surrounding the embryos, which is so conspicuous in the case of the common frog, is practically invisible, making them easily identifiable, apart from the fact that the breeding season is usually about two months later.

being prepared for us by one of the European terrapins who presented us with a clutch of eight eggs. To our great delight when we went to feed at dusk one evening in July, we found her, oblivious to anything that was going on round her, oblivious to our light, solemnly digging away with her back legs at the ground, now hard from the long drought, on which even the water she was releasing from her cloaca (as chelonians always do in these circumstances) had very little effect. We watched enthralled for a long time. If we had not caught her in the act we should never have known of the incident, for the next morning everything appeared to be just as usual. However, very gentle excavation with a spoon revealed her precious treasure, which was placed very carefully in damp sand in a large tin, balanced over a twenty-five watt lamp to keep the temperature at about eighty degrees—and there, for the present, the story ends. It is quite likely that our wait is in vain.

At about the same time, we had sent to us some tortoises' eggs which have been put in dry sand under similar conditions, but I am afraid they had too rough a journey for us to have any luck with them. However, nothing venture . . . As One Who Knows said when I was telling him what we had done, 'When you have hatched them, get them to feed!' for this is apparently an even higher Everest than the hatching itself. By the time they have reached the approximate two inches which is about the smallest size at which one can buy them, they have usually acquired an indomitable will to live, and spend almost as many hours nibbling shredded lettuce or mashed fruit of some kind as they do sleeping.

The unprecedented heat which filled lizards and tortoises full of restless energy, and which led to Bella's lengthy trek, was most unwelcome to the amphibia, and for days at

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a time the night shift refused to come on parade in spite of watering-can showers; but fortunately there have been very few casualties. The great difficulty was to keep the indoor vivaria at a comfortable temperature, but this is not a problem likely to trouble us very frequently.

A newcomer to the family circle, almost certainly as a direct result of the difficulty of finding food in the parched ground, was a young thrush which was hatched within a few inches of the pet-room window, so that he had been familiar with us from his earliest hours. Entirely of his own accord Albert adopted us, just as the robins do, as universal providers; and seldom left us except to sleep. The little cough with which he regurgitated the stones of the few dessicated berries he managed to find, haunted our waking hours, and he trained us to leave his breakfast dish of gentles ready overnight. When food became more plentiful he no longer let us stroke him, but we imagine he will be a garden resident for life.

An innovation in furnishing for the dry vivaria indoors which has been brought to our notice recently, and which is proving itself most useful, is sheet cork. Of the three available thicknesses, the middle one seems to be the most practical. It is light, warm, and easily washed, and though rather more expensive, is certainly more ornamental than newspaper. A piece of cork bark will be appreciated to provide a retreat, and this, too, is so light in weight that it can be easily moved by all but the smallest lizards, and so may avoid accidents which can be caused by heavier materials. Be it noted, lizards definitely resent the rearrangement of their furnishings, and with them, at any rate, familiarity breeds content.

Another innovation is the discovery of a new item for the menu which came about when Stumpy decided to

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investigate Coral's saucer at mealtimes. He quickly decided that puppy food soaked in gravy was very much to his liking, and it is most amusing to see them sharing a meal. Every now and then they look at each other, touch noses in perfect understanding, and then carry on with the job. It was not long before Stumpy taught Zebbie to share the mixture, since when we have found it invaluable as a very welcome addition to the list of available foods, and it will no doubt be especially useful in winter. A test soon proved that tortoises also find it agreeable.

It is becoming quite obvious that buying green lizards in London is not an entertainment in which I ought to indulge, as it so often results in slightly embarrassing incidents; but personal selection is such fun that the temptation is hard, or impossible, to resist. Having chosen a charming little female recently and handed her over to be packed up, I was a little surprised when she was returned in the nowadays almost inevitable polythene bag, but was assured that it had air-holes and was securely fastened. More or less reassured by these statements, I put her in my music case, and spent the first part of the journey surreptitiously feeding her mealworms through the holes. When her appetite failed I got out my book and read until the journey was nearly done. As I put the book away I took a peep at the polythene bag—it was empty! A frenzied search of the music case failed to reveal the missing lizard.

Opposite me was an unsuspecting young man, also quietly reading. Imagine his look of consternation when he was suddenly asked, 'Have you seen a green lizard come out of my bag?' A stupid question, because if he had, he would almost certainly have emitted some sort of warning sound! We drew into Brighton station. Being a new type of coach it had doors all along the sides, and practically no inside

## THE SIXTH SUMMER

hiding-places of any kind. After being threatened by a surly shunter with being pushed off into a siding, I was joined by a more sympathetic railwayman; but after a fruitless search we decided that the quest was hopeless, and that the refugee was probably well on her way to open country by this time. Just as we were walking sadly away, I glanced in the window again and there she was, perched on the back of a seat, where she was kind enough to remain until I picked her up. After this she was firmly knotted into my nylon scarf for the remainder of the journey. One really must carry a tin . . .

It is a pity that the people who say they do not like toads cannot see, in early summer, the ring of expectant faces, sometimes as many as eight, sitting round the feeding dish in anticipation, and then, when realisation comes, the intense concentration with which the meal is consumed. The fire-bellies have learned to know the signs of lizard meals, and lurk under the bark on the Look-out, ready to dash out and intercept as many mealworms as possible. Toad Hall, too, is an enchanting spot on a summer morning, with baby natterjacks trotting around in the dappled shade, sleeping slow-worms coiled in the sun, and frogs peeping from among the water weed.

Surely these are sights to soften the hardest hearts of even those unfortunate people who have an inherent fear of reptiles, in many ways the most interesting of the animal kingdom.

## Chapter 32

### CURTAIN DOWN

**B**Y the time the storm-cock is heard to greet each succeeding day ever more vociferously, and the number of performers in the grasshoppers' nocturnal chorus decreases every night, the tempo of life in the sanctuary is idling. The hitherto clockwork mechanism of the lizards is running down, and one misses the sight of Spotty Toad's quivering toes as she gazes in eager anticipation at a juicy worm, and the thud of the terrapins' tumbles as they step blithely off a log on the shortest route from the Look-out to the water. The leaves drifting quietly down lie almost undisturbed, except after dark, and toadstools grow along the wings of the stage from which the actors are making their exits one by one.

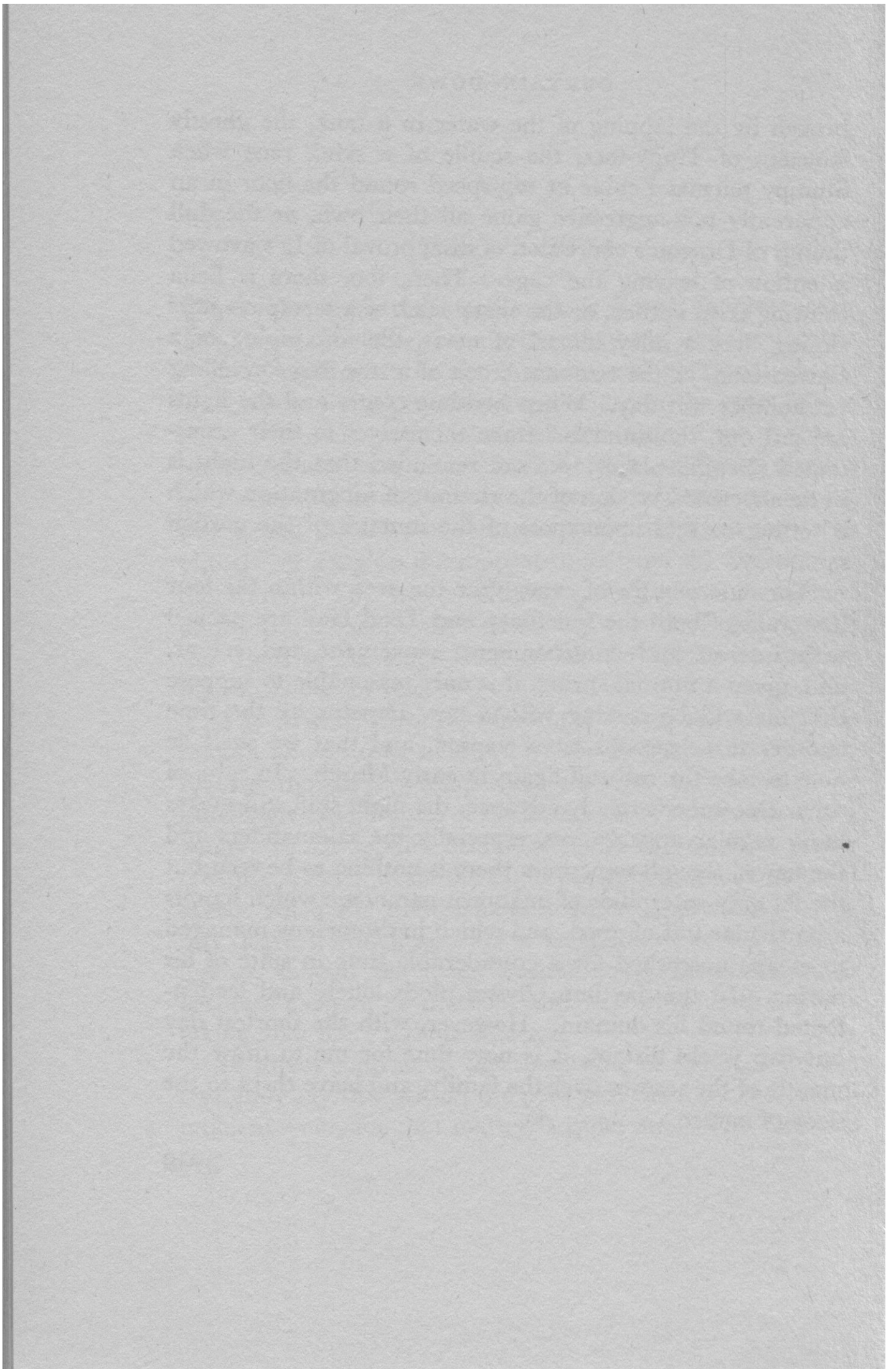
The first to withdraw from the scene are usually the smooth newts, to be followed by the Spanish terrapins and Blackie, though day temperatures of fifty degrees and over usually give us glimpses of the lizards, unless there are strong winds—which reptiles dislike as much as any other living creature. For a while the night life goes on much as usual except when the thermometer registers appreciably below fifty degrees (which appears to be the more or less decisive figure), though the toads' solemn independence of spirit becomes even more marked, and it is obvious that life is taking on a more serious aspect.

In direct contrast to this slackening of the pace we can truthfully say that within the pet-room there is never a dull moment—nor, for that matter, a quiet one. The silence is

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broken by the lapping of the water in a tank, the ghostly footsteps of Tippy-toes, the scuffle of a skink race when Stumpy pursues Zebbie at top speed round the floor in an apparently non-aggressive game all their own, or the dull thump of Dragon's expression of disapproval of Ig's avowed intention of leaving the cage. Then, too, there is Bella chewing crisp lettuce, or the sharp click of a terrapin's jaws closing over a juicy morsel of meat, the soft piping of a clawed toad, or the resonant croak of a tree frog foretelling yet another wet day. When bedtime comes and the lights are put out, the animals betake themselves to their accustomed sleeping places; we are reminded that the night is but a shortened version of the rhythm of hibernation which is setting its seal upon most of the inmates of the garden sanctuary.

For nine months of every year the area within the four low walls of both the sanctuary and Toad Hall are packed with interest and entertainment, movement and colour, and, given a normal spring, it is only reasonable to suppose that life will be stirring with a new impetus by the time another three months have elapsed, and that we shall be able to take the roll-call again in early March. In spite of drear December's steady advance, the night shift still makes fairly regular appearances, especially the salamanders and the newts, though sometimes there is nothing to be seen but the fat grey caterpillar of unknown parentage which haunts a particular tuft of grass, and which has somehow managed to escape unscathed for a considerable time in spite of his daring. In the daytime Ulysses plods lonely and leaden-footed round his domain. However, with the shortest day but two weeks distant, it is now time for me to draw the mantle of the seasons over the family, and leave them to the sleep of nature . . .





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