

# PETS

USUAL AND UNUSUAL

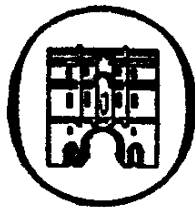
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by

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London

## Chapter 14

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### REPTILES AND AMPHIBIA

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*Tortoises, Terrapins, Lizards, Snakes,  
Toads, Newts*

**I** PARTICULARLY want to recommend reptiles and amphibia as pets, not only because I have always been interested in them myself, but because they have many advantages which commend them. They are very clean in their habits; they do not smell; and they do not require such constant attention as some other creatures; while on the whole they are easy to feed. In addition to these attractive features all of them are interesting in their behaviour. Many are very beautiful, and there are a great many aspects of their lives about which there is a lot still to be learned.

It will be quite impossible to give a complete list of all the species that are suitable for keeping in captivity; but as you will have found to be the case in connection with other groups, it is possible to give sound practical advice with regard to general principles and, where necessary, additional details about some of the commoner or more easily obtained species. Once you have grasped all these basic points you will be able to add to your collection if you should wish to do so, but you must remember that if you obtain some reptile or amphibian which

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is new to you, you should read about it in a good natural history book or make enquiries about its treatment from a zoo or museum.

There is a lot of confusion in some people's minds between reptiles and amphibia, and without becoming too technical on the subject it may be as well to devote a little space to explaining where the differences arise. The amphibia, that is to say, frogs and toads, salamanders and newts, all go through a phase early in their existence which is known as the larval stage. These larvæ are what the ordinary boy or girl knows by the name of tadpole. From this stage they progress until they undergo a change which when finished produces the complete amphibian. Reptiles, whether they spring from eggs or are born alive, do not go through a larval stage.

Another difference lies in the skins of these creatures. The skins of the amphibia are soft and free from scales, and in most cases have a certain degree of moisture. The skins of reptiles such as snakes and lizards are dry, and consist of a great many scales arranged in particular patterns by which it is possible to identify the species. Other reptiles, such as tortoises and terrapins, have what appear to be horny shells; while the crocodiles and alligators have thick leathery hides which look as though they are broken up into corrugations; these are also arranged in particular patterns.

Further questions sometimes arise over the differences between snakes and lizards, and between frogs and toads and newts. It is not always possible to say that lizards have legs while snakes have none, because some of the larger snakes have very small remnants of what were once limbs, and some of the lizards—such as slow-worms—have no legs at all. One of the best methods of distinguishing between the two is to remember that snakes have no eyelids, and are unable to close their eyes. Their eyes are covered by a single scale which is cast periodically with the rest of the skin, and when looked at after being cast, seems just like a miniature watch glass. Lizards, on the other hand, have eyelids, and can open and shut their eyes just as we ourselves do.

As to frogs and toads, generally speaking frogs are more

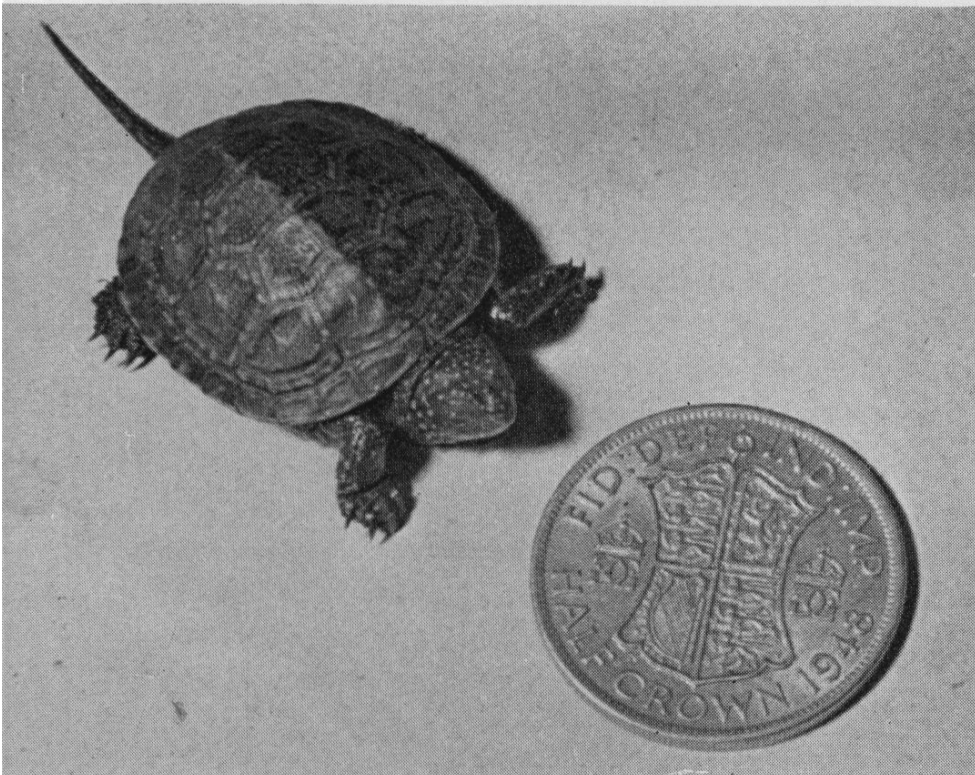
## *Reptiles and Amphibia*

active than toads. They have a moist skin as opposed to the dry warty skin of the toad, and their feet are usually more webbed. Newts look something like smooth-skinned lizards; that is to say, when they have passed through the tadpole stage they have the general shape of lizards, but have soft smooth skins, although in some species the skin is punctuated with very tiny warts. It is not possible to generalize about feeding for, after all, the food of this wide range of creatures can vary from a half-grown rabbit in the case of some snakes to minute flies in the case of some of the frogs and toads. However, where it is necessary to give any special instructions about feeding, these will be found under the heading of the appropriate species. In the special chapter on housing, sufficient reference has been made to the different types of vivaria which can be used for keeping reptiles and amphibia; but it is a good thing to bear in mind that all these creatures must have the environment most suited to them. Moisture-loving species must not be kept in dry sand or peat moss, while those that are used to heaths, or even deserts, will not thrive in damp surroundings.

There are quite a number of foreign reptiles and amphibians for sale by various dealers, and several of these do extremely well in captivity, but I think it is a good thing to make a start with those species that can be found in our own country. Most of these are good feeders and not difficult to keep, while there is the additional advantage of having the fun of catching them yourselves. We have not got many British species in these groups, but we have quite enough for you to choose from. We have one snake that is quite unsuitable—the adder or viper, our only poisonous snake, which you should not attempt either to catch or to keep. The only other snakes are the grass snake, which is very common, and the smooth snake, which is rare. As to lizards we have three, all of which do well in captivity. These are the viviparous lizard, the sand lizard, and the slow-worm or blind-worm. We have three frogs: the common frog—a true native; the edible frog, an importation from the Continent and rather restricted in distribution; and the marsh frog, which is of comparatively recent introduction, and which at the



20. A handful of Slow-worms



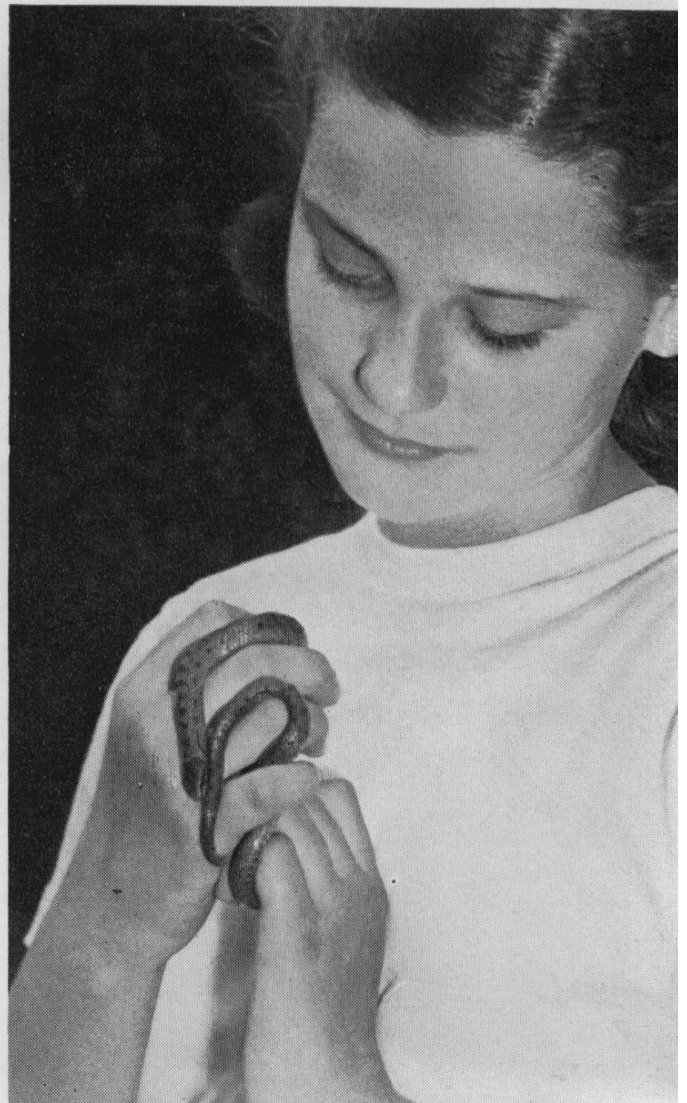
21. European Pond Tortoise





22. A pair of Sand Lizards—  
the male is the one near the  
thumb

23. Girls are not necessarily  
afraid of snakes—the rare  
Smooth Snake



## *Reptiles and Amphibia*

moment is only established on the Romney Marsh in Kent. None of these frogs ought to be kept in a small vivarium—they are much too active—but they will do very well in an outdoor enclosure. We have only two toads: the common toad, well known, I hope, to all of you, and the natterjack, which is very local in its distribution, but which makes just as good a pet as its commoner relative. Our newts are three in number, the largest being the crested newt, which is less common than the two others, namely the smooth newt and the palmate newt. All three of these do well in captivity.

These, then, complete our list of British reptiles and amphibia. If you succeed in keeping even a proportion of these you will learn a lot, and you will be rewarded by the interest they evoke. When you have succeeded with the British species, you can then turn your hand to some of those from the Continent or even one or two from the tropics.

These general remarks would not be complete without some reference to a process indulged in by all the amphibia and the snakes and lizards. This is the periodical shedding of their skins, or sloughing as it is called. This peculiarity is associated with growth, and from time to time the creature concerned literally gets too big for its skin. The skin generally splits at the head, although sometimes down the back in amphibia. The skin is then either rubbed off in herbage, or against a rough stone; in the case of frogs and toads, the skin is worked off over the head from the rear, after which it is very frequently eaten. Newts often shed their skins entire, and if they are in water at the time, the skin can be seen hanging from a bit of weed or sometimes floating on the surface looking like a little transparent edition of its former owner. Just before they are going to shed their skins, all these creatures go off their food and appear rather lethargic. No notice should be taken of this, for once the sloughing is over they will commence to feed again as heartily as ever.

# *Reptiles and Amphibia*

## REPTILES

### CROCODILES AND ALLIGATORS

I do not advocate trying to keep young crocodiles and alligators as pets, at least until you are grown-up. In the first place they require a considerable amount of artificial heat; and in the second place they grow very quickly. They are uncertain tempered, and if they do snap can inflict a most unpleasant bite.

### TORTOISES

Tortoises have been popular as pets for many, many years, and although during the war it was impossible to obtain them, they are now coming back on to the market in thousands. Therefore you should not have any difficulty in getting one at a reasonable price.

When you go to select a tortoise there are one or two points to be remembered. You should never buy a tortoise that does not react quickly to a light touch. That is to say, if its head and legs are out of its shell when you first see it, try to touch it on the head with your finger. If it withdraws very quickly into its shell this is a good sign, but if it is slow doing so it is probably in bad health. The next thing you should do is to pick it up and weigh it in your hand. If it appears very much lighter than you expect it to, it is obviously too thin. You should reject it, and choose one that does not seem too light for its size. The next thing to find out is whether its mouth is clean, and whether the tortoise can actually open its mouth. Numbers of newly imported tortoises and terrapins, and those that have just emerged from hibernation, have their mouths almost sealed up. This can be treated; but if you have any choice in the matter, select a tortoise that you have actually seen eating in the shop. If, however, you find a tortoise that seems quite well apart from its mouth, you may be able to deal with this affection by bathing the mouth with warm water into which a little peroxide of



## *Tortoises*

hydrogen has been added—not more than a teaspoonful to a small cup of water. After bathing, you should rub a little olive oil round the edges of the mouth. This will nearly always free the jaws and enable the tortoise to eat.

You will also find that a large number of newly arrived tortoises will be infested with ticks. These may be seen on the neck and legs, and they look rather like little spiders without the latter's long legs. The way to get rid of these is to touch the ticks with a feather or small paint brush which has been dipped in either turpentine or paraffin. This frequently makes the ticks let go their hold. In any case, it tends to loosen them. The ticks can then be pulled off with a pair of tweezers. You must be quite sure that you have removed the heads or you will have done no good at all.

### HOUSING

Housing is perhaps the wrong word to use in respect of tortoises, for although some pet shops will insist that they can be kept in a boxful of hay, this sort of treatment is quite unnatural. Most of the tortoises which come into this country can be kept in a garden where, contrary to what most people think, they will not do any appreciable damage. They may take a low down outside cabbage leaf occasionally, but they will not strip the garden of all its choice vegetables! During brief spells of cooler weather your tortoise will find some sheltered place in which it can lie up until the sun comes out again; while a warm shower of rain, far from being injurious, is rather enjoyed by lots of tortoises. The only time when you have to worry about special quarters is at the beginning of the autumn, for it is then that your tortoise will want to hibernate. If you have a really good big rubbish heap in the garden your tortoise will probably dig himself in, and remain there until the following spring; but if you have not got this facility available you should prepare a wooden box—such as a tea chest—fill it with some clean hay, and place the tortoise in it. The box should then be stored during the winter in some such place as an outside shed, or even a coal cellar. In fact, anywhere where the temperature will not fluctuate a great deal.

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### FEEDING

If it has the run of your garden, a tortoise will not require much additional feeding; but if you are going to keep it in an enclosed space on your lawn—in a rabbit pen, or run for young chicks, for instance—you will have to give it food in addition to the grass which it will crop for itself. You should give it meadow grass, the outside leaves of cabbage and lettuce, pieces of carrot, dandelion leaves, and any rough herbage of the same kind that you would offer to rabbits. You will also be amused to know that tortoises are very fond of soft fruit, and as a special treat, a strawberry which has been pecked by birds will be as welcome to the tortoise as a sound one would be to you.

Do not forget that, contrary to what many people think, tortoises *do* require water. In fact, when they emerge from hibernation, or when first purchased, they should be given a drink before anything else.

One last word, do not believe the stories you hear about tortoises ridding your house of black beetles, and your garden of snails. They will not eat either, and if you expect them to do so you will be disappointed. I have heard of a man who insisted that his tortoise ate slugs, but I think what happened was that a small slug was on a lettuce leaf and the tortoise ate the lot—including the slug by accident.

### SEXING AND BREEDING

People often want to know how to tell a male from a female. You should look at the underside of the shell. In the female this is almost level and flat, while in the male you will find it is slightly concave. You are most unlikely to breed tortoises in captivity, but, on the other hand, you are quite likely to be presented with an egg, for many of the imported tortoises are females and may lay eggs. In their natural state these eggs are laid in the sand and hatched out by the heat of the sun, but as they require a temperature of ninety degrees, it is not likely that they will be incubated like this in our own country. You can, however, try your hand at hatching them out artificially.

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You should put the eggs into a stout cardboard box full of fine sand and place them in a linen cupboard, or in any place where a high temperature is consistently maintained. They *may* hatch out, but you must not count on this as in the first place conditions may not be right, and in the second place the eggs may be infertile.

### WATER TORTOISES AND TERRAPINS

Many of these can also be obtained from live-stock dealers. The ones you are most likely to come across are: the European pond tortoise, and one or other of the small American terrapins, some species of which are extremely pretty.

### EUROPEAN POND TORTOISE

The European pond tortoise, when fully grown, is about eight inches in length, the shell being very dark brownish olive with yellow markings, and the head and limbs being of a similar dark brown colour with rather more yellow markings. You are quite likely to be offered the young of this tortoise, and these may be as small as a half-crown.

### HOUSING

The smaller sizes can be kept in an aquarium or even in a galvanized iron wash-tub. Whatever container you use, it should have one end built up into a sort of terrace with, say, a couple of bricks or flat stones, and a bit of moss for decoration; while the rest of the container should have about three inches of water in it. It should be placed in such a position in a room that it will receive at least a certain amount of sun, for all pond tortoises and terrapins like basking. You should never allow the water to become dirty. It is necessary to change it at least twice a week, at the same time removing anything which may look like stale or discarded food.

The larger sizes of pond tortoises will do very well in a

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garden pond so long as you place some wire netting, or boards, or something similar, around the pond to prevent your tortoise from wandering off. You must *not* keep a pond tortoise in the same water as goldfish, or indeed any fish; for the larger sizes are quite capable of tackling small fish, while the smaller ones will damage them by snapping at their fins and tails.

With regard to hibernation, water tortoises that are allowed the free run of a garden pond with its surrounding piece of land will nearly always dig in and look after themselves when autumn comes. Those that are kept indoors, if they are allowed to remain in a warm room, will not hibernate, but will go on feeding all through the winter.

### FEEDING

Pond tortoises will do well on small earth-worms, tadpoles (in season), small scraps of fresh fish, or even a little shredded raw meat; but if using the latter, you must see that all you give is consumed at once, as otherwise it will very easily contaminate the water. You should also offer an occasional piece of chopped lettuce, or even have a little duckweed floating in the water, as pond tortoises like a certain amount of vegetation to nibble.

### BREEDING

You are not likely to breed water tortoises.

## TERRAPINS

The species of terrapins, such as the elegant terrapin and the painted terrapin, which you may possibly buy in this country are not on the whole suitable for the garden pond. They do best if kept in an even temperature. They may be housed similarly to the European pond tortoise, and will require exactly the same diet. Remember that if your terrapin is very small it will not be able to manage large worms, but it will appreciate the small crustaceans, known as daphnia or water fleas, which you can obtain from aquarist's stores. You should not attempt to

## *Lizards*

hibernate terrapins—keep them feeding all the year round. All the above species are capable of being tamed, at least to the extent that they will accept food from your hand.

### LIZARDS

Lizards are very rightly popular as pets, principally because they are lively and colourful, many of them are easy to feed, and some become extremely tame. You should not be too ambitious and try to keep tropical lizards until you have had some of the British species or those which come from temperate climates, for the really tropical lizards require a great deal of heat. This will not only give you a great deal of trouble, but will be very expensive as well.

I shall deal first of all with the three British lizards, then with the green lizard—which although found in the Channel Islands is not really a British species—and then with one or two other lizards which are easy to keep and interesting to study.

Before particularizing about any of the lizards, I want to warn you never to forget that they have the ability to sever their tails. Although they can grow another it is never as long and graceful as the original one, and nothing looks worse than a vivarium full of lizards, half of which have unsightly stumps where their tails once were.

### THE COMMON OR VIVIPAROUS LIZARD

This is the lizard which you are most likely to see in this country. It is widely distributed, but is usually found on heath land, rough commons, and waste ground. The fully grown male may reach six or six and a half inches in length if the tail is complete, while the female will be a little smaller. In colour this lizard varies quite a lot. The most usual type is a coppery brown with a pattern of lighter and darker markings which themselves vary a great deal in number and intensity. The male lizard assumes a beautiful orange colour on the belly during the



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breeding season, and always retains a little of this colour; while the belly of the female varies between a dull cream and an almost pinkish shade.

As you may possibly have guessed from its name, this lizard brings forth its young alive. When the young are born, which is generally in July, they are tiny things—a little over an inch in length—and very dark brown, almost black in colour.

### THE SAND LIZARD

The sand lizard is much more restricted in distribution than the common lizard, being only found in Hampshire, Surrey, Dorset, occasionally in Sussex, and then, curiously enough, nowhere else except some parts of southern Lancashire.

The sand lizard is a much bigger and stouter creature than the common lizard. The male may reach eight inches in length, and the female anything between six and seven inches. However, in coloration the two sexes differ considerably. The male at all times of the year has a certain amount of green on the back and sides, but in the breeding season this green colour is much more intense and will eventually spread over the body. The under parts of the male are a beautiful cream, shading to very pale green at the sides. The scales on the back are frequently studded with rather minute dark bluish spots. The female is brown on the back with this colour broken up by cream markings which vary between minute little flecks or spots—rather similar to those of the common lizard—to quite bold white spots with a small dot in the centre. Both sexes are not only longer but more heavily built than the common lizard, and the head is broader and blunter.

In the districts where it is to be found, the sand lizard prefers really sandy heaths, although in very dry weather it will tend to migrate to a portion of its terrain where there is likely to be moisture. This is not only because the lizard drinks, but is also because the ground spider on which it principally lives is itself inclined to migrate towards a moister place in times of drought.

## *Lizards*

The sand lizard produces a true egg which it deposits in the sand in a depression scraped out by the female, and the egg is then left to be incubated by the heat of the sun. The young appear from mid-July to mid-August.

### THE SLOW-WORM

The slow-worm is sometimes known as the blind-worm, but both names are equally bad since this is a lizard—not a worm! It is not at all slow, and is certainly not blind! It has possibly come to be known as a worm because it is a legless lizard; but, in fact, even this is misleading for it is much more likely to be mistaken for a snake than a worm of any kind.

The slow-worm is very widely distributed, and may be found on commons, rough stony ground, near stone walls, hedges, and even graveyards. The female is the larger of the two sexes. She is generally some shade of bronze on the back, and very dark grey or slaty blue underneath; while, in addition, she has down her back darker stripes which are always present in the female, and never in the male. The male slow-worm is generally much greyer in colour, very often looking like the shade known as gun-metal. On the underside the male varies from dark grey to a beautiful shade of pale grey which sometimes has a bluish or even a mauvish tint. Sometimes the male has little brown dots near the head and neck, and in some localities these dots may be bright blue. The male has a broad head, and appears to have no neck at all; while the female always gives some indication of having a neck.

The slow-worm is what is called ovo-viviparous. This means that the young are not produced from true eggs, but are born each in a separate gelatinous sac which is ruptured immediately after birth. The young are about two and a half inches to three inches long, and are a very pale gold colour with a darker stripe right down the back which starts as a diamond-shaped mark on the head.

## *Reptiles and Amphibia*

### THE GREEN LIZARD

This is a very handsome specimen which is widely distributed throughout France, and is also to be found in the Channel Islands. It frequents banks, walls, heaths, and rough ground of every description. It is exceedingly quick and active, and very difficult to catch in its native haunts. Green lizards, however, can easily be obtained from pet shops.

In colour, as its name implies, it is principally green—a beautiful grass green—but the exact shade is capable of great variation. Some of the continental females have the green coloration broken up into a sort of lattice pattern of light brown and cream. The male often has its green back 'picked out' with little dark blue scales, but even in this pattern there are considerable variations. The male always has a blue tinge on the throat which becomes particularly bright during the breeding season. The male green lizard may be as long as twelve or fourteen inches, and the female only slightly less. In the early summer the female lays eggs like the sand lizard, which are incubated in the same way.

### THE EYED LIZARD

This is a large and very handsome species which comes from Spain. The general ground colour is green—not unlike that of the green lizard. Both sexes are alike in having this green background patterned with a series of 'eyes' which are marked out in a beautiful deep blue colour. The male of this species is also blue on the throat. A really big specimen of an eyed lizard can measure nearly two feet, and is powerful in proportion. In fact, until an eyed lizard is used to being handled it should be approached with caution because the male, particularly, is inclined to be aggressive and can inflict a painful bite.

## *Lizards*

### THE EUROPEAN WALL LIZARD

There are almost endless varieties of the wall lizard, which is fairly evenly distributed all over the Continent. In size the wall lizard is a little bigger than our common lizard, although not so stoutly built as the sand lizard, and in colour varies from various shades of olive to a bright green or even a dull fawn. It is amazingly quick and active; and although very pretty in a continental walled garden or on the sunny side of a picturesque house, it is, I think, not so suitable for keeping in close confinement as the other species I have named.

### THE SKINKS

The European and foreign skinks occasionally find their way into pet shops and are quite suitable as pets so long as they can be kept in a temperature of about sixty degrees. There are a great many varieties, but their chief distinguishing features are their very short feeble-looking legs and their very smooth scales.

#### HOUSING

Unless you have a properly constructed outdoor vivarium from which lizards cannot escape it is much better to keep them in one of the types of vivaria which have been described in the chapter on cages and housing. With the exception of the slow-worm, which likes a rather damp environment—easily supplied by putting rough turf in its vivarium—the other lizards listed can all be satisfactorily kept under the same conditions.

The essential requirements are some soft sand on the floor of the vivarium, with some rough stones and pieces of bark which may serve for basking on, or as places under which the lizards can retire when they wish. A vessel for water should be sunk into the sand so that its top is only just above the level of the sand. This vessel should not be so large nor so deep that any small lizard could get into it and drown. If you wish you may

## *Reptiles and Amphibia*

put some moss, or even a fern, into the vivarium, but this is not essential. It is merely an artistic decoration which may satisfy you, but which will not mean much to your lizards! If you use for a vivarium a glass accumulator tank or an old aquarium do not forget you must keep the top firmly covered. Otherwise your lizards may escape, and if they do not the insects on which you feed them certainly will.

### FEEDING

Lizards will eat practically any kind of insect, many of which you will be able to catch for yourselves during the warmer months by means of a sweep-net. Spiders, grasshoppers, smooth caterpillars, wood-lice and even earth-worms will be taken greedily while, of course, any kind of fly is equally acceptable. During the colder months you will probably have to rely on meal-worms, but these are a perfectly satisfactory form of diet. Whenever possible go in for variety. An excellent way of feeding lizards is to buy from a fishing-tackle shop some gentles—the larvæ of bluebottles. A few of these can simply be thrown into the vivarium. Lizards will occasionally eat them as they are, but if they do not the gentles will burrow into the sand, eventually pupate, and emerge as bluebottles when they will be snapped up at once. Skinks are very fond of snails.

I think it is generally an unprofitable thing to hibernate snakes and lizards. It is really better to keep them going through the winter. They will not breed if you do this; but you are less likely to be disappointed by finding that they have died during the hibernating period. It seems to be very difficult to produce artificially the exact conditions which suit snakes and lizards in nature in respect of hibernation.

### SNAKES

Although there are a great many snakes which can successfully be kept in captivity it will be much better for you to begin in a modest way with one or two of those which are easiest to house and feed; for several species are rather specialized feeders,



## *Snakes*

and are therefore too troublesome for a beginner. It is popularly supposed that snakes rather enjoy going for enormous periods of time without food, but this is not true. It is quite correct that snakes can remain for considerable periods without a meal, but this is probably due to necessity rather than choice. A healthy grass snake, for instance, will require one or two frogs at least every week or ten days, so do not imagine because snakes are capable of fasting that you can leave them without food for weeks on end. One of the dangers of doing this is that once the snake gets below a certain pitch of condition it will very often refuse to feed at all—then it will ultimately die!

Remember that the periodical shedding of the skin is very much related to growth and feeding, and you will be able to tell from the regularity and ease with which your snake sheds its skin whether it is in good health. If it has difficulty in shedding its skin, or appears to go for excessive periods such as two or three months without sloughing, you may be sure that something is wrong either in its conditions of living or its general health.

The most suitable snake for you to start with is the English grass snake; though the rare smooth snake, if you can get one, is also quite amenable to captivity. Then there are continental snakes of harmless type which with proper treatment will thrive in a vivarium or reptiliary. Among these latter are the viperine snake (not to be confused with the viper) and the dice snake. From time to time, of course, you may come across other species of snake which may be offered by dealers. Many of these may be tropical—pythons, for instance—but I do not recommend you to go in for these until you have had experience. They require constantly high temperatures and, unless very young and small, grow quickly, becoming too large for you to handle or house conveniently.

### THE GRASS SNAKE

This is the commonest British snake, with a very wide distribution. It likes surroundings which, if not necessarily damp

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themselves, are in close proximity to water. The banks of canals, rivers, and ponds are the sort of spots where you are most likely to find it.

You may recognize the grass snake quite easily by the fact that it has, just behind its head, two yellowish-green patches which almost form a sort of collar; and until you are familiar with differences between our two harmless snakes and the venomous adder, you should not attempt to catch or to keep a snake about whose identity you have any doubt. The grass snake varies considerably in size according to its age, locality in which it is found, and its sex. The female is always bigger than the male, and it is reasonably safe to say that any grass snake you find or buy which is thirty inches or more in length is a female. She can grow to a length of four feet and more. When you have seen a good many grass snakes at close quarters, you will realize how much they differ in coloration and pattern, and therefore how difficult it is to be exact about this; but generally speaking the ground colour of the grass snake is either a brownish olive or greyish olive. There is generally some pattern of vertical stripes at irregular intervals along the sides; but sometimes these are absent altogether; sometimes they are mere dark smudges; while occasionally they are very bold and well marked. The tail of the grass snake—unlike that of the adder, which is stumpy and rather blunt—is tapering and quite graceful although you may come across an odd specimen with a damaged tail which looks rather stumpy. The head is almost oval in shape and has none of the flat spadelike proportions that typify the adder.

### HOUSING

The same type of indoor vivarium will do for housing snakes as that which was described for lizards, but, of course, the size of the actual vivarium or tank must depend upon the size of the snake. Grass-snakes will also do excellently in an outdoor reptiliary, but the sides of this must either have an overlap at the top or be three and a half feet to four feet in height. As grass snakes are equally at home on land or in the water, as large a vessel as possible should be provided for

## *Snakes*

water. This is easy if you are using an aquarium tank, for all you have to do is to place some large stones or bricks at one end of the aquarium with some moss or turf on top, if you so desire, while the remainder of the aquarium can be filled with water to a depth of about three inches. The more irregular the arrangement of the stones and the turf, the better it will be for the snakes, as they will be enabled to find crannies into which they can go for periods of rest. The vivarium should be placed in such a position that it can get a reasonable amount of sunlight, but do not expose grass snakes to the full blaze of the sun without providing proper shelter.

### FEEDING

In their natural state grass snakes live on frogs, toads, newts, tadpoles, fish, and occasionally on very young immature mice and fledgeling birds. In captivity they will feed best on frogs and newts; though in the tadpole season they very much enjoy a meal of these, and nothing is easier than to tip a jar of tadpoles into the snakes' water and let them feed at will.

### THE SMOOTH SNAKE

As I have said before, this is one of our rarest creatures, but it is occasionally offered for sale in pet stores. The smooth snake likes a dry environment, and is normally to be found on heath land and rough commons. It is a great burrower, and therefore provision should be made so that it can indulge this habit. The smooth snake in Britain seldom reaches a length of more than twenty-seven inches—more often it will be much smaller. The female exceeds the male in size. In coloration there is perhaps some excuse for confusing the smooth snake with the adder as it is generally of greyish or brownish background with four rows of darker brown spots down the back and sides. On the top of the head, near the neck, a mark of the same colour as the spots will usually be seen. This mark is not unlike the 'V' on the head of an adder, but it is not so clearly marked and the angle is very much wider. As might be

## *Reptiles and Amphibia*

imagined from its name, the scales of this snake are very smooth and even.

### HOUSING

It may be housed in the same way as the grass snake except that it does not require so much accommodation for bathing. Quite a small water vessel will do, and the floor of the vivarium should preferably be covered with a mixture of fine sand and peat-moss litter with a few large flatish stones to serve as retreats. The smooth snake is quite a good climber, and a small branch can be arranged in the vivarium with advantage. It should not be necessary to point out that any place in which a snake is housed indoors should be securely covered.

### FEEDING

The smooth snake normally feeds on lizards, small slow-worms, field mice and voles. In captivity, the common lizard is probably the best thing to offer and it will take a dead lizard just as readily as it will a live one. The smooth snake—unlike the grass snake, which practically never even attempts to bite—will, when newly caught, give a rather deliberate type of nip; but its teeth are extremely small, and can do no real harm. If it is handled gently and regularly it will soon get very tame and cease to bite altogether.

## THE VIPERINE SNAKE

This is a continental snake which may sometimes be obtained from dealers. It owes its name to what, in my opinion, is a fancied resemblance to the viper. It is darkish brown or olive brown in colour, with an irregular pattern of rings of a lighter brown or even a dull yellow. The ones offered for sale in this country generally vary between fifteen and twenty inches in length.

It is normally found in damp places and consequently is extremely at home in the water. It may be housed in exactly the same way as the grass snake, and will feed on newts, small

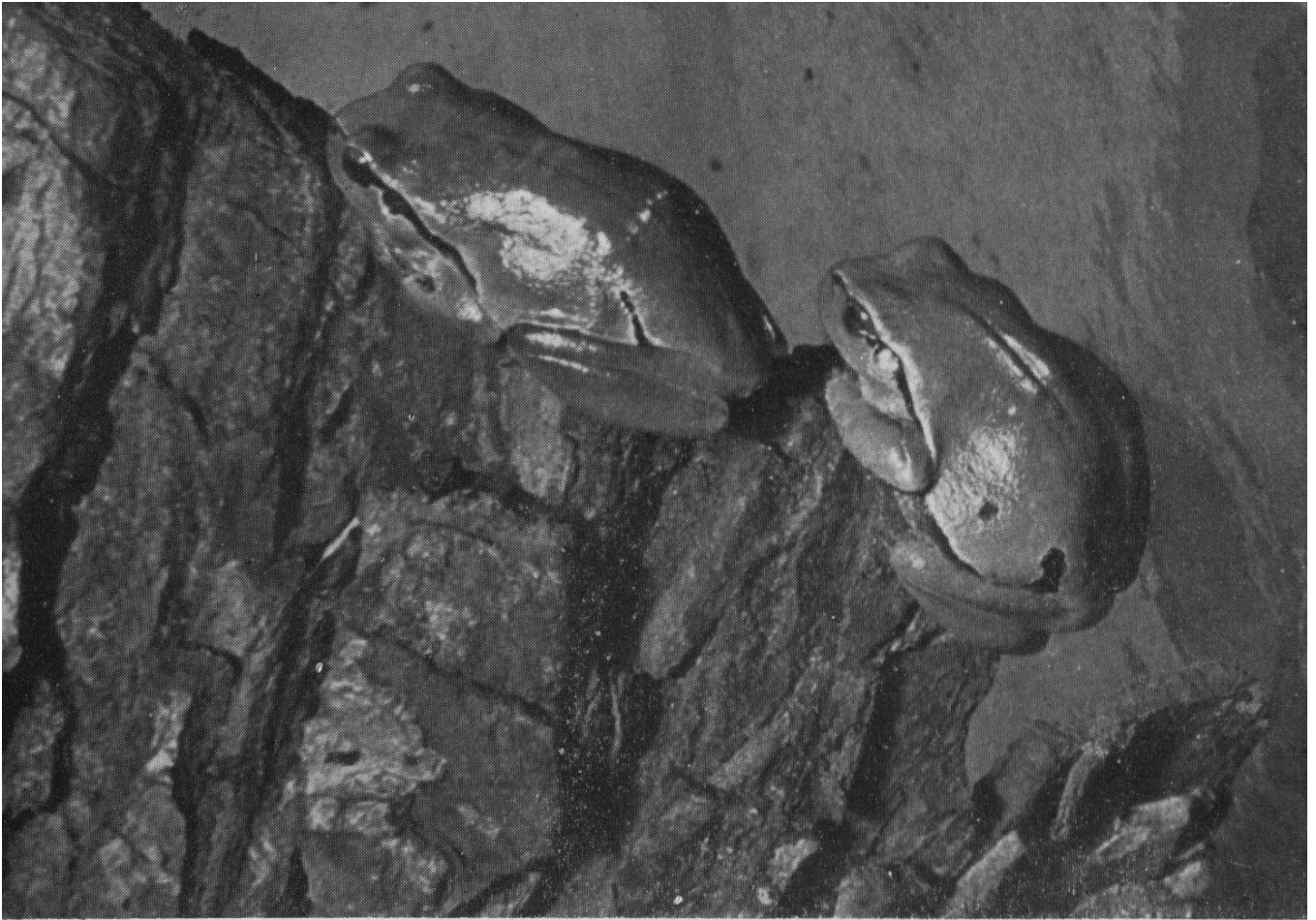


24. Female Marsh Frog

25. A fine specimen of the Marsh Frog showing vocal sacs







26. European Tree Frog

7. Dignity and impudence! A European Spade-foot Toad riding on back of an American Giant Toad



## *Frogs and Toads*

frogs and fish. In addition to these, it has the undoubted advantage that it will also take earth-worms.

### THE DICE SNAKE

The dice snake is another handsome continental species. Those obtainable here are usually bigger than the viperine snake. It is greyish or olive grey in colour, with an irregular arrangement of darker spots all down the back and sides. I have never personally known one to bite, but it is rather nervous. It is just as aquatic as the viperine snake and may be housed in the same way. It is, however, rather more particular in its food, preferring small fish to anything else, although it will take newts and tadpoles.

### FROGS AND TOADS

Frogs and toads make very good pets, although personally I have a preference for toads as they are not so active, and take more kindly to living in captivity. Apart from anatomical differences, the main difference between the two is that frogs are more aquatic and damp-loving than toads which, generally speaking, prefer a dry habitat except during the breeding season.

As you have already been told, we have three frogs in this country and two toads. The common frog and its two relations are better suited to life in an outdoor enclosure than in a vivarium, but our two toads will do very well in a comparatively small space. In addition to these five native species, it is quite possible to obtain the common European tree frog, while there are species of toads both from the Continent and more remote countries which are sometimes offered for sale. Among these are the green toad, the fire-bellied toad, the yellow-bellied toad, and the American giant toad.

## *Reptiles and Amphibia*

### THE COMMON FROG

The common frog needs no description. In fact it is so common that it is scarcely worth adding to your collection.

### THE EDIBLE FROG

The edible frog is not widely distributed in this country, but there are some thriving colonies in some of the southern and eastern counties. It is a handsome frog, and larger than the common frog. The female sometimes reaches a length of four inches. It is usually a very pretty grass green in colour with brown markings on the back and on the thighs. A definite distinguishing feature is a bright greenish yellow stripe running right down the centre of its back. It is very aquatic and is never found at a greater distance from water than a yard or two.

#### HOUSING

It should be kept in an outdoor enclosure, an ample proportion of which should contain water. The rest of the enclosure can be made up of a few flat stones and rough turf.

#### FEEDING

Under these conditions any frog will feed itself to a considerable extent, for insects of all kinds will settle in or be found in the enclosed space, but you may like to supplement its natural food from time to time with grasshoppers, spiders, flies, moths—in fact any product of your work with the sweep-net.

### THE MARSH FROG

The marsh frog, which originally hailed from Hungary, but which has now become established in Kent, is a much larger, more brightly marked, and more active edition of the edible

## *Frogs and Toads*

frog. It is just as aquatic, and lives under almost precisely similar conditions. The female will grow to nearly five inches in length and the male little more than an inch shorter. The colour varies to a considerable extent, but is normally very like the shade of weathered cement with a sprinkling of dark brown spots on the back and sides. When it has been basking in the sun, particularly in grass, it assumes the colour of its surroundings. Very occasionally one will be found with the vertebral stripe to which I referred in connection with the edible frog.

### HOUSING

Exactly the same as the preceding species.

### FEEDING

Similar to the edible frog but is even more voracious, and will feed under the water and out of the water. It will take fresh-water shrimps, water beetles, dragonfly larvæ, in addition to all kinds of creeping, crawling and flying insects, and of course earth-worms.

Both the marsh and the edible frogs are very vocal. Their croaking is produced in the males through the medium of vocal sacs—one on each side of the head. These sacs are capable of being filled with air and when expanded look rather like small grapes. The filling and emptying of these sacs produce the croaking, which can be quite loud; so don't keep too many males near your own house or your neighbour's or you may be accused of keeping people awake at night.

## THE EUROPEAN TREE FROG

These pretty little bright green frogs which reach a length of about an inch to an inch and a quarter are now obtainable once again from live-stock dealers. As their name implies, they are arboreal and extremely active.

### HOUSING

They should be kept in a greenhouse or conservatory, but they will do equally well in a large-size accumulator jar or even

## *Reptiles and Amphibia*

in one of the commercially made cylindrical larvæ cages which are sold for the purpose of breeding moths and butterflies from caterpillars. A little good clean earth, or peat moss and sand, will do for the bottom of the tank, and a branch of some such shrub as laurel or rhododendron may be placed in a jar full of water and pushed down into the compost. A little dish of water should also be provided, but this should not prevent you from giving the foliage and the frogs a sprinkle of lukewarm water three or four times a week.

### FEEDING

During the warmer months feeding tree frogs should present no difficulty, since a few minutes spent with a sweep-net about twice a week will provide you with a variety of insects which can be tipped into the cage, which must naturally be covered up either with muslin or perforated zinc to keep in both the frogs and the insects.

During the months when insects are not so easily procured, you should purchase some gentles. These should be dropped into the cage and allowed to pupate and hatch out in due course. You should put your first gentles down about a month before you think you will be needing the bluebottles.

### COMMON TOAD

The common toad is too well known to need any detailed description except to point out that females, like other amphibians, greatly exceed the males in size. Any toad of three and three-quarter inches in length is almost certainly a female. Contrary to what country superstition would have you think, toads are quite harmless as far as human beings are concerned. They cannot spit, neither do they have a venomous bite. In fact their only venom is that which is exuded through the surface of their skins and from the big glands on either side of their heads. This serves as some kind of protection against other animals, but is unlikely to hurt you unless you get some of the liquid in direct contact with an open cut or your eye. The



## *Frogs and Toads*

common toad, except when it goes to the water for purposes of spawning, is most usually to be found in gardens and hedgerows near to cultivated land.

### HOUSING

The common toad will do very well in a vivarium and needs no elaborate quarters; some soft dry earth or peat moss, a dish of water sufficiently big to immerse itself in, and half a flower-pot under which to retire are quite sufficient to keep it happy. Toads do not go about much during the day, and normally do most of their feeding at night. Consequently you should not expect to see them very active in daylight, and you should accustom yourself to feeding them just about dusk.

### FEEDING

Practically any kind of insect will be accepted by the common toad. Spiders, flies, small moths, non-hairy caterpillars, woodlice, earth-worms, and of course that great stand-by the meal-worm, will all be accepted.

After being in captivity for quite a short time, toads will become very tame and will even show some degree of intelligence. When you approach with food for them, they will often emerge from their hiding-places and sit up expectantly waiting for their meal to be produced.

## THE NATTERJACK

This is our second species of British toad. It is not so widely distributed as the common toad, but is particularly fond of sandy areas and is often to be found quite near the sea-shore. It may be distinguished from the common toad by its smaller size—the female seldom exceeds three inches—and by the fact that it has down its back a yellow vertebral stripe very similar to that of the edible frog. A further distinguishing feature is its gait; for instead of hopping ponderously or crawling, as is usual with the common toad, the little natterjack runs, and in the dusk is frequently mistaken for a mouse as it scuttles along through the grass.

## *Reptiles and Amphibia*

The natterjack has a most interesting and distinctive call which is produced by the males with the aid of a vocal sac. This sac, instead of being situated at the side of the head as is the case with the marsh and edible frogs, is located under the chin. When this sac is inflated and in use it bulges out quite prominently and gives the toad a very comical appearance. The notes produced by several natterjacks croaking at the same time are not unlike the sound of a fishing reel being wound against the ratchet.

### HOUSING

As for the common toad.

### FEEDING

Also similar to the common toad. Personally I have found the natterjack particularly fond of spiders and wood-lice.

## THE GREEN TOAD

The green toad is a very pretty continental species which is a dullish green in colour broken up with irregular dark markings. Specimens on sale in this country are usually considerably smaller in size than the common toad. It may be treated in every respect in the same way as the common toad and natterjack.

## THE FIRE-BELLIED AND YELLOW-BELLIED TOADS

These two little toads are attractive and easy to keep. They are both very similar in shape and in size, being much smaller than either the green toad or the natterjack, and are dark brown on the back. The fire-bellied toad has vivid orange-red markings on the underside of the body, and the yellow-bellied toad similar markings, but yellow and less vivid. They are very aquatic and likely to spend a great deal of their time in water with just the tops of their heads poking out.

## *Frogs and Toads*

### HOUSING

They can be housed in quite a small tank which should contain two or three inches of water and have some stones or bricks so arranged that the toads can come out of the water when they wish.

### FEEDING

They may be fed on all kinds of flies, and small earth-worms.

## THE AMERICAN GIANT TOAD

This massive member of the toad family used to be quite common in pet shops before the war, but although it is less frequently met with now it is still possible to obtain specimens, and these make amusing pets. You will get some idea of their size from the illustration. The female is of course much bigger than the male, sometimes being between four and five inches across the middle of the back and eight inches in length. The male is correspondingly smaller in build, and about two inches less from snout to vent. The female is a rather pretty chocolate brown shade with lighter markings breaking this up. Her skin is extremely warty. In coloration the male more nearly resembles our own common toad.

### HOUSING

These toads naturally require a rather large vivarium which must be kept indoors in a temperature of not less than 55 degrees. A mixture of peat moss and sand, with some suitable retiring place, and a pan of water big enough for them to cover themselves completely are all they will require.

### FEEDING

They are extremely greedy feeders and will consume quantities of earth-worms, beetles, moths, caterpillars. I have even had one which would think nothing of snapping up a dead half-grown mouse if it was dangled in front of it.

## *Reptiles and Amphibia*

### TADPOLES

All our three frogs and both our toads will, at the approach of springtime, produce spawn which you can collect and incubate at home. Common frog spawn requires no detailed description, and in general structure and appearance the spawn of the edible and marsh frogs is very similar. The only difference is that the spawn of the two latter frogs sinks beneath the surface and does not protrude slightly above the water as do the eggs of the common frog.

The spawn of the common toad and the natterjack is, however, laid in long chains woven in and out water weeds. The chains of the natterjack are, of course, smaller in diameter and shorter in length than those of the common toad. Assuming that you have procured some spawn of whatever kind, this should be placed in a large tank or basin—*not too much of it*—and kept in an even temperature. I think it is a good idea, whenever possible, to use water from the place where the spawn was found, but if this is not feasible you should use some from a garden water-butt, which you should strain before putting into your tank, or some water which has been standing out in the open for a few days. Water straight from the tap is not so good. A small quantity of duckweed or Canadian pondweed is quite a useful addition as it helps to keep the water fresh.

In due course, and according to the species and age of the spawn, your tadpoles will appear. For the first day or two they will not require any special diet, but after about two days you should start to feed them on either boiled lettuce or boiled spinach. You can put a moderate quantity of this food into the water and the tadpoles will soon clear it up. Do not put too much in at a time. When the tadpoles are fairly well advanced it is an advantage to give them, in addition to the vegetable diet, a little animal food. Some people do this by suspending a piece of raw meat in the water or even giving tiny bits of chopped-up liver, but I am against doing this—it so easily fouls the water. It is much better to get a large earth-worm and split it down the middle lengthways. This can then be placed in

## *Newts*

the water which contains the tadpoles. They will set to work on the dead worm, and will clean it all up in a very short time. If they do not do this you have either got too much worm or too few tadpoles! Do not allow any unconsumed food of this kind to stay in the water as it will decompose.

When your tadpoles get to the stage when all four legs are showing you should float on the top of the water a piece of rough cork or bark so that when the tail of the froglet is finally absorbed (it is not shed), the baby frogs can get out of the water. At this stage you should remove them from indoors to your outdoor enclosure where a certain number of them will almost certainly survive and where they will be able to obtain the minute insects on which they must feed.

## NEWTs

Newts have always been popular as pets. We have three species in this country all of which do equally well. These are the crested newt or great warty newt, the smooth newt, and the palmate newt. Newts, although more usually found in the water than on land, do not spend all the year in ponds. In fact they spend more time out of the water than in it as they only go there for the purpose of breeding. The crested newt is inclined to remain rather longer in the water than either the smooth or the palmate newt. Newts do not lay their eggs in masses or chains like frogs and toads, but singly, each one being wrapped in a separate leaf of a water plant. The young go through a tadpole stage until they finally complete their change into the mature newt, when they leave the water to which they do not return for about three years, when they are then in a condition to breed.

In addition to our own three species of newts there are two others from the Continent which you may possibly be able to purchase. These are the Alpine newt and the marbled newt. All these newts may be housed and fed in exactly the same way.

## *Reptiles and Amphibia*

### THE CRESTED NEWT

The crested newt is the biggest of all the species referred to here. It can reach a length of about six inches. It is generally very dark brown, sometimes almost black, on the back and sides, with an orange belly which in the male is particularly bright during the breeding season and is broken up with black markings. When the mating season approaches the male grows a very fine crest which runs from the back of the head to the base of the tail, and looks very like the teeth of a saw. The crest is interrupted where the tail joins the body, and then continues along the tail but without the toothlike pattern.

### THE SMOOTH NEWT

The smooth newt is much smaller than the crested newt, and is generally some shade of brown or greeny brown on the back with an irregular number of dark spots. The belly is a yellowish orange. The male of this species also grows a crest during the breeding season and this crest is again toothed, but it differs from the crest of the previous newt inasmuch as the smooth newt's crest runs uninterruptedly from head to tip of tail.

### THE PALMATE NEWT

The palmate newt is the smallest of the British species, and in general coloration is similar to the smooth newt. The male may be distinguished from the female by its hind feet rather than by a crest, for although it has a sort of ridge which runs down the centre of its back, it is not so distinctive as in the other species. The hind feet, however, become webbed at mating time and look almost like the feet of a duck. The tip of the tail is also distinctive in the male as it terminates in a tiny hair-like filament which sticks out from the end like a small spike. This is also present in the female, but is so insig-

## *Newts*

nificant as to be barely visible. The female palmate newt is extremely difficult to distinguish from the female smooth newt. In fact the only way in which to do this is to look at the skin on the throat. If this skin is quite plain and unspotted then it denotes the female palmate. If, on the other hand, the throat is covered with little dark spots or dots then the specimen will be a female smooth newt.

### THE ALPINE NEWT

This European species is midway in size between the smooth newt and the crested newt. It is dark brown or very dark brown, almost black, on top with a vivid orange unspotted belly. The male in the mating season grows an untoothed ridgelike crest.

### THE MARBLED NEWT

This very attractive species is nearly as big as the crested newt, but is much more strikingly coloured as its back and sides are a marbled mixture of olive green and black with a vertebral stripe of red-gold. In the breeding season the male grows a long ridgelike crest.

### HOUSING

Newts may be kept in an ordinary aquarium tank, but it is absolutely essential to give them some means of getting out of the water when they wish. This is really best done by arranging the tank in much the same way as was described for some of the more aquatic snakes. About three inches of water will be ample, and some well-washed sand or fine gravel should cover the bottom of the tank. In this you should plant a few small clumps of some water-weed. Any tank containing newts must have a well-fitting cover—either a sheet of glass or perforated zinc. Newts are very good climbers and can crawl up the side of a glass tank with very great ease.

## *Reptiles and Amphibia*

### FEEDING

The best staple food for newts is small earth-worms, though mosquito larvæ and water fleas will also be taken quite readily. You will often be amused to see two newts seize the same worm. A regular tug-of-war will ensue until either the worm breaks in two or the stronger newt pulls the worm away from the other.

If captured in the early spring, newts will breed in captivity. However, the adults should be removed from the tank as soon as it is known that the eggs have been laid, or otherwise when the tadpoles hatch out they will be consumed by their greedy parents.