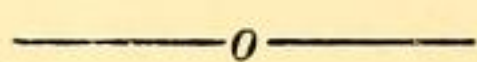


NOTES ON THE LIZARDS OF THE CHANNEL ISLANDS.

BY JOSEPH SINEL.



OF the true lizards (*Lacertæ*) only two species occur in the Channel Islands, viz., *Lacerta viridis* and *Lacerta muralis**. The former species is abundant in Jersey, and fairly well represented in Guernsey; the latter is found in Jersey only, and is confined to the eastern portion of the north coast, from Bouley Bay to St. Catherine's, not extending more than a hundred yards or so inland. Neither the Viviparous Lizard (*Zootica vivipara*) nor the Sand Lizard (*Lacerta agilis*) which are so common on the Continent and in England, are found in the Channel Islands, but that outlying member of the *Lacertinidæ*, the Slow-worm or Blind-worm (*Anguis fragilis*) is common in Jersey and Guernsey, and also occurs in Alderney, Herm and Jethou.

The most important and striking of the group as represented in these islands is the large and beautiful Green Lizard (*Lacerta viridis*); and it is the result of several years' fairly close study and observation of this species which forms the substance of the present paper.

Although the *Lacerta viridis* of the Channel Islands is specifically identical with that of the continent, it shows well-marked characters of its own. Even the comparison of a local specimen with a coloured figure in some good standard book will at once make this evident. I have had opportunity of comparing Jersey specimens with a considerable number brought over from Germany and from Italy, and I think it would not be difficult for me to pick out with fair certainty all the local examples out of a mixed lot.

The continental form is altogether more uniform in coloration; the fine black and gold speckling of the adult males being much less marked and striking, as well as the white or cream-coloured lines of the half-grown specimens, and

*Ansted. in his "Channel Islands," gives *L. agilis* as occurring in Jersey, no doubt mistaking *L. muralis* for that species.

some of the adult females. It is true I have examined only captive specimens of the foreign form, and I know full well that these beautiful reptiles only show to advantage in a state of nature; but the details I have specified are not such as would in any appreciable degree be affected by captivity.

It is generally considered here that as regards coloration the Green Lizard is subject to no end of variation; and, as a matter of fact, it is quite possible to handle a couple of dozen specimens without finding two exactly alike. But I think I am prepared to show that there are not more than three, or at most four, actual varieties, the differences of age and sex accounting for the apparently remarkable diversity.

During the last five or six years I have had exceptional opportunities of studying the subject, and I have been able from week to week and from year to year to observe the same specimens in their natural habitats without disturbance. A friend of mine, Mr. Dancaster, owns some rather extensive grounds at St. Ouen's Bay, Jersey, and green lizards are exceedingly plentiful there. Being entirely unmolested they are very tame, and allow of close examination without being frightened.

The adult male of what is certainly the type of *Lacerta viridis* is coloured as follows: Plates covering the head bottle-green at their edges, shading off to emerald-green towards the centre, each plate having a circular, oval or sometimes linear spot of yellow, with occasionally a white speck in the very centre. The back, as far as the base of the tail, is adorned with a fine speckling of black and gold upon an emerald green ground. The tail is marked with short longitudinal close-set lines of black on a green ground, except for the terminal inch or so of its length, which is olive brown. The limbs are either spotted, or more often transversely barred, with black, on a green ground. The whole of the underside, except the throat and lower jaw, is bright yellow. The throat and lower jaw are blue, and in the breeding season this colour is very brilliant.

To understand the black and gold speckling of the back, the structure of the scales must be noticed. From the neck to the base of the tail these scales take the form of prominent little nodules, in size and shape very much like millet seeds. These nodules are differently coloured, some jet black, like glass beads, the others emerald green at the base, and golden yellow at the top. The length of a full-grown male which has suffered no injury (and injury to the tail is frequent) is about thirteen inches.

The above is a description of the typical male of the Jersey form. I shall now describe the varieties, as I have observed them.

Var. A. (male).—Plates covering the head as in the type, but without any central spot. Back, not speckled with black and gold, but of a uniform grass green with very irregular and scantily disposed black specks. The blue colour on the throat much less vivid than in the type. This variety most nearly approaches the continental form.

Var. B. (male).—Resembling Var. A., but having the black markings more abundant, and disposed in a somewhat defined pattern, so that in form and arrangement they are very like the spots on a leopard. This variety is rare, and as far as I can discover, is confined to a limited area; viz., Portelet Bay, Jersey, and the hills adjacent.

In the female there is a greater tendency to variation. What I consider to be the type is coloured and marked as follows:—

Plates of the head as in Var. A. of the male. Back grass-green, with a double row of brownish-black markings which almost meet in the median line. Specimens thus coloured might easily be mistaken for intermediates between Vars. A. and B. of the male, but the sex is evident by the smaller head, and less powerful jaws; and also by there being only the slightest shade of blue on the throat.

Var. A. (adult female).—Like the type just described, but with a creamwhite line on the outside of the rows of brownish-black dots. These dots are in colour more inclined to brown than black, and are more rectangular in form. (It is not easy to decide which variety should really be considered the typical female, the one I have so described, or this cream-lined one, as both forms are about equally numerous.)

Var. B. (adult female).—Uniform grass-green on the dorsal side, beneath paler yellow than the others. Sometimes the green with a glaucous tinge. This variety, which again approaches the continental form, is rare. I have only seen about half a dozen specimens among many hundreds of the others.

The changes which take place in the coloration of the Green Lizard as it advances to maturity form an interesting study, and it is these changes which have given rise to the idea that there are endless varieties.

The young ones, which are first in evidence about the end of June, and are then from two to three inches in length, are of a beautiful pale brown tint, without marking of any kind

and the under side is white. As the season advances, say about August, by which time they are from four to six inches long, the brown becomes tinged with green, which gradually spreads upwards from the sides, and the under side has changed from white to yellow. In some specimens at this time the brown has entirely given place to green. Whether it is the *retention* of this coloration, or whether it is the *loss after acquirement* of the next development of pattern that constitutes the unicolorous, or almost unicolorous varieties I have described, I have not been able to determine, but it seems to me probable that the latter alternative is the correct one.

By the month of June or July in the following year all, or nearly all, these young ones, now eight or nine inches long, have assumed four white lines which run from the neck to nearly the end of the tail. These lines, each about one-sixteenth of an inch wide, are placed one on each side of the back, and one low down the side where the yellow joins the green. There is a marbling of white on the neck, and often on the front limbs also.

Later in the year, and in full evidence the following spring, when the lizards are two years old there is a further change. The young males, while still retaining their white lines, will (if developing into the type form) gradually acquire the speckling of black and gold, and now reach their highest point of beauty. It is impossible to describe them in words, and even an artist's brush would utterly fail to reproduce their brilliancy. But try to picture this reptile as he flattens his body to bask in the sunshine; he is about nine inches long and an inch across the back, clad in what appears at a distance a coat of mail of brilliant green, but which on closer view shows a spangling of black and gold on a green ground. Narrow lines of purest white run down the back and sides, and the bright yellow of the under part just shows up as a contrasting border. Surely few if any creatures of the tropics could surpass this lizard in beauty.

Towards the end of the year the white lines disappear, and their place is usurped by the predominant coloration—while the white marbling on the throat gradually gives way to blue. Then the following spring, when the lizards are three years old, they have acquired their final adult colours and markings.

While the young males have been going through these changes, the young females have also been undergoing certain variations in their dress. Between the white dorsal lines they show at first a double row of almost rectangular brown, or

olive-brown spots, sometimes with black speckling intermixed, but they wear no gold. Later, the pure white lines become cream-coloured, and are sometimes nearly obscured. The adult coloration of the female is attained during the second year. Only once have I seen a fully grown female that had retained the lines in *pure* white.

At this stage, which I think is the final one, they are coloured and marked as I have described under type, or under Var. A. Whether the forms I have distinguished as "type" and Var. B. have undergone a further change, that is to say, have completely lost the white lines, or whether they never developed them, I have not been able to determine, as already stated. Certainly some few specimens never seem quite to reach the white-line stage, but simply show the position of these lines by a very pale green tint.

No doubt the colouring of *Lacerta viridis* is protective, for the general effect is a shade of green in harmony with its surroundings, just as the fine olive-brown and greyish-green mottling and marbling of *L. muralis* closely matches the lichens and weathered surfaces of the rocks and boulders of its home. Yet these lizards have no natural enemy in these parts to enforce the persistence of this coloration. Kestrels, which are numerous in the locality I have mentioned, constantly hover over and stoop to moles and voles, but pass unnoticed the lizard-inhabited hillocks: and the eye that can detect a little field-mouse amid clods of earth, must assuredly be able to discern a green *lacerta* among its surroundings. The only remaining possible enemies, the owl and the stoat, do not hunt for prey while the lizards are about. Probably therefore it is a coloration which has had under other circumstances its protective use, and which is still retained because there are no new conditions to modify it. Perhaps the retention of the white lines in many females, and their marked display by the half-grown of both sexes may be a tendency to alteration due to immunity.

Little, if anything, as far as I am aware has been written about the habits of *Lacerta viridis*, and yet its ways are extremely interesting to anyone who may have time, taste and opportunity for observing them.

During the heat of the day this beautiful lizard does not manifest much energy. It is content to bask and blink in the sunshine, lying perfectly motionless, except perhaps now and then moving its head as some slight sound close by suggests perchance a caterpillar that has dropped from its perch, or an unwary grasshopper coming within

range. This continues only so long as the creature is not disturbed or alarmed in any way, for then it quickly shows that for all its apparent somnolence, it possesses no small store of coiled-up energy, and is always on the *qui vive*.

Early in the morning, when the sun's rays begin to make their presence felt, it displays more activity. It goes prospecting round a little, scraping the ground for a suspected worm or grub, or nosing among the dead leaves in search of a stray beetle or two. Having procured a modest breakfast it finishes by licking the dewdrops and then gets near to its burrow again, where it begins its all-day bask in the sun.

But the period of its greatest activity, at least during the months of July and August, is towards evening, just about sunset, while the bank in which it lives is still warm with the late sunshine. This is the trysting-time, and the hour at which calls are made. It is also the hour of battle; challenges are now freely issued, and as promptly accepted, and the duels that are fought, although bloodless, are terrible. Near my home there is an old disused quarry, much overgrown with gorse and bramble; it faces due south, and is a veritable Dutch oven. The Green Lizard is abundant in this spot, and it is here that I have chiefly witnessed these evening battles. During such encounters the yellow undersides of the combatants gleam as they twist and whirl over one another, and it often happens that the antagonists are so engrossed in the fight that they allow themselves to be captured by hand. Sometimes a battle takes a triangular form, when three opponents are engaged in fierce conflict, and not unfrequently a tail or two will be left behind to mark the foughten field.

There are very few indeed of the old males that do not show honorable scars in the way of a renewed tail. A new tail, although it grows rapidly, never attains the full length and graceful taper of the original one, and it remains more or less brown in colour. Sometimes the tail is broken only half-way through, and then healing by "second intention" taking place at the same time as a new tail has started to sprout, results in the lizard becoming *double-tailed*. I have had specimens that were even possessed of *three* tails, by a repetition of this accident.

The ways of a snake in the grass was one of the three things that puzzled a proverbially wise man of old. He would, I think, have been still more greatly puzzled by the ways of *Lacerta viridis* if he had observed it. These reptiles possess marked mental characteristics; they love and hate, cherish resentment, exercise memory and keep account of

liabilities and credits, and in many other ways display intelligence; but to study their habits and the range of their mental faculties they must be kept under observation constantly in their natural habitats and closely and patiently watched. The poor sorrow-stricken inmates of a vivarium will furnish but poor material for this purpose, although they are always pretty and interesting.

In one of the localities I have mentioned as my principal field of observation, viz.: Mr. Dancaster's grounds at St. Ouen's, there lived as neighbours three old males. Their dwelling was a sandy bank crowned with salt-bush and draped with couch-grass and milfoil. Two of them lived door by door, the other about six feet away. It was a celibate community, and ought to have been a happy one, since no soft-eyed, cream-striped disturber of the peace dwelt within twenty yards. Yet things did not go well.

One morning I noticed that the two near neighbours were much excited, and intently gazing in the direction of Number Three, often raising themselves fairly erect so as to look over the intervening herbage. From where I stood all three were in view; the third one apparently very nervous, moving stealthily and watching in the direction of his neighbours. Then somehow he must have betrayed his presence, for in a twinkling the pair were upon him, having seized him before he could reach his burrow. The poor fellow received a terrible biting, and went off home to nurse himself, while the aggressors returned to their quarters to bask in the sun. I did not see the punished one again that day, but on the following morning there was a repetition of the scene, and again on the third morning, except that this time the persecuted lizard made for the open and disappeared with the two others in hot pursuit.

It was then that for the first time I observed the full leaping powers of the Green Lizard. It so happened that there were clumps of rushes and couch-grass in the line of flight, and both the pursued and pursuers cleared these clumps in flying leaps that must have covered quite six feet each. I noticed that during the aerial part of their course their legs were pressed quite close to the body rearwards. How matters were settled or how things have gone on since I do not know, as I left St. Ouen's that evening; but I trust that Number Three has learnt wisdom and changed his domicile.

I regret to have to record that in the southern part of Jersey the Green Lizard is becoming very scarce. This is partly due to the dealers, who have set a price upon its head,

and also to town extension and "improvements." Westmount, about a mile from the town, was formerly a great stronghold of *Lacerta viridis*, but the place has been cleared of its gorse, broom and heather, and laid out as an extension of the adjacent park; so that the lizard, together with the glow-worm and some other objects that are dearer to the nature-lover than ornamental shrubs and neatly-trimmed banks, are no longer to be seen there. In some other parts of the island, however, such as the west and south-west, they are still as numerous as ever.

To what age the Green Lizard lives is a point which I do not think is known. The eggs, which are from ten to fifteen in number, and about the size of wrens' eggs, are deposited in the early spring—the little ones are to be seen running about in June, and the adult stage is reached when they are three years old. In a mammal this would afford some guide to the approximate period of longevity. But the rule, such as it is, does not apply to reptiles. From the observations I have made I conclude that the Green Lizard enjoys a fairly long life, probably not less than a dozen years or so, but I should not like to venture an opinion as to its limits.

A few words now about the other Jersey lizard, *Lacerta muralis*. As I shall presently explain, I have a sad, but I sincerely trust a false, presentiment that I am writing the obituary notice of this lovely little creature.

No lizard is subject to more variation in regard to environment than this one. For instance, the beautifully coloured plate in the Royal Natural History, which represents, I think, specimens from Germany, is as unlike the Channel Island form as a Tomtit is unlike a Chaffinch. The coloration of the Jersey *Lacerta muralis* is as follows:—

Male: General ground colour a delicate silvery grey, upon which are close set spots of olive brown, each with a sage-green bordering. On the neck and limbs there is often a little marbling and speckling of white. Underside flesh colour, the sides pink, and the throat and lower jaw bright red. The female shows the same colours, but differently disposed, so that the olive-brown is most in evidence. She also bears whitish lines along the back and sides (corresponding with the white lines of *L. viridis*), and the red on the throat is paler. The length of the adult male is about eight inches, that of the female about six.

This lizard used to abound until recently at Bouley Bay and at Rozel, but chiefly in the former locality. I quite well

remember seeing it there in myriads fifty years ago, and call to mind how, although at that time I was a very small boy, I was struck by the remarkable resemblance of the creature to its surroundings. If one of them in full view only kept perfectly still as it basked in the sun on the lichen-covered disintegrating rock, it could easily escape detection. I think it was this little lizard that prepared in me the ground for the full reception and appreciation of the *Origin of Species*, when that great work appeared.

Years passed on, and to Bouley Bay I always went to see *Lacerta muralis*. They used to swarm on the low wall that leads to the disused jetty, and on the little dismantled fort above. They ran between the grey and yellow lichens on every projecting boulder, and played amongst the bracken and heather and the rhyolite rocks that skirt the coast. There in the quiet seclusion of this steep and unfrequented bay, the Wall Lizard reigned supreme and unmolested.

In recent years, however, I have regretfully noted its growing scarcity; as time went on I observed they were becoming fewer and still fewer; but it is only this year that I have discovered the cause. The destroyer is *man*, but in this case acting through an intermediary: the domestic cat.

A month or two ago I visited this locality in company with two scientific friends from Yorkshire, and as we hunted in vain over the once so densely populated ground, hoping to catch sight of a specimen, we started from the bracken first one and then another sleek and well-fed cat. There can be little doubt therefore that these animals, living and breeding in a semi-wild state among the cliffs are gradually exterminating the beautiful little lizard that was formerly such a charming feature in that part of Jersey.

During the afternoon in the course of our ramble we called in at the little cottage in the bay to have tea, and here again we saw several cats. I enquired of the landlady how many she had. She appeared amused at the question, and said she had not the slightest idea. "Mais," she added, "ils ne coûtent pas beaucoup; ils se nourrissent d'oiseaux et de lézards." (But they do not cost much, they feed on birds and lizards.) I asked whether the cats killed many lizards. "Oh, *mais* oui, ils en croquent," (Oh, yes *indeed*, they do crunch some.) Now, I confess that I am naturally very fond of pussy, and can never resist the impulse to stroke and caress every one I can reach; but I must also own that after receiving this information I would not be profoundly sorry to hear that a murrain had fallen on the cats of Bouley Bay.

As to the distribution in Jersey of the two lizards which form the subject of this paper, it is remarkable that the larger species, *L. viridis* does not occur at all on that portion of the coast occupied by *L. muralis*, nor is there any overlapping of the two species; but where the area of the one abruptly begins, that of the other as abruptly ends.