Postembryonic Development of the Skull of the Japanese Skink, *Eumeces latiscutatus* (Scincidae)

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ABSTRACT

The postembryonic development and the sexual dimorphism of the skull of the Japanese skink, *Eumeces latiscutatus*, is described. In newborn hatchlings the fontanelle lies between the frontals and the parietal, and it still remains as a median suture in the parietal in young adults. Two degenerated elements, quadratojugal and tabular, appear in adults. The sexual dimorphism is not found in hatchlings and yearlings, and male hypermorphism becomes apparent as a male grows mature. As a male grows older, the dorsal temporal region becomes robust, the lateral margin of the squamosal swells out laterally, and the supratemporal fenestra comes to be closed by surrounding bones which unite tightly with each other. In female adults, however, such changes do not occur. The rise of the nuchal ridge in the parietal, the protrusion of the crest of the quadrate, the development of the basal tuber, and the fusion of some elements of the braincase occur later in females than in males. Males are larger in skull size than females.

INTRODUCTION

Skinks of the genus *Eumeces* comprise about fifty species and are distributed in North America, the Bermuda Islands, East Asia, West Asia, and North Africa. Taylor (1936) classified the genus *Eumeces*, based on external characters, squamation and coloration, but he did not adopt osteological characters. Although skull osteology has fundamental importance for the systematics, this has not been studied adequately for this genus.

Kingman (1932) described the skulls of ten species of this genus, but his paper lacks analyses of sexual dimorphism and ontogeny. Therefore, the interspecific differences seem to be confused with the intraspecific variation in his comparative study. Rice (1920) described the development of the chondrocranium in the embryo of *Eumeces quinquelineatus* (= *fasciatus*?), but he did not observe the postembryonic

development. Shirai (1960) described the anatomy of the Japanese skink, *Eumeces latiscutatus*, common in the Japanese main islands, but in his study only the skulls of adult specimens were briefly described.

This paper describes the postembryonic development of the skull and its sexual dimorphism in the Japanese skink. These basic data will be useful for systematic studies of this genus.

MATERIALS AND METHODS

Skinks used in this study were collected in the vicinity of Kyoto University, Kyoto, from 1973 to 1975 and preserved in 70% ethanol. The skulls of 33 specimens of both sexes and various ages were stained with alizarin red S, after the osteoderms and muscles were removed. In order to examine the cartilaginous elements in the orbitotemporal region, the skulls of four specimens were stained with toluidine blue O, after the dermal bones were removed. Observations and measurements were made under a binocular microscope. The sexual maturation was determined by the conditions of testes in males and ovaries and oviducts in females.

Names of skull elements are from Romer (1956) and cartilaginous elements of the orbitotemporal region from De Beer (1937).

RESULTS

I. General Description of the Skull

The skull of this species undergoes morphological change through ontogeny. The general description was based mainly on the skull of yearlings (Fig. 1 A, B, and C), since in this stage the basic patterns of the skull are retained; most elements of the braincase have not yet been fused with each other. In addition, two degenerated elements, the quadratojugal and tabular, which appear in adults, are described in adult specimens (Fig. 1 D). Moreover, cartilaginous elements of the orbitotemporal region (Fig. 1 E) are described based on four adult specimens. The dermal bones in this region were removed, since the cartilages are covered by them.

Dermal roof.—The dermal roof is composed of a number of bony elements, all of which are paired bones except the parietal. The anterior end of the rostrum is formed by the premaxillae, the right element being larger than the left; the former bears four teeth and the latter three. The external naris is surrounded by the premaxilla, maxilla, and nasal. The septomaxilla forms a floor for the nasal cavity and a part of this bone is seen through the external naris. The maxilla, forming

Fig. 1. The skull of the Japanese skink, *Eumeces latiscutatus*. Dorsal (A), ventral (B), and lateral (C) views of the skull of a yearling; posterior view (D) of the skull of a male adult; lateral view of the orbitotemporal region (E) of an adult, after dermal bones were removed. Abbreviations for this and following skull figures: b, braincase; bo, basioccipital; bpt, basipterygoid process; bs, basisphenoid; bt, basal tuber; dpl, dorsal plate

the anterolateral surface of the skull, bears teeth on its ventral surface along the inner margin. The frontal is connected with the nasal at its anterior margin. The pairs of premaxillae, nasals, and frontals are divided by the median suture. The orbit is surrounded by the prefrontal, lacrimal, frontal, jugal, and postfrontal. The parietal is a single bone with the squamosal processes extending posterolaterally on both sides. The parietal foramen opens somewhat anterior to the middle of this bone. Along the posterior margin of the parietal run a pair of nuchal ridges providing an attachment surface for the neck muscles. In the middle of the posterior border of the parietal there is a conspicuous notch. The supratemporal fenestra, remaining as a narrow opening on both sides of the dermal roof, is surrounded by the postfrontal, postorbital, squamosal, and parietal; this opening is closed by these bones in male adults. Between the squamosal process of the parietal and the squamosal there is a wedgelike element, the supratemporal. Between the supratemporal and the paroccipital process of the opisthotic lies a small, slender element, which appears in older female adults and male adults. This element is considered to be a degenerated remnant of the tabular. In adults, posterolateral to the squamosal and posterodorsal to the quadrate, there exists a small platelike element, which is regarded as a rudiment of the quadratojugal by its location.

Palatal complex. —All the elements constituting the palatal complex are paired bones. The vomers form a groove along the median line of the palate, but in their anterior portion they join with each other. At their posterior end, each vomer bears a little toothlike process sustaining the posterior border of the thick plate of the connective tissue adherent to it. The palatine is composed of two plates, ventral and dorsal, which unite along the lateral margin. The right and left ventral plate are separated by the median vacuity, forming an incomplete secondary palate. There is a pronounced point or shoulder on the anterior medial edge of the ventral plate. Between this point and the toothlike process of the vomer opens the internal naris. The pterygoids are large bones separated from each other

- ◀ of palatine; dpp, descending process of parietal; e, epipterygoid; ec, ectopterygoid; ecl, extracolumella; en, external naris; eo, exoccipital; f, frontal; fm, foramen magnum; fo, fenestra ovalis; fon, fontnelle; in, internal naris; ios, interorbital septum; iptv, interpterygoid vacuity; j, jugal; l, lacrimal; m, maxilla; n, nasal; nc, nasal capsule; nr, nuchal ridge; oc, occipital condyle; of, optic fenestra; op, opisthotic; or, orbit; p, parietal; pas, pila accessoria; paf, parietal foramen; pant, pila antotica; pf, postfrontal; pl, palatine; plr, palatal ramus of pterygoid; pm, premaxilla; pmo, pila metoptica; po, postorbital; popr, paroccipital process; pr, proötic; pra, ascending process of tectum synoticum; prf, prefrontal; pss, planum suprasettale; ps, parasphenoid; pt, pterygoid; ptfl, pterygoid flange; q, quadrate; qf, quadrate foramen; qj, quadratojugal; qp, quadrate process of pterygoid; s, stapes; sm, septomaxilla; soc, supraoccipital; sq, squamosal; sqp, squamosal process of parietal; st, supratemporal; stf, supratemporal fenestra; t, tabular; tc, trabecula communis; tma, taenia marginalis; tme, taenia medialis; v, vomer; vpl, ventral plate of palatine.

by the median interpterygoid vacuity. Its anterior portion, the palatal ramus, bears a single row of several teeth along the medial margin; its lateral process, the pterygoid flange, is connected with the ectopterygoid; its posterior process, the quadrate ramus, extends posterolaterally to articulate with the medial surface of the quadrate. The epipterygoid, a barlike bone, rises up from a socket of the quadrate process of the pterygoid to attach to the descending process of the parietal and to the upper end of the proötic. The quadrate, a movable stout element, is articulated dorsally to the squamosal, the supratemporal, and the paroccipital process of the opisthotic; ventrally it is articulated to the lower jaw by a double convex pulley surface. The anterior and dorsal regions of its surface and the medial crest of this bone provide an attachment surface for a part of the jaw muscles. This bone is excavated posteriorly and the lateral rim of the excavation forms an attachment area for the tympanic membrane. Between the quadrate and the quadratojugal there lies a small opening, the quadrate foramen in adults.

Braincase.—Among the elements which constitute the braincase, the supraoccipital, basioccipital, basisphenoid, and parasphenoid are single and all others are paired. The supraoccipital lies behind the parietal and above the foramen magnum, forming the posterodorsal surface of the braincase. It is connected laterally with the proötic and posterolaterally with the opisthotic. The basioccipital forms the posterior floor of the braincase, and the hind parts of this bone and the exoccipitals form the single occipital condyle for articulation with the atlas. The foramen magnum opens dorsal to the condyle. On both sides of the lower surface of the basioccipital there are a pair of basal tubers for the attachment of the ventral axial musculature. The paroccipital process of the opisthotic extends laterally to articulate with the squamosal, supratemporal, and quadrate. The proötic forms the lateral wall of the braincase and it is connected anteriorly with the basisphenoid. Between the proötic and the opisthotic opens the fenestra ovalis, in which fits the foot-plate of the stapes, which is a slender, rodlike ossicle extended laterally by the addition of a T-shaped cartilage, the extracolumella. The basisphenoid lies anterior to the basioccipital and forms the anteroventral floor of the braincase; the suture between these two bones disappears in old adults. A pair of large fan-shaped processes, the basipterygoid processes, project anterolaterally to articulate with the quadrate ramus of the pterygoid on both sides. A needlelike bone, the parasphenoid, lies just anterior to the basisphenoid, extending anterodorsally in the interpterygoid vacuity.

Orbitotemporal region.—The chondrocranium remains cartilaginous and membranous in the anterior portion. Cartilaginous elements, mainly of the orbitotemporal region are described below. They are contiguous to each other and all except the trabecula communis and the planum suprasedale are paired, and some of them are partly calcified. The trabecula communis, a cartilaginous bar, is the median basal

Fig. 1. (continued)

structure of the orbital region of the chondrocranium, attaching posteriorly to the basisphenoid at two points, ventrally to the parasphenoid, and anteriorly to the nasal capsule. Immediately above the trabecula communis, an extensive vertical median plate, the interorbital septum attaches anteriorly to the nasal capsule, separates both orbits, and is calcified in the anterodorsal area. The planum supraseptale, forming a narrow trough for the olfactory tract, attaches to the interorbital septum in the anterodorsal end of the orbit. The taenia marginalis arises from the posterodorsal portion of the planum supraseptale and runs posterolaterally along the ventral surface of the parietal. In the posterior end of the interorbital septum opens the optic fenestra, a passage for the optic nerve. The posterior border of the optic fenestra is formed by the pila metoptica, a wholly calcified or ossified element attaching ventrally to the trabecula communis. The taenia medialis connects the planum supraseptale with the pila metoptica. The pila accesoria connects the pila metoptica with the taenia marginalis. The pila antotica was not found in one specimen but in the other three, this cartilage arises from the pila metoptica and extends posteriorly. However, it does not reach the anterior inferior process of the proötic. This cartilage is incomplete in the present species and different from that of *Sphenodon* and *Lacerta* (see De Beer, 1937). A cartilaginous band, the tectum synopticum, roofs the back end of the brain, and sends out an ascending process extending anteriorly from the anterior end of the supraoccipital.

II. Age groups

In this sampling area, the Japanese skink mates from mid-April to mid-May, and lays eggs from late May to early June. The juveniles hatch out from late July to early August (Hikida, unpublished data). Because its hatching season is fairly limited, three age groups, hatchling, yearling, and adult can be easily distinguished by snout-to-vent length (SVL) and by color pattern, which changes rapidly with

Table 1. Range of SVL, coloration, date of capture, and estimated age in each age group of the Japanese skink, *Eumeces latiscutatus*.

Age group	Sex	N	SVL	Coloration			Date of capture	Estimated age
				Ground color	Tail color	Dorsolateral light stripe		
Newborn hatchling	—	2	28.5 ~28.8	black	blue	distinct	August	less than 1 month
Yearling	—	10	32.1 ~50.9	black	blue	distinct	April-July	11~14 months
Adult group I	Male	5	63.3 ~69.7	olive	olive	faded	May-July	22~24 months
Adult group II	Male	4	70.0 ~78.0	olive	olive	disappeared	May-June	overwintered 3 times or more
Adult group III	Male	1	87.7	olive	olive	disappeared	May	overwintered 4 times or more
Adult group I	Female	5	58.8 ~66.3	black	blue	distinct	May-June	22~23 months
Adult group II	Female	5	72.9 ~77.7	black or olive	blue or olive	faded	May-July	overwintered 3 times or more
Adult group III	Female	1	81.3	olive	olive	faded	August	overwintered 4 times or more

age in males but slowly in females.

Specimens used in the present study were divided into five groups; newborn hatchlings, yearlings, and adult groups I, II, and III. The newborn hatchlings were captured shortly after hatching and most of the yearlings and adults from April to July, but a female of adult group III was taken in August. In hatchlings and yearlings, both sexes were treated together, because no sexual dimorphism was found in the skulls of these age groups. It is not easy to subdivide adults into any age groups based on SVL and color pattern, but an examination of skulls shows that three subgroups can be distinguished both in males and females by the degree of the ossification, which will be described in detail later.

The range of SVL and the color pattern of each age group are shown with age estimated approximately on the basis of the hatching season and the date of capture in Table 1. The condition of color pattern is shown by the ground color on the dorsal surface of head and body, the dorsolateral light stripe, and the tail color.

All the specimens of adult stages were sexually mature, except for some females of adult group I.

III. Development of the Skull

The postembryonic development of the skull is described below, based on specimens of five age groups (Fig. 2).

Fontanelle. -The fontanelle, lying between the parietal and the frontals, is conspicuous in newborn hatchlings. The parietal foramen opens in the posterior

Fig. 2. Dorsal and ventral views of the skull of each age group. Abbreviations as in Fig. 1. A and B, newborn hatchling; C and D, yearling; E and F, female of adult group I; G and H, male of adult group I; I and J, female of adult group II; K and L, male of adult group II; M and N, female of adult group III; O and P, male of adult group III.

Fig. 2. (continued)

Fig. 2. (continued)

Fig. 2. (continued)

portion of the fontanelle. In yearlings and females of adult group I, the fontanelle is reduced to a small pore by the extension of the surrounding bones, but the rudiment of the posterior part of the fontanelle persists as a suture, which runs along the median line from the anterior border of the parietal to the parietal foramen. In later stages this opening is closed completely and the transverse suture is formed between the parietal and the frontals. The suture in the parietal lingers in the anterior median portion of the parietal in some males of adult group I and females of adult group II, but it has completely disappeared in some males of adult group I and all males of adult group II and III and a female of adult group III.

Nuchal ridge. -The bilateral nuchal ridges lie along the posterior margin of the parietal. They are inconspicuous in newborn hatchlings. In yearlings and females of adult group I, they run anterolaterally on both sides, but in males of adult group I and females of adult group II, they become more conspicuous and are oriented transversely. They are most developed and extend posterolaterally in a male of adult group III.

Supratemporal fenestra. -This narrow opening is observed in hatchlings, yearlings, and females of all adult groups and exists as a remnant in some males of adult group I. In males of adult group II and III, it disappears due to the growth of surrounding bones, i.e., parietal, postfrontal, postorbital, and squamosal, which join tightly with each other.

Squamosal -In hatchlings, yearlings, and females of all adult groups the lateral margin of the squamosal is slightly curved medially and its posterior end protrudes laterally. Its lateral margin slightly swells out laterally in males of adult group I and more distinctly in males of adult group II and III.

Jugal. -The pointed posterolateral process of the jugal is developed in only one male of adult group III.

Quadrate. -In newborn hatchlings, this bone is simple in shape and no protrusion is observed. In yearlings and females of adult group I, a small crest develops along the medial margin of this bone. This crest becomes more conspicuous in males of adult group I and II and females of adult group II and attains its maximum size in a male of adult group III.

Quadratojugal. -A very small bony element, which attaches to the posterolateral surface of the quadrate, is a bone of questionable nature, but its position suggests that it is the quadratojugal. This element has not yet appeared in hatchlings and yearlings. In females of adult group I, this bone is found as a tiny platelike element posterodorsal to the quadrate and in males of adult group I and females of adult group II it joins with the quadrate. Between the quadrate and quadratojugal is formed the quadrate foramen. In a male of adult group III, this bone fuses with

the quadrate and the left quadrate foramen is closed by the growth of both bones.

Tabular. -A small, slender bony element appears between the supratemporal and the paroccipital process of the opisthotic. This bone first appears in males of adult group I and females of adult group II. Identification of this element is also difficult, but from its location it is presumed to be the degenerated tabular.

Braincase. -In newborn hatchlings, the opisthotic and the parasphenoid have already fused with the exoccipital and the basisphenoid, respectively. Likewise, the posterior portion of the basioccipital joins with the lateral exoccipital on both sides to form the single occipital condyle. But other bony elements of the braincase are separated by narrow spaces, and the basal tuber has not yet been formed at this stage. In yearlings and females of adult group I, elements of the braincase are still loosely joined and the basal tuber begins to appear. In males of adult group I, these elements are joined tightly by sutures. At the same time the three elements, which form the occipital condyle, begin to fuse and the basal tuber grows remarkably. In males and females of adult group II, the basisphenoid is joined with the proötic and the basioccipital by sutures. In the same stage, other elements of the braincase fuse, and the basal tuber becomes still more conspicuous. In a male and a female of adult group III, the braincase has become a solid structure due to the fusion of its elements.

Teeth. -The left premaxilla bears three teeth, and the right four teeth. This tooth number, i.e., 3-4 dentition, is generally constant in all age groups. However, two exceptional cases were found among the specimens examined. One specimen possessed 3-3 and another 2-3. On the other hand, the number of the maxillary teeth increases with the growth of the skull and ranged from 18 to 28 in all age groups. Likewise, the number of the pterygoid teeth also increases with growth, ranging from 2 to 8 among all the specimens.

IV. Sexual Dimorphism in the Skull

Sexual dimorphism is not found in the skulls of hatchlings and yearlings. It becomes apparent as the male grows and matures sexually. Such sexual dimorphism becomes conspicuous in the dorsal temporal region of adult specimens. In male adults, the bony elements in this region, i.e., parietal, postfrontal, postorbital, and squamosal, are robustly formed, tightly joined, and close the supratemporal fenestra. Moreover, the squamosal is developed laterally. The underside of this region provides an extensive attachment area for jaw muscles. In female adults, however, such changes do not occur and their bone formation in this region is essentially the same as that of yearlings.

Other attachment areas for neck and jaw muscles are developed earlier in male adults than in female adults. Such parts for the attachment of muscles are the

Fig. 3. Relative growth of skull length against SVL. Scales are shown in logarithm. Solid circles, male adults; open circles, female adults; open triangles, hatchlings and yearlings.

crest of the quadrate, the basal tuber, and the nuchal ridge in the parietal.

Sexual dimorphism is also observed in the skull size. The relative growth of the skull length (from the tip of the snout to the end of the occipital condyle) against SVL clarifies the mode of its growth (Fig. 3). The coefficient of allometry in hatchlings and yearlings is 0.55, and in female adults 0.61, but they are essentially the same (statistically significant to 99%). On the other hand, the coefficient of male adults is 0.99 which differs from that of female adults and juveniles (statistically significant to 99%). These facts mean that the relative skull size decreases remarkably with growth in hatchlings and yearlings and in addition in adult females, but it remains almost unchanged in adult males. In other words, in adult stages, the skull grows more rapidly in males than in females. As a result, males have larger skulls than females.

DISCUSSION

The description of the skull of the Japanese skink, *Eumeces latisculatus*, presented by Shirai (1960) is found to have some mistakes. First, the supraoculars, which have articulated to the lateral surface of the frontal, are not elements of the dermal roof, but parts of the osteoderms which cover the head. Second, the interorbital septum was erroneously identified as the ethmoid. Third, he neglected the fact that the premaxillae are unequal in size and showed that the number of the premaxillary teeth is four on each element. In fact, as described above, the

number of the premaxillary teeth, as a rule, is four on the right element and three on the left.

In the same way, some elements were misidentified in the description by Kingman (1932). First, he stated that the parasphenoid is a cartilaginous bone extending anteriorly toward the vomer. At least in the present species, however, the parasphenoid is an ossified needlelike bone extending anterodorsally in the interpterygoid vacuity and fused with the basisphenoid and attached dorsally to the trabecula communis. Probably, he erroneously identified the trabecula communis as the parasphenoid. Second, he identified the ascending process of the tectum synoticum as the interparietal, which is termed the postparietal by Romer (1956). The postparietal is a dermal bone but this element is cartilaginous in younger specimens, though it is feebly calcified in older adults; it means that this element is not a dermal bone. Third, a little toothlike projection on the posterior end of the vomer was considered to be a vomerine tooth. However, this projection can be stained with alizarin red S as well as the vomer itself, and neither enamel of the crown nor germs of replacement teeth were detected. These features indicate that this projection is not a tooth but merely a process of the vomer. This process sustains a fleshy plate on the vomer and forms the internal naris with the palatine.

Two degenerated elements appear in the adult stage. One is a small bony plate which attaches to the posterolateral surface of the quadrate and which is considered to be the quadratojugal. Kingman (1932) suggested that a small bony plate on the quadrate of *Eumeces pavimentatus* may be a remnant of the quadratojugal, but he did not find it in other species examined in his study. It is highly probable that this element may have escaped previous observations owing to its ontogenetic peculiarity; it does not appear until the lizard reaches the adult stage, and it fuses with the quadrate in old adults. The quadratojugal probably exists in other species of the genus *Eumeces*, since the quadrate foramen was observed in some other species in Kingman's study (1932). In the Squamata this bone has been reported only in some geckos (Romer, 1956). It is possible that the quadratojugal may be found in other lizards by more careful studies.

Another degenerated element is a smaller bone which lies between the supratemporal and the paroccipital process of the opisthotic and it is presumed to be the tabular. Kingman (1932), who described this element in *Eumeces obsoletus*, considered that this may have been the atrophied tabular or quadratojugal. The tabular has not been reported in other living lizards nor in other living reptiles. It is possible that this bone also has previously escaped observation in other lizards because of its small size.

In the postembryonic development of the skull, various morphological changes were observed. Among them the following changes occur in both sexes: the

appearance of the quadratojugal and the tabular, the fusion of the braincase elements, the development of attachment areas for jaw and neck muscles (nuchal ridge of the parietal, the basal tuber, and the crest of the quadrate), the closure of the fontanelle, and the disappearance of the suture in the parietal. However, the attachment areas for jaw and neck muscles develop earlier in males than in females. Some changes are seen only in males, i.e., the thickening of the dermal roof elements (particularly the frontal, postfrontal, parietal, squamosal, and postorbital), the lateral swelling of the squamosal, the closure of the supratemporal fenestra, the closure of the quadrate foramen, and the development of the posterolateral process of the jugal.

Thus, the skull of this species shows a distinct sexual dimorphism: males have larger and more robust skulls than females in the adult stage. Generally speaking, males are hypermorphic in the skull ontogeny, whereas females are neotenic. This phenomenon seems to be related to the male habit of fighting with rival males in the mating season. In this season a male is often seen to bite the head of his rival, and injuries are found on the heads of many males. A thick skull roof would be effective as a shield for protection from biting of rival males and a robust temporal region also would provide large attachment areas for the jaw muscles, which are more massive in males than in females, and would make biting more effective.

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要 旨

ニホントカゲの頭骨の孵化後の発生

疋 田 努

1. ニホントカゲの頭骨の形態、およびその発育に伴う形態の変化を記載した。
2. 孵化直後には前頭骨と頭頂骨の間に泉門が開口している。この間隙は1才仔や若い成体ではまだ縫合線として、頭頂孔の前方に残る。
3. 方形頬骨と板状骨は小さな退化的な骨で、成体において始めて現われる。
4. 発育に伴う形態変化は雄において特に顕著である。雄成体では、頭蓋を構成する諸骨（前頭骨、頭頂骨、後前頭骨、後眼窩骨、鱗状骨）は肥厚し、頑丈になる。また、鱗状骨は側方にも成長し、頭蓋はこの部分で側方に張り出す。上部側頭窓は幼体において、狭い間隙として残っているが、雄成体では、骨の成長によって完全に閉鎖される。しかし、このような変化は雌においては認められない。
5. 雌雄とも、次の諸点に発育に伴う変化が見られた。頭頂骨後縁部の横走稜、方形骨の稜および基底隆起の発達、脳函の諸骨の癒合。これらの変化は雄では雌に比べ早い時期に起る。
6. 成体では、頭骨の成長率は雄の方が大きく、雄はより大きな頭骨を持つ。

短 報

タカチホヘビの卵

深田 祝（京都）

Oviductal eggs of the snake, *Achalinus spinalis*. Hajime FUKADA (Kyoto)

On 13 June 1975, I was presented a rare snake, *Achalinus spinalis*. It was in a weakened state and soon died. No visible damages were found on the body. The snake, afemale, had a total length of 51.5cm, tail 8.0cm, with a weight of 25g. In her oviducts 11 full grown eggs were found, 10 of them were good looking, 13.8 × 7.9mm in mean size, and one egg whitish, half translucent and 9.9 × 4.3mm. There were about 5 smaller eggs in the oviducts.

タカチホヘビの輸卵管内の卵についてはこれまで4卵（Fukada, 1965）、5卵（青木, 1974）という記録があるが、私はこの度11卵という1例を得たので報告する。

1975年6月13日朝8時、畏友俣野諭保氏は京都市境に近い大津市大谷町の逢坂峠の山際にて道路上に出て弱っているタカチホヘビ1匹を捕えた。外傷はない。同氏はこれを湿気を含んだ草と共に紙箱に入れすぐ届けてくれたのであるが、私が箱を開けたときにはすでに死んでいた。この蛇（標本番号 No. 5525）は全長51.5cm、尾長8.0cm、体重25g、雌であった。解剖し