

**Article XVIII.**—A NEW RODENT FROM THE UPPER  
OLIGOCENE OF FRANCE

BY GERRIT S. MILLER, JR. AND JAMES W. GIDLEY

PLATE XXXIV

In the Cope collection of fossils there is a fragmentary skull of a *Spalax*-like rodent from France, labeled "Butte calc., Poirrier." The animal which it represents is of unusual interest; but the insufficiency of the data accompanying the specimen has hitherto discouraged any attempts at exact determination. Recently, in response to our inquiry, Professor Cl. Gaillard, Director of the Museum of Lyons, has fully supplied the lacking information. The letter which Professor Gaillard has had the kindness to write on the subject is of such interest that we take the liberty of printing a part of it as an appendix to this article. The exact history of the specimen is briefly as follows. Poirrier discovered the fossil in a calcareous butte at Peu-Blanc, commune of Sorbier, about seventeen kilometers northeast of St. Gérard-le-Puy, Allier. He knew in 1859 that it represented an undescribed genus related to *Spalax* and that the specimen was complete enough to furnish the basis of a description; but, so far as we can ascertain, no technical account of the animal was ever published. Hence the present paper appears to be, after a lapse of nearly sixty years, the first answer to Poirrier's expectation that his specimen would become the type of a new genus and species.

**RHIZOSPALAX**, new genus

(Family Rhizomyidæ)

TYPE.—*Rhizospalax poirrieri*, new species.

CHARACTERS.—Palate and mandible essentially as in *Tachyoryctes*; teeth essentially as in *Spalax*.

**Rhizospalax poirrieri**, new species

TYPE.—Palate including  $m^1$  and  $m^2$  of both sides, and nearly complete mandible (lacking coronoid and articular processes) with entire dentition ( $m^3$  broken). No. 11013, American Museum of Natural History. Collected at Peu-Blanc, Department of the Allier, France, by B. Poirrier. Upper Oligocene.

SKULL.—As compared with a specimen of *Tachyoryctes splendens* (No. 184133, U. S. National Museum), with which it approximately agrees in size, the palate and mandible of *Rhizospalax poirrieri* show the following peculiarities.

Palate.—Region between toothrows nearly parallel-sided (not narrowed anteriorly as in *Tachyoryctes* by the encroachment of broadened teeth); median ridge low and lateral grooves shallow and ill-defined in region between toothrows, but more pronounced than in *Tachyoryctes* in region extending from level of first tooth to posterior border of palatal foramina; region in front of tooththrow less bent upward; base of zygomatic plate sloping upward at a noticeably less abrupt angle (apparently almost as nearly horizontal as in *Myospalax*); pits for reception of incisor roots not visible on outer surface of palate, well defined on the broken upper surface, their position in the bone nearly as in *Tachyoryctes*, but slightly more posterior, so as to lie somewhat internal to the toothrows and distinctly overhang the root of the first molar; median posterior emargination of palate extending forward almost if not quite to level of posterior border of alveolus of  $m^2$  (its margin is slightly chipped away at middle).

Mandible.—General outline less arcuate; region between cheekteeth and incisor longer, deeper, and more robust as compared with the ascending ramus; lower angle of postsymphyseal buttress situated beneath middle of diastema instead of beneath anterior margin of  $m_1$ ; flange formed by angular process set more obliquely to axis of mandible, its width greater, and the concavity of its inner surface deeper; surface for attachment of masseter muscle with better marked ridgelets for muscle attachment; anterior margin of this area bounded by a conspicuous oblique ridge continued downward from base of coronoid process; area for attachment of temporal muscle between tooththrow and coronoid process wider, particularly in region opposite the small  $m_3$ .

TEETH.—Molars resembling those of *Spalax*, but both above and below rapidly graduated in size from first to third, the second conspicuously smaller than first, the third with crown-area a little more than one-third that of first in lower jaw, and

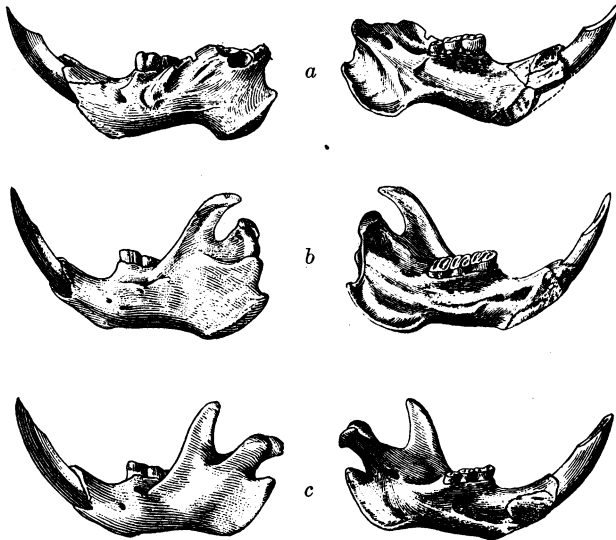


Fig. 1. Mandible of *Rhizospalax* (a), *Tachyoryctes* (b), and *Spalax* (c). Natural size.

probably less than half that of first in upper jaw (it is broken away at level of alveolus). First and second upper teeth 3-rooted; first and second lower teeth 2-rooted; third tooth single rooted. Enamel pattern in the upper teeth and the second and third lower teeth not generically distinguishable from that of *Spalax*; first lower tooth with a complete enamel rim infolded at middle of outer side; surface of the crown with four narrow transverse lakes, the anterior of which is in communication with the outer rim (the second from behind is accompanied by a small cavity in the osteodentine; it superficially resembles another lake and may represent the last trace of one that has been nearly worn away).

Upper incisor not known. Lower incisor like that of *Tachyoryctes splendens* except that the shaft is more rounded and its anterior face has no trace of a median ridge. The projecting capsule over root of incisor on outer surface of ascending ramus is broken away. From the size of its base it appears to have been larger than in *Tachyoryctes* but less developed than in *Spalax*.

MEASUREMENTS.—Length of mandible from posterior extremity of angular process to anterior border of alveolus of incisor  $31 \pm$  mm.; depth of mandible between  $m_1$  and  $m_2$ , 7.8 mm.; least depth of mandible immediately in front of tooth-row, 7.0 mm.; least width of palate at level of  $m^1$ , 3.8 mm.; width of alveolus of  $m^1$ , 3.2 mm.; upper toothrow (alveoli), 6.6 mm.; lower toothrow (alveoli), 8.0 mm.

COMPARISONS.—While the skull of *Rhizospalax* has more features of agreement with that of *Tachyoryctes* than with that of any of the other known Rhizomyine and Spalacine rodents, it shows agreement with *Spalax* and *Myospalax* in certain details. The very slight upward bend of the palate in front of tooththrows suggests both of these genera; the position and direction of the basal portion of the zygomatic plate suggests *Myospalax*, though the posterior rim of the bone is noticeably thicker and its under surface shows

no trace of the concavity so conspicuous in *Myospalax*, *Spalax* and *Tachyoryctes*. So little remains of the zygomatic root, however, that no great stress can be laid on these peculiarities. The posterior emargination of the palate is essentially as in *Myospalax*. The general form of the mandible is probably more nearly as in *Spalax* than in *Tachyoryctes*; it is very different from that in *Myospalax*. On the other hand, the postsymphyseal buttress is absent in *Spalax* while in *Rhizospalax* it has essentially the same high development found in *Myospalax*. From the skull of *Spalax* that of *Rhizospalax* differs widely: in the position, close to the toothrow, of the root of the zygomatic plate, and of the pits for reception of the incisor roots; in the deep posterior emargination of the palate; in the form of the angular process; in the presence of a conspicuous postsymphyseal buttress. From the skull of *Myospalax* it differs in the general outline of the mandible, the form of the angular process, the conspicuous ridge at anterior margin of area for masseteric insertion, and the projecting of the incisor root on outer side of ascending ramus. Sufficient comparison with the skull of *Tachyoryctes* has already been made.

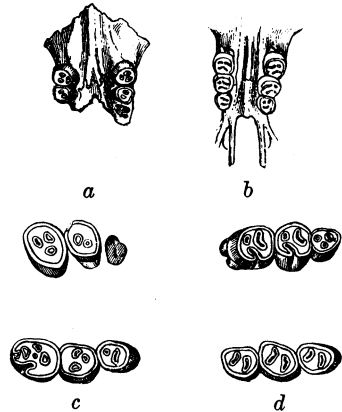


Fig. 2. Palate of *Rhizospalax* (a) and *Spalax* (b). Natural size. Teeth of *Rhizospalax* (c) and *Spalax* (d).  $\times 2$ .

Owing to the absence in the fossil of the parts which show the exact nature of its zygomaseteric structure, the systematic position of *Rhizospalax* must for the present remain somewhat in doubt. In our 'Synopsis of the Supergeneric Groups of Rodents' we alluded to it as an undescribed genus of Spalacinæ,<sup>1</sup> chiefly because the teeth and the general form of the mandible resemble those of *Spalax*. After further study we have concluded that the relationships are more nearly with *Tachyoryctes*. Whatever its exact position, the genus *Rhizospalax* shows a combination of peculiarities found in the living *Spalax*, *Myospalax*, and *Tachyoryctes*, to which it has added certain features of its own: the robust anterior portion of the mandible, the anterior position of the postsymphyseal angle, the enamel pattern of  $m_1$ , the graduated size of the cheekteeth, and the posterior position of the upper incisor root. Probably to this list should be added the thick posterior margin and flat under surface of the zygomatic plate. A more complete specimen will be not unlikely to show that the genus represents a distinct subfamily whose characters are somewhat intermediate between those of the families Rhizomyidæ and Spalacidæ as now defined. Though it may prove to be intermediate between some of them, *Rhizospalax* cannot be regarded as ancestral to any of its living relatives. Its skull bears a general resemblance to that of *Tachyoryctes*, but the angular process of the mandible is a more extreme development of the same structure as that found in the living genus, and the root of the upper incisor has been extended backward to a position which would interfere with any considerable heightening of the first cheektooth; its molars resemble those of *Spalax*, but they are more specialized in the graduated size of the teeth; the posterior border of its palate, and perhaps also its zygomatic plate may be like those of *Myospalax*, but its lower incisor had long passed the stage reached by the Asiatic animal. Some unknown circumstance in their history is probably responsible for the fact that *Rhizospalax* perished in the Oligocene while the other genera are living today.

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<sup>1</sup>Journ. Washington Acad. Sci., VIII, p. 438, July 19, 1918.

## LETTER FROM PROFESSOR CL. GAILLARD

Le 27 mars 1918.

VILLE DE LYON.  
MUSÉUM  
DES  
SCIENCES NATURELLES

Cher Monsieur—

En ce qui concerne *Spalax poirrieri*, je dois vous dire tout d'abord que je ne connais aucun ouvrage mentionnant cette espèce. Je ne me rappelle qu'une espèce de mammifère fossile portant le nom de Poirrier: *Protapirus poirrieri* Pomel.

Quant à la collection Poirrier, elle a été signalée par Filhol dans son ouvrage intitulé: Étude des mammifères de St. Gérard-le-Puy, (Allier), Paris, 1879. Au bas de la page 4, vous pouvez lire cette indication: "La collection Poirrier renfermait quelques pièces trouvées dans l'Allier; elle a été vendue aux États-Unis, et se trouve actuellement à Philadelphie dans le service dirigé par M. Cope."

Cette note se rapporte évidemment à la collection dont il est question dans la lettre du Dr. Matthew de l'American Museum, mais elle ne nous apprend rien concernant soit *Spalax poirrieri*, soit la collection Poirrier en général. J'ai donc fait des recherches dans le vieux fond de la bibliothèque du Muséum de Lyon et j'ai eu la bonne fortune de trouver une brochure dont voici le titre: Notice géologique et paléontologique sur la partie nord-est du Département de l'Allier, par B. Poirrier, Maire de Montcombroux. Allier, Cusset, 1859. (brochure de 55 pages).

Dans cette courte étude B. Poirrier décrit sommairement les documents fossiles et l'origine de sa collection. À la page 8, B. Poirrier s'exprime ainsi au sujet des fossiles: "Ils ont été recueillis principalement dans les communes de Sorbier, Chavroches, Trezel, Jaligny, Châtelperron, Vaumas, St. Pourçain-sur-Besbre, Dompierre, presque toutes desservies par le chemin de fer des mines de Bert. Les espèces fossiles que j'ai réussi à y découvrir sont aujourd'hui aussi nombreuses que celles fournies par Langy ou St. Gérard-le-Puy, situées à vingt-cinq kilomètres des gisements cités plus haut." Plus loin (p. 25) l'auteur donne la liste des fossiles qu'il a pu reconnaître; ce chapitre est intitulé: "Énumération raisonnée des familles genres et espèces d'animaux vertébrés composant les deux faunes, Miocène et diluvienne, de la partie nord-est du département de l'Allier."

Enfin à la page 34 de la même brochure, je lis les renseignements reproduits ci-après qui me semblent se rapporter exactement à "*Spalax*" *poirrieri* sp. indescr.: "Nous indiquons ici un Rongeur que nous avons découvert à Peu-Blanc, (commune de Sorbier) et qui, soumis à l'étude consciencieuse de M. Lartet et autres zoologistes, n'a pu encore être déterminé. Non seulement il peut être regardé comme une espèce inconnue mais il constituera un genre nouveau. Il ne saurait être rangé dans la famille des Murinés; il se rapproche plus spécialement des *Géoriques* et des *Spalax*. La dentition, soit de la mâchoire supérieure, soit de la mâchoire inférieure étant bien complète et bien conservée, donnera des facilités pour la description et la détermination de cet individu, pouvant être regardé comme typique."

Il ne me paraît pas douteux que ces indications s'appliquent tout à fait à '*Spalax*' *poirrieri*, qui devra probablement être décrit sous un nom de genre nouveau. J'ai pensé que ces renseignements pourront vous intéresser ainsi que le Dr. Matthew,

surtout si vous n'avez pas connaissance de la brochure de B. Poirrier. D'après les fossiles recueillis à Peu-Blanc et signalés par B. Poirrier, tels que *Sciurus chalaniati* Pomel, *Cricetodon gerandianus* Gervais, les documents de la collection Poirrier proviendraient en grande partie de gisements analogues et de même âge que ceux qui ont fourni les fossiles de la faune dite de St. Gérard-le-Puy et qui ont été trouvés à Langy, Montaigu-le-Blin, Boucé, St. Gérard-le-Puy, etc. Ces gisements renferment la faune aquitanaïenne, ils appartiennent à l'Oligocène tout à fait supérieur. "Butte calc." désigne sans doute les nombreux mamelons ou buttes calcaires que j'ai visités il y a une dizaine d'années et qui étaient exploités à St. Gérard-le-Puy, ainsi que dans les environs, pour la fabrication de la chaux. Ci-joint un croquis [Fig. 3] montrant la position géographique des principales localités d'où proviennent les fossiles de la collection Poirrier et ceux de St. Gérard-le-Puy.

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Tout heureux d'avoir l'occasion de vous être agréable, je vous prie de me croire, cher Monsieur

votre bien cordialement

Gaillard

Directeur du Muséum de Lyon

C. M. Z. S.

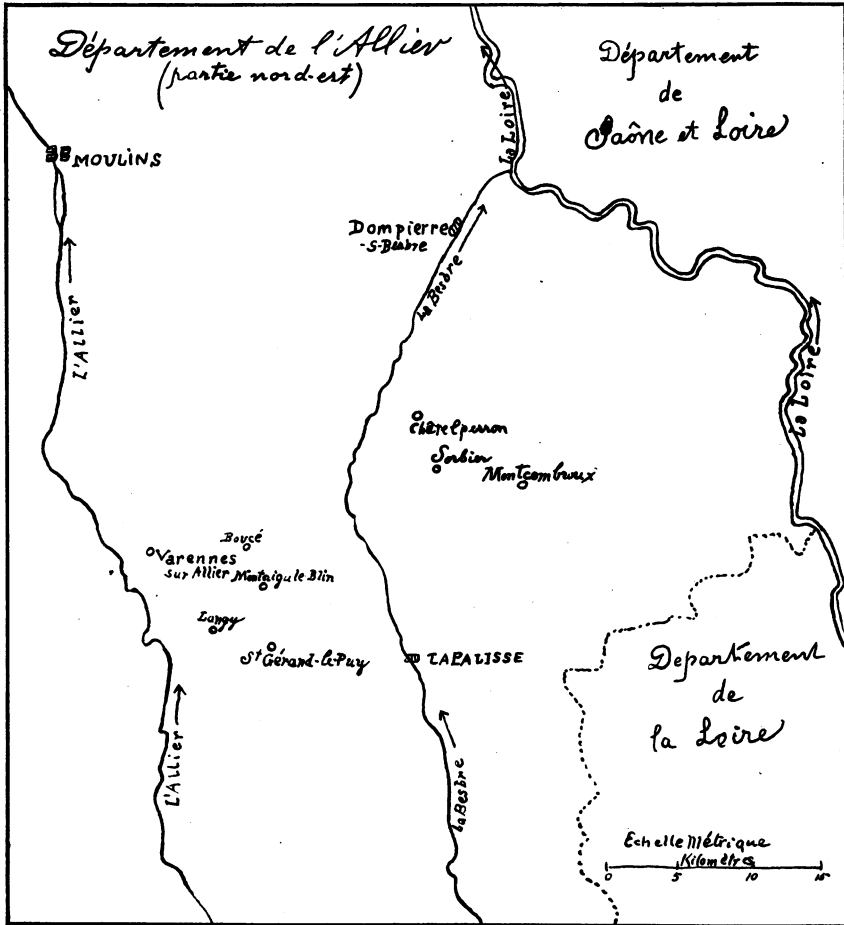


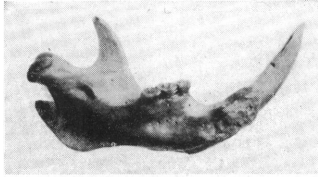
Fig. 3. Map of region including Sorbier and St. Gérard-le-Puy.

PLATE XXXIV

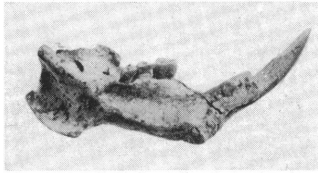
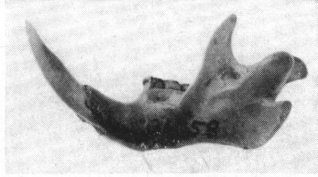
(Photographs, natural size)

- Fig. 1. *Spalax*. Four views of mandible.  
Fig. 2. *Rhizospalax*. Four views of mandible.  
Fig. 3. *Tachyoryctes*. Four views of mandible.  
Fig. 2a. Palate of *Rhizospalax* from below.  
Fig. 2b. Palate of *Rhizospalax* from above, showing pits for reception of incisor roots.  
Fig. 3a. Palate of *Tachyoryctes* from below.  
Fig. 3b. Palate of *Tachyoryctes* from above, showing pits for reception of incisor roots.

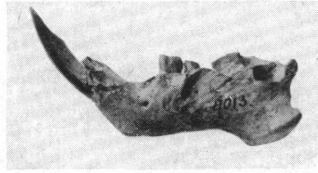




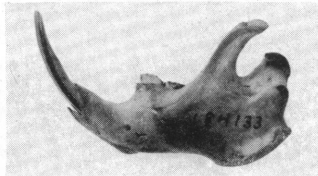
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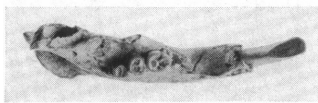
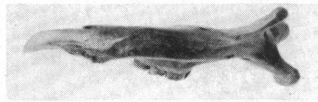
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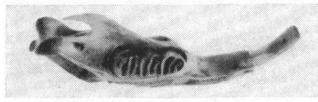
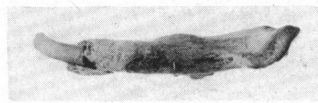
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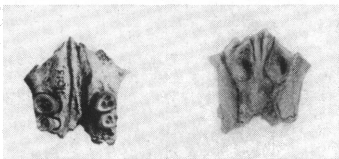
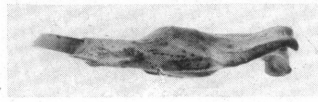
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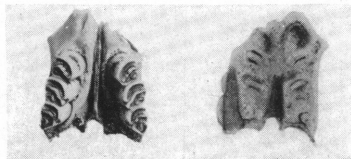


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2a

2b



3a

3b

