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THE SCIENTIFIC NAMES OF THE AMERICAN  
"SMOOTH DOGFISH," *MUSTELUS CANIS*  
(MITCHILL), AND OF THE RELATED  
EUROPEAN SPECIES

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At the present time both the generic and the specific name of the American "smooth dogfish" are in a state of flux, and much the same uncertainty holds for the "smooth hound" and the "spotted hound" of Europe. From the beginnings of ichthyology, the systematics as well as the nomenclature of the sharks of this type has been replete with errors and confusion.

Highlights in the synonymy of the American smooth dogfish follow:

*Mustelus canis* (Mitchill)

*Squalus canis*.—Mitchill (1815: 486).

*Mustelus canis*.—De Kay (1842: 355, Pl. 64, Fig. 209). Storer (1846: 253; 1855: 251, Pl. 37, Fig. 2). Baird (1855: 39). Gill (1864b: 263; 1873: 35 of separate = 813 of volume). Jordan and Gilbert (1882: 109; 1883: 870). Jordan and Evermann (1896: 29). Bean (1903: 23). Smith (1907: 32). Kendall (1908: 3). Nichols and Murphy (1916: 7, fig.). Fowler (1920: 144; 1923: 10, fig.). Nichols and Breder (1926: 13, fig.). Breder (1929: 14, fig.). Truitt, Bean, and Fowler (1929: 29).

*Galeus canis*.—Jordan (1885: 6 of separate = 794 of volume; 1904: 16).

*Cynais canis*.—Fowler (1906: 60; 1907: 254, 2 figs.; 1908: 55).

*Cynias canis*.—Jordan (1929: 9). Jordan, Evermann, and Clark (1930: 13).

*Galeorhinus canis*.—White (1937: 42, Fig. 34).

*Mustelus laevis* (not *Squalus laevis* Blainville).—Günther (1870: 386—New York record).

*Rhinotriacis laevis*.—Jordan and Gilbert (1883: 60).

*Galeorhinus laevis*.—Garman (1913: 176, Pl. 4, Figs. 6-9, and Pl. 60, Figs. 1-4). Radcliffe (1916: 267, Fig. 19). Bigelow and Welsh (1925: 25, Fig. 5). White (1937: 64, 92, and 123, Pl. 6, Fig. c, Pl. 13, Fig. p, and Pl. 41, Fig. a).

*Mustelus hinnulus* (not *Squalus hinnulus* Blainville).—Jordan and Gilbert (1883: 19).

*Mustelus mustelus* (not *Squalus mustelus* Linnaeus).—Fowler (1909: 815; 1918: 2, 14, and 15, Pl. 2). Hildebrand and Schroeder (1928: 47, Fig. 27). Jordan, Evermann, and Clark (1930: 13). Bigelow and Schroeder (1936: 321).

“*Mustelus* or *Pleuracromylon mustelus*.”—Jordan (1917a: 87).

“*Mustelus asterias* (Valmont) or *Cynias canis* (Mitchill).”—Jordan (1917a: 87).

This synonymy is restricted to the common smooth dogfish of the inshore waters of the East Coast of the United States, from New England to North Carolina. One or more species have been recorded from other waters in the western Atlantic, as follows:

Bermuda—*Cynias canis* and *Mustelus mustelus* Beebe and Tee-Van (1933: 24, fig.).

Key West—*Mustelus canis* Jordan (1884: 148).—A very doubtful record, on authority of fishermen.

Cuba—*Mustelus canis* Poey (1868: 453, and 1876: 201).

Brazil—*Cynias canis* Ribeiro (1907: 161).

Argentina—*Mustelus vulgaris* Günther (1880: 7); *Galeus canis* Berg (1895: 7), *Mustelus canis* Evermann and Kendall (1906: 68), and *Galeorhinus mustelus* White (1937: 30, 86, 92, and 123, Pl. 41, Fig. b, and Pl. 49, Fig. d).

Whether the North American form *canis* ranges into the West Indian, Gulf of Mexico, and South American regions can only be determined by careful comparisons. There seems to have been no sound basis, in previously published data, for the suspicion of Günther (1870: 386) nor for the indication of

Jordan, Evermann, and Clark (1930: 13) that two species occur on the Atlantic coast of the United States. Günther simply made a wild guess, and the other authors just quoted did not digest the literature carefully: Fowler in recording *Mustelus mustelus* from New Jersey did not add that species to our list, but merely identified (wrongly) the American form *canis* with the European form *mustelus*. We also fail to understand why Beebe and Tee-Van have identified their Bermuda specimens with *Mustelus mustelus*, while accepting other Bermuda and United States records as based on *Cynias canis*. The denticle characters which they claim to be diagnostic of *mustelus* are to be seen in our mainland specimens of *canis*.

Recent, unpublished researches of Frank E. Firth and of Stewart Springer have indicated the occurrence of more than one species of *Mustelus* in eastern North America, but their existence does not seem to enter into the nomenclatorial problems here discussed.

In view of the synonymizing of *Galeus* with *Mustelus* the use of the name *Galeus canis* for the European "tope" (*Galeorhinus* or *Eugaleus galeus*) causes concern over the availability of the name *canis* of Mitchill for the common American *Mustelus*. If the combination of *Galeus canis* was ever employed in nomenclatorially acceptable form prior to 1815, Mitchill's name *canis* would have become a homonym when *Mustelus* and *Galeus* were synonymized and should never be resurrected according to a literal interpretation of the *Rules*. Available synonymies, however, indicate that the name *Galeus canis* was not employed between pre-Linnaean time and 1841 or shortly before that year, when Bonaparte and Müller and Henle used that combination on the authority of Rondelet (1554; see the extensive synonymy in Doderlein, 1881: 36). Therefore the name *Squalus canis* remains available for the common American *Mustelus*.

In brief explanation of the involved synonymy of *Mustelus canis* given above it may be stated that Mitchill differentiated the American form as a distinct species, *Squalus canis*. In general this specific name has been accepted, either for an ex-

clusively American species or as the supposedly oldest name for a species wrongly thought also to occur in Europe. Others, mostly forgetting this matter of priority, or using a name of older date based on European types, have synonymized *canis* with one of the nominal European species: *Mustelus laevis* Blainville (1825: 84), *Squalus hinnulus* Blainville (1825: 83, Pl. 20, Fig. 2), *Squalus mustelus* Linnaeus (1758: 235), and *Galeus asterias* Valmont de Bomare (1768, Vol. 4: 746), non-available, but equivalent to *Mustelus asterias* Cloquet (1821: 407).

It needs be stated in this connection that Jordan and Evermann's account of *Mustelus canis* (1896: 29) was obviously based in large measure on the European species *Mustelus asterias* (for synonymy see Table I), with which they confused our species. The statements "teeth small, many-rowed, flat and smooth, rhombic, arranged like pavement, alike in both jaws, and blunter than in any other sharks," "embryo without placenta," and "sometimes with pale spots" apply to the European species mentioned, and contrast with the characters of the common American form. Our species, especially when young, has rather definitely cusped teeth, hardly to be described as pavement-like; its embryos develop a pseudo-placenta, as clearly shown by Fowler (1909: 815, and 1918: 15, Pl. 2), and it never shows white spots, according to all the information available.

Jordan and Evermann, and before them Jordan and Gilbert, and later Jordan (in "Opinion 93" of the International Commission on Zoological Nomenclature), were thus clearly in error in uniting the American species *canis* with the European form which has passed (see Table I) under the varied names of *asterias*, *stellatus*, *hinnulus*, *albomaculatus*, *plebejus*, *vulgaris*, and *mustelus* (the "spotted hound"). If *canis* is identical with any one of the two or three European species, we should, with Garman (1913: 176), refer it rather to *M. mustelus* (*M. laevis*). The taxonomic error of confounding the American *canis* with the probably less closely related of the European species is the basis of much of the confusion which

TABLE I

NAMES USED BY LEADING EUROPEAN AUTHORS WHO HAVE SEPARATED THE TWO COMMON EUROPEAN SPECIES OF THE *MUSTELUS* TYPE

	Name used for the "smooth hound," <i>Mustelus mustelus</i> , the unspotted spe- cies with more pointed teeth and incompletely ridged scales.	Name used for the "spotted hound," <i>Mustelus asterias</i> , the white-spotted spe- cies with very blunt teeth and completely ridged scales.
Rondelet, 1554: 374- 76 (after Aristotle)	<i>Galeus laevis</i> <sup>1</sup>	<i>Galeus asterias</i> <sup>1</sup>
Artedi, 1738: 93-94	<i>Squalus dentibus obtu- sis seu granulosis</i> , α	<i>Squalus dentibus obtu- sis seu granulosis</i> , β
Jonstonus, 1767: 26	<i>Galeus</i> or <i>Mustelus laevis</i> <sup>2</sup>	<i>Galeus asterias</i> <sup>2</sup>
Duhamel, 1782: 300	<i>Galeus laevis</i> <sup>3</sup>	<i>Galeus stellatus</i> <sup>3</sup>
Bonnaterre, 1788: 7	L'Emissole ( <i>S. Mus- telus</i> )	Le Lentillat
Lacépède, 1789: 242	Squale Emissole ("Squalus muste- lus Linne" in synonymy)	Le Lentillat (as va- riety)
Cuvier, 1817: 128	Emissole commune	Emissole tachetée de blanc
Cloquet, 1821: 406-7	<i>Mustelus vulgaris</i>	<i>Mustelus asterias</i>
Blainville, 1825: 81- 84	<i>Squalus (Galeorhinus) laevis</i>	<i>S. (G.) mustelus</i> and <i>S. (G.) himmulus</i>
Risso, 1826: 126-28	<i>Mustelus laevis</i>	<i>Mustelus stellatus</i>
Bonaparte, 1841: 6 pp., 2 figs.	<i>Mustelus equestris</i>	<i>Mustelus plebejus</i>
Müller and Henle, 1841: 64-66	<i>Mustelus vulgaris</i> , Var. 1	<i>Mustelus vulgaris</i> , Var. 2
Müller and Henle, 1841: 190	<i>Mustelus laevis</i>	<i>Mustelus vulgaris</i>
Duméril, 1865: 399- 403	<i>Mustelus laevis</i>	<i>Mustelus vulgaris</i>
Günther, 1870: 385-87	<i>Mustelus laevis</i>	<i>Mustelus vulgaris</i>
Moreau, 1881, Vol. 1: 310-16, Figs. 43-44	<i>Mustelus laevis</i>	<i>Mustelus vulgaris</i>
Doderlein, 1881: 30- 35	<i>Mustelus equestris</i>	<i>Mustelus plebejus</i>
Pietschmann, 1908	<i>Mustelus laevis</i>	<i>Mustelus mustelus</i>

<sup>1</sup> Pre-Linnaean.

<sup>2</sup> Name not available because proposed in a post-Linnaean reprint of a pre-Linnaean work.

<sup>3</sup> Name not available because the author was not consistently binomial.

pertains to the nomenclature of all these species and of the genera which have been based on them.

The American "smooth dogfish," *canis*, is probably not identifiable with any European species. To be sure, our species

agrees well with the diagnostic characters of *M. mustelus* as these are given by most European authors (Table I) who have distinguished the two common European species (not considering the doubtful form *punctulatus*, and possibly others). But if we compare *canis* with the most critical distinction of the European species, namely that of Pietschmann (1908), we find that it possesses at least two features in apparent disagreement with those of *mustelus* (the *M. laevis* of Pietschmann). The borders of the two dorsal fins are whitish in the young and half-grown, instead of blackish, and the structure of the denticles is very different. Denticles from the position sampled by Pietschmann, namely on the back to either side of the midline and in front of the first dorsal fin, are provided with much stronger ridges than in *mustelus*, as figured by that author. As in *M. asterias* (the *M. mustelus* of Pietschmann), the median pair of ridges, in this part of the body, extend far beyond the middle of the scale, to or almost to the apex. A possibly valid further distinction lies in the much larger areas of the skin which seem to separate the denticles, as is shown in Radcliffe's figure (1916: 267, Fig. 19). That figure was based on a piece of skin from below the first dorsal, and to judge from our material, from just below the midline of the sides, where the ridges become shorter and weaker, though still usually covering more than half the length of the scale.

The American form *canis* may, on this evidence, be again confidently validated as a distinct species. The problem of its generic nomenclature, however, is one of great confusion. For the solution of this question, it is necessary to review the involved nomenclatorial history of the two common European species.

Some of the pre-Linnaean writers, including Rondelet (1554: 375-76) clearly distinguished between the two European species and generally followed Aristotle in using the name *asterias* (or *stellatus* of similar meaning) for the "spotted hound" and *laevis* for the "smooth hound." Linnaeus (1758: 235), however, followed others among the pre-Linnaean authors in confounding the two species, calling the complex

*Squalus mustelus*. His description of two words, "*dentibus obtusis*," taken from Artedi's name, applies better to the "spotted hound" than to the "smooth hound," though the latter can hardly be excluded on this account alone. Furthermore, the references given by Linnaeus, except to *S. dentibus obtusis* of Artedi, are all to *Galeus* or *Mustelus laevis*, which name was used for the "smooth hound" by such of his predecessors as separated the species. However, Garman and others have indicated that the pre-Linnaean accounts quoted by Linnaeus are in part based on the "spotted hound." This certainly is true of Linnaeus' prime authority Artedi (1738: 93), whose *Squalus dentibus obtusis seu granulosis* specifically covered a subdivision  $\alpha$  for the *laevis* of authors and  $\beta$  for *asterias*.

The Linnaean specific name *mustelus* was therefore a compound, and as such was passed on to the "first reviser" to disentangle. None of the writers immediately following 1758 appears to have qualified as such; almost certainly not Duhamel du Monceau (1782: 300), quoted by Garman (1913: 176) as using the name *Galeus laevis* for the "emissole" or "smooth hound." Duhamel's work is apparently to be excluded from nomenclatorial consideration on the grounds of its not being consistently binomial (see "Article 25" of *The International Rules on Zoological Nomenclature*). However, he did definitely separate the two forms, naming them *Galeus laevis* and *Galeus stellatus*.

Sherborn quotes the name *Mustelus laevis* as having been used by P. L. S. Müller in 1767, that is, in Müller's post-Linnaean edition of Knorr's *Deliciae Naturae Selectae* (1767, Vol. 2: 141). This name occurs here, however, merely in a table of plates, in this connection: "H. IV. fig. 1. Un petit Haay, ou Loup marin, ou Requin. *Mustelus laevis* Ionst Linn"; the species is described on page 55 and there called "un Chien marin jeune encore, que porte le nom de *Mustelus*, & que quelques un apellent aussi *Galaeus levis*."

So also I find *Galeus* or *Mustelus laevis* (and *Galeus asterias*) described and figured in a post-Linnaean edition of Jonstonus (1767: 26, Pl. 8). But these names, by "Opinion 5" of the

International Commission, are ineligible because they were merely reprinted from a pre-Linnaean account.

Bonnaterre (1788: 7, Pl. 7, Fig. 21), in his great *Ichthyologie*, may be regarded as the first reviser of the Linnaean species *Squalus mustelus*. He very definitely described and figured the "smooth hound" only under that name. Following his account of *S. mustelus*, he appended:

a. *Le Lentillat*, décrit dans Willughby, est moucheté de taches blanches, semblables à les lentilles. *Les mers de l'Europe*.

This I interpret as excluding the "spotted hound" from the species *mustelus*, and as restricting that name to the "smooth hound." Since Bonnaterre used the Linnaean names and system, his action must be considered. Lacépède in the following year (1789: 242) described the "smooth hound" as "le Squale Émissole," quoting "*Squalus mustelus*, Linné, édition de Gmelin," as a synonym, and indicated the "lentillat" or "spotted hound" as an unnamed variety. Gmelin's *Squalus mustelus* (1789), although indicated by Garman only in the synonymy of his *Mustelus mustelus* (the "spotted hound"), remained the composite species of Linnaeus (1758).

Linck (1790) was apparently the first author to use either the specific name *laevis* or the generic name *Mustelus* in available form. Linck's diagnoses, as quoted by Gill, were in the following words:

ORDNUNG. ZÄHNE IN BEIDEN KINLADEN ALLEIN, OHNE UNTERSCHIED DER VORDER- UND BACKENZÄHNE.

a. OHNE KIEMENDECKEL.

*Squalus, Mustelus, Pristis, Raja, Rhinobatos.*

.....  
Stumpfe Zähne ein rundlicher Körper *M. laevis* (*Squalus Mustelus* Linn.) Unterscheiden sich von dem vorigen Geschlecht [*Squalus*] doch sehr dadurch, dass sie weniger gefräßig sind, sich mehr von vegetabilien nähren, und eine mehr glatte Haut haben.

Gill rightly concluded that "the name is thus accompanied by a good diagnosis and typonym and consequently is well entitled to place instead of *Mustelus* of Cuvier or *Galeus* of Rafinesque."



I cannot agree with Gill and with Jordan (1917a: 87; in Jordan and Hubbs, 1925: 100, and in *Opinions rendered by the International Commission on Zoological Nomenclature*, 1926, No. 91: 8) that Linck's action in itself "must fix the name *Mustelus mustelus* on the 'Smooth Hound'." Linck, it seems perfectly obvious, merely adopted the specific name *laevis* out of the synonymy of *Squalus mustelus*, in order to avoid tautonymy. Since the *Rules* definitely provide that a specific name shall not be discarded by reason of its being a tautonym, *Mustelus laevis* Linck reverted, simultaneously with its proposal, into the synonymy of *Mustelus mustelus*. There is nothing in Linck's account to suggest that he was dividing or in any way revising Linnaeus' species *mustelus*. The only real indication as to what species the *laevis* of Linck represents is the synonymizing of it with *Squalus mustelus* Linnaeus. For practical purposes, therefore, the latter name is the type of the genus *Mustelus* Linck.

The limitation of the specific name *laevis* therefore still was left by Linck for a first reviser. If the two constituent species are regarded as generically distinct, his generic name *Mustelus* was also a compound, requiring a first reviser to unsnarl.

Cloquet (1821: 406-7) correctly and with nomenclatorial propriety separated *Mustelus vulgaris* and *Mustelus asterias*, but quoted "*Squalus mustelus*, Linn." in the synonymy of the latter. This action was contrary to that of Bonnaterre.

Blainville (1825) may qualify as the first reviser of the species name *laevis*, as he retained the name *mustelus* for what Moreau (1881: 311), Doderlein (1881: 30), Garman (1913: 170), and others have regarded as the "spotted hound" (also describing this species as *S. hinnulus*), but separated the "smooth hound" as *S. laevis*.

Risso (1826) is usually indicated as the first reviser, but Risso definitely referred to Blainville's treatise by page and figure number, and hence certainly followed him. Risso erected three species of "*Mustellus*," namely *stellatus*, *levis*, and *punctulatus*. The last-named species remains doubtful, though accepted by Müller and Henle (1841: 66 and 190) and Garman

(1913: 173). *M. levis* Risso is clearly the "smooth hound," according to description as well as references. Risso's *stellatus* is definitely the "spotted hound," and he indicates among its particular synonyms *S. mustelus* Blainville and also "*S. emissole*. Lac. *S. Mustelus* Lin. (Missola.)" from his own *Ichthyologie de Nice* (1810: 33). Thus, as Pietschmann (1908: 693) insisted, Risso did involve the name *mustelus* in his revision, contrary to Jordan's claim. Risso's action if not Blainville's, might have fixed the name *mustelus* on the "spotted hound" had not Bonnaterre confined this name to the "smooth hound." This identification of the name *mustelus* by Risso met with general acceptance by European ichthyologists, although most of them with such exceptions as Pietschmann (1908), have used the name *plebejus* or *vulgaris* to avoid the tautonym *Mustelus mustelus*. Bonaparte, Duméril, Günther, Doderlein, and Moreau are conspicuous examples (references in Table I). Garman in his great monograph (1913: 170) likewise employed the specific name *mustelus* for the "spotted hound."

These authors, Blainville and Risso as well as their followers, have however used the name *laevis* for the "smooth hound." Thus if Bonnaterre be rejected as the first reviser, Blainville and Risso could be interpreted as fixing the name *mustelus* on the one species and the name *laevis* on the other. Yet as apparently first proposed, *laevis* was clearly only a substitute name for *mustelus*, and hence took on the same status. The action of Bonnaterre or of Risso apparently required validation by arbitrary decision. "Opinion 93" of the International Commission made this decision, which supposedly is final and unchangeable, and *laevis* in the sense of the first reviser became the type of *Mustelus*, and the name of the European "smooth hound" was officially fixed as *Mustelus mustelus* (Linnaeus).

The placing of *Mustelus* in the official list of generic names would seem to render its validity clear despite the earlier use of the feminine form *Mustela* for a mammal, whether or not generic names differing only in gender be regarded in general as sufficiently distinct for nomenclatorial availability. Of course pre-Linnaean uses of the name are inconsequential.

Thus Garman's (1913: 3) objections to the acceptance of *Mustelus* for a genus of sharks are answered.

It is in a way unfortunate that *Mustelus mustelus* should be fixed as the name of the "smooth hound," as this action opposes the more frequent usage. It is also a misfortune that this action on the part of the International Commission on Zoological Nomenclature should have been based on unnecessarily weak arguments and on several mistakes in fact and in interpretation, in the proposal by Jordan:

1) The "spotted hound" has not usually been called *stellatus* Risso, but rather *vulgaris*, *plebejus*, or more recently *mustelus* (see Table I).

2) The earliest post-Linnaean writers who distinguished the European species did use *mustelus*, either directly or as a synonym, for one of the species (the "smooth hound"), or used *laevis* merely to avoid tautonymy.

3) The use of the name *Mustelus laevis* by Linck, as already indicated, did not in itself fix the specific name *mustelus*, and hence the generic name *Mustelus*, on the "smooth hound." The treatment of Bonnaterre, as pointed out above, would have been a less unsatisfactory basis for the official ruling.

However, any solution of the nomenclature of this group is bound to violate some usages. It may be noted that the name *Mustelus mustelus*, in that form, has hardly become general as the appellation of the "spotted hound." Furthermore, that name has been used in America for the "smooth hound."

Fortunately this official fixing of the name *Mustelus* on *Mustelus mustelus* (= *laevis*) seems to be in harmony with the action of Bonnaterre as first reviser. The uncovering of a still earlier reviser would presumably be of no significance, as the name *Mustelus* is now officially fixed and is therefore ruled as not subject to further changes.

Whitley (1932: 324) has called attention to the generic name *Emissola* Jarocki (1822: 488), obviously based on "l'Émissole." This is the French name accredited in almost all the early fish books to *Mustelus laevis* (= *mustelus*) or to the complex of "*laevis*" and *asterias*. In all probability *Emissola* was

based on *Squalus mustelus*. *Emissola* presumably ranks as the first objective synonym of *Mustelus*.

There has long been an argument as to whether *Galeus* Rafinesque and *Galeorhinus* Blainville both take as type the Linnaean species *mustelus* (see Gill, 1864a: 148; Jordan, 1885: 794; Jordan and Evermann, 1896: 29; Garman, 1913: 3-4; Jordan, 1917b: 78 and 95; Jordan, Evermann, and Clark, 1930: 13, etc.). For present purposes this is immaterial, for even if these genera be accepted with *mustelus* as type, they become synonyms of *Mustelus* Linck 1790, an older name.

*Pleuracromylon* Gill (1864a: 148) is a clear synonym of *Mustelus*, as that name is here employed, since *Pleuracromylon* was definitely proposed to contain the smooth-toothed sharks with a placenta, and since *Mustelus laevis* Müller and Henle (1841: 190) was definitely designated as the genotype. If not regarded as generically distinct, *Rhinotriacis* Gill (*R. henlei*), which is also described as having a pseudoplacenta, may be synonymized either with *Mustelus*, or, following Garman, with *Triakis*.

There remains for consideration the proper generic and specific name for the "spotted hounds," that is, for the pavement-toothed galeoid sharks allegedly without pseudoplacental development. The name *Galeorhinus* Blainville (1825) would go with the "spotted hounds," should *Squalus* (*Galeorhinus*) *hinnullus* Blainville be taken as the genotype. This action, however, is unlikely. The generic name *Cynias* Gill (1903: 960) was proposed for and has rather commonly been used for the "spotted hounds." It was, however, based on *Mustelus canis*, on the erroneous assumption then prevalent that *canis* develops no pseudoplacenta and is related to the European "spotted hound." In erecting the genus *Cynias*, Gill remarked:

The genus *Mustelus*, as understood by Jordan [that is, as defined by Jordan and Evermann to include the "spotted hounds," with very blunt teeth and no pseudoplacenta] and typified by "*Mustelus canis*" [that is, Jordan and Evermann's *Mustelus canis*] is thus bereft of a name [since *Mustelus* was taken to replace *Pleuracromylon* for the "smooth hound"] and may take that of *CYNIAS*.

In order to hold the name *Cynias* with the group to which Gill meant it to apply, I as first definite reviser, identify the compound species *Mustelus canis* Jordan and Evermann (1896: 29) nomenclatorially with *Mustelus asterias*, the "spotted hound."

The specific name *asterias* has occasionally been applied, by recent as well as early ichthyologists, to the "spotted hound," though usually on the unacceptable basis of some pre-Linnaean writer. Thus Le Danois (1913: 18, Fig. 13) uses the name "*Mustelus asterias* Rond." The specific name *hinnulus* Blainville (1825) antedates that of *stellatus* Risso (1826). Whether authors prior to Blainville gave available specific names to the spotted hound remains to be determined. Valmont's names are eliminated by "Opinion 89" of the International Commission, and apparently the names of Duhamel, Knorr (Müller's edition), and Jonstonus, as mentioned above, are also ineligible. *Galeus asterias* Rafinesque (1810: 46) listed by Doderlein (1881: 34) in the synonymy of *Mustelus equestris* (= *laevis* = *mustelus*) was a virtual *nomen nudum*, for his entry under *Squalus* was as follows: "347.—*Asterias*. Raf. (*Squalus asterias* Linn.) Galeo asteriade. Gattupardu imperiali." "*Squalus asterias* Linn." seems nonexistent. The only use of the name *asterias* listed in synonymies which would seem probably available is *Mustelus asterias* Cloquet, 1821. The account by Cloquet (p. 407) is as follows:

LE LENTILLAT, *Mustelus asterias*.—*Galeus asterias* Rond., *lib.* 13, *cap.* 4; *Squalus mustelus*, Linn. Il ressemble beaucoup au précédent; seulement sa peau est moins rude, et toute parsemée de mouchetures étoilées ou arrondies ..... (H. C.)

The description of color and the references to medieval and ancient writers shows that Cloquet described and named the common "spotted hound."

#### CONCLUSIONS

1. The scientific name of the American smooth dogfish should remain *Mustelus canis* (Mitchill).

2. This is the only species yet described from Atlantic North America, but additional species appear to exist on this coast.

3. The identification of *Mustelus canis* with the European "spotted hound" was erroneous.

4. *M. canis* is probably related more closely to the European "smooth hound," but differs in the color of the dorsal fins and the structure of the denticles.

5. If the two common European species are separated generically on the basis of the development or (alleged) lack of a pseudoplacenta, the genus with a pseudoplacenta should hold the name *Mustelus* Linck (1790), and the one without a pseudoplacenta that of *Cynias* Gill (1903). The lack of a pseudoplacenta at all embryonic stages in any *Mustelus*-like shark, however, remains to be proven.

6. The name of the European "smooth hound" is officially fixed as *Mustelus mustelus* (Linnaeus) by the International Commission on Zoological Nomenclature, and this action is in harmony with that of Bonnaterre, who may be regarded as the first reviser.

7. The European "spotted hound" should apparently bear the name *Mustelus asterias* Cloquet, 1821, or *Cynias asterias* (Cloquet) if this species be generically separated from *Mustelus mustelus*. No conclusive basis for such generic separation seems to exist.

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