all of them being considered by Day as a variety, *S. albus,* of *Salmo trutta.*

1. *S. gallivensis,* Günther. An anadromous species from Galway, distinguished by the acutely pointed but not elongate snout, broad convex head, small eye, feeble teeth, feeble maxillary and mandible, and by extremely thin and short pyloric appendages, which are not longer than one inch nor thicker than a pigeon’s quill. According to Day a variety of *S*. *fario.*
2. *S. ferox,* Jard. and Selby *(Edinb. New Philos. Journal,* 1835, xviii.). A non-migratory species inhabiting the large lochs of the north of Scotland and several lakes of the north of England, Wales, and Ireland. Præoperculum crescent-shaped, the hinder and lower margins passing into each other without forming an angle. According to Day a variety of *S. fario.*
3. *S. orcadensis,* Günther, from Loch Stennis in Orkney.
4. *S. stomachicus,* Günther (the Gillaroo). From lakes of Ireland. Thick stomach. Feeds on shells *(Limnæus, Ancylus).*
5. *S. nigripinnis,* Günther. Non-migratory species inhabiting mountain pools of Wales, also Lough Melvin, Ireland.

Day mentions also the following varieties of *S. fario:—*

*S. cornubiensis,* Walb., Artedi;

Swaledale trout, from Swaledale, Yorkshire ; and

Crassapuill trout, from Loch Crassapuill, Sutherlandshire.

Many species of *Salmo* exist which are confined to limited areas in the continent of Europe. An account of these is given in the *Brit. Mus. Catalogue,* which also contains references to the literature. One of these, *S. macrostigma,* Duméril, is a non-migratory form occurring in Algeria, and is the southernmost species of the Old World. Three non-migratory species exist in the rivers belonging to the basin of the Adriatic. In the Alpine lakes of central Europe five species are known, which resemble in habits the forms found in British lakes, ascending the streams which feed the lakes, in order to spawn. Two of these species inhabit the Lake of Constance, one the Lake of Geneva. *Fario argenteus,* Cuv. and Val., found in the Atlantic rivers of France, is considered by Dr Günther a distinct species, by Mr Day as a synonym of *S.* *trutta.* One migratory species is known from the Eidfjord river in Norway ; two land-locked species from Lake Wener in Sweden.

The species of *Salmo* belonging to the Pacific Coast of North America have been described by Richards in *Faun. Bor. Amer.,* by Suckley in *Nat. Hist. Washington Territory,* and by Girard in *Proc. Acad. Nat. Sc. Philad.* Only one species need be mentioned here, and that on account of the importance it has acquired in connexion with the work of the United States Fish Commission :—

*Salmo irideus,* Gibbons *(Proc. Cal. Ac. Nat. Sc.,* 1855, p. 36); *Salar iridea,* Girard *(Proc. Acad. Nat. Sc. Philad.,* 1856, p. 220 and *U. S. Pac. R. R. Explor.—Fish,* p. 321, pl. 73, f. 5, and pl. 74) (the Californian, Mountain, or Rainbow Trout). B. 10 ; D. 14 ;

1. 14 ; L. lat. 140. Caudal deeply emarginate. Body and dorsal and caudal fins with numerous small black spots. A non-migratory species in rivers of Upper California.

For the same reason as in the preceding case, the following species of the eastern slope of the North American continent is introduced:—

*Salmo na,maycush,* Penn *(Arct. Zool.,* ii. p. 139), Cuv. and Val. (xxi. p. 348) (Lake Trout). B. 11-12 ; D. 13-14 ; A. 12 ; V. 9 ; L. lat. 220. Præoperculum very short, without lower limb ; head very large. Teeth strong ; those on the vomer persistent through- out life, and in single series. Inhabits all the great lakes of the northern part of North America.

1. Subgenus Salvelinus :—

*Salmo alpinus,* L. (the Charr, Yarrell, *Brit. Fishes,* 3d ed.). D. 13 ; A. 12 ; P. 13 ; V. 10; L. lat. 195-200 ; Vert. 59-62 ; Cæc. pyl. 36-42. Body slightly compressed and elongate. Length of head equal to height of body in mature specimens and two- ninths or one-fifth of total length ; maxillary extends but little beyond the orbit in the fully adult fish. Eye one-half, or less than one-half, of the width of the interorbital space. Teeth of moderate size. Inhabits lakes of Scandinavia, Scotland (Helier Lake, Hoy Island, Orkneys; Sutherlandshire ; Loch Roy, Inver­ness-shire), and probably Iceland.

*S. killinensis,* Günther *(Proc. Zool. Soc.,* 1865, p. 699). D. 14- 15 ; A. 13 ; P. 13 ; V. 9*; L.* lat. 180 ; Vert. 62 ; Cæc. pyl. 44- 52. Head, upper parts, and fins brownish black ; lower parts with an orange-coloured tinge in the male; sides with very small, light, inconspicuous spots. Anterior margins of the lower fins white or light-orange-coloured. Loch Killin, Inverness-shire. Considered by Mr Day as a variety of *S. alpinus.*

*S. willughbii,* Günther *(Proc. Zool. Soc.,* 1862, p. 46, pl. 5) ; Charr, Willughby *(Hist. Pisc.,* p. 196), Penn *(Brit. Zool.),* and Yarrell *(Brit. Fish.,* 3d ed.) (the Charr of Windermere). D. 12- 13 ; A. 12 ; P. 13-14 ; V. 9-10 ; L. lat. 165 ; Vert. 59-62 ; Cæc. pyl. 32-44. Sides with red dots ; belly red ; pectoral, ventral, and anal with white margins. Lake of Windermere ; Loch Bruiach (Scotland). Considered by Mr Day as a variety of *S. alpinus.*

*S. perisii,* Günther *(Ann. and Mag. Nat. Hist.,* 1865, p. 75);

Torgoch, Willughby *(Hist. Pise.)* and Penn *(Brit. Zool.}* (the Torgoch or Red Charr). D. 13 : A. 12 ; P. 12 ; V. 9 ; L. lat. 170 ; Vert. 61 ; Cæc. pyl. 36. Sides with numerous red dots ; belly red in the mature fish ; pectoral, ventral, and anal with white margins. Lakes of North Wales (Llanberris). Considered by Mr Day as a variety of *S. alpinus.*

*S. grayi,* Günther *(Proc. Zool. Soc.,* 1862, p. 51). D. 13 ; A. 12 ; P. 13-14 ; V. 9 ; L. lat. 125 ; Vert. 60 ; Cæc. pyl. 37. Sides with scattered light-orange-coloured dots ; belly uniform silvery whitish, or with a light-red shade ; fins blackish. Lough Melvin, Ireland. Considered by Mr Day as a variety of *S. alpinus.*

*S. colii,* Günther *(Proc. Zool. Soc.,* 1863) (Cole’s Charr, Couch, *Fish. Brit. Isles}.* D. 14; A. 12 ; P. 13 ; V. 9; L. lat. 160; Vert. 63 ; Cæc. pyl. 42. Bluish black above ; sides silvery with scattered light-salmon-coloured dots ; belly reddish ; fins black, the anal and the paired fins with a reddish tinge, the anal and ventrals with a narrow whitish margin. A small species 7 to 8 inches long from Loughs Eske and Dan, Ireland. Considered by Mr Day as a variety of *S.* *alpinus.*

The above are all the British species.

*S. umbla,* L. *(Syst. Nat.),* Cuv. and Val. D. 12; A. 12-13; P. 14 ; V. 9 ; L. lat. 200 ; Vert. 65 ; Cæc. pyl. 36. Commonly called in French *Ombre Chevalier.* Lower parts whitish or but slightly tinged with red. Lakes of Constance, Neuchâtel, and Geneva. Considered by Mr Day as identical with *S. alpinus.* other species have been described from lakes in Europe and Asia, but are imper­fectly known ; for an account of them see Günther’s *Catalogue.*

The following American species of Charr is one of those cultivated by the American Fish Commission :—

*S. (Salvelinus) fontinalis,* Mitch. *(Trans. Lit. and Phil. Soc.,* New York, i. p. 435), Cuv. and Val. (xxi. p. 266) (Brook Trout).

B. 12; D. 12; A. 10; L. lat. 200; Cæc. pyl. 34. No median series of teeth along the hyoid bone. Præoperculum short in longitudinal direction, with the lower limb very indistinct. Rivers and lakes of British North America, and of the northern parts of the United States. Introduced in Britain.

1. Of the genus Osmerus only three species are described in the *Brit. Mus. Cat.,* one of which is British :—

*Osmerus cpcrlanus,* Lacép., Linn. (the Smelt; Fr., *Éperlan ;* Scotch, *Sparling or Spirting).* B. 8 ; D. 11 ; A. 13—16 ; P. 11 ; V. 8 ; L. lat. 60-62 ; L. transverse 7/11 ; Cæc. pyl. 2-6 ; Vert. 60-62. Height of body much less than length of the head, which is a quarter or two-ninths of the total length to base of caudal fin. Snout produced. Vomerine teeth and anterior lingual teeth large, fang-like ; posterior mandibular teeth larger than the anterior ones, which form a double series, the inner series containing stronger teeth than the outer one. Back transparent, greenish ; sides silvery. Adult size 10 or 12 inches. Coasts and numerous fresh waters of northern and central Europe.

*Osmerus viridescens,* Lesueur, another species scarcely distinct from *O. eperlanus,* but with scales a little smaller, occurring on the Atlantic side of the United States.

*Osmerus thaleichthys,* Ayres, occurs abundantly in the Bay of San Francisco.

1. Of Coregonus forty-one species are described in the *Brit. Mus. Cat.* Four species are found in Britain :—
2. oxyrhynchus, Kröyer, Linn., Cuv. and Val. (xxi.). Called the *Houting* in Holland. B. 9 ; D. 14 ; A. 14-15 ; L. lat. 75-81 ; L. transverse 9-10/12; Vert. 58. Snout produced, with the upper jaw protruding beyond the lower, and in adult specimens produced into a fleshy cone. Length of the lower limb of operculum 11/3 to 11/4 times that of the upper. Pectoral as long as the head without snout. Found on coasts and in estuaries of Holland, Germany, Denmark, and Sweden. Captured recently (three specimens only) in Lincolnshire, near Chichester, and at the mouth of the Medway.

*C. clupeoides,* Lacépède ; *C. pennantii,* Cuv. and Val. (the Gwyniad of Lake Bala, Schelly of Ullswater, Powan of Loch Lomond ; sometimes called the Freshwater Herring). B. 9 ; D. 14-15 ; A. 13- 16; L. lat. 73—90: L. transverse 9/11; Cæc. pyl. 120; Vert. 38/20. Snout with upper jaw not produced. Pectoral larger than the head. Fins black or nearly so. Lakes of Great Britain.

*C. vandesius,* Richards *(Faun. Bor. Amer.) ; C. albula,* Cuv. and Val. (the Vendace). D. 11 ; A. 13 ; V. 11 ; L. lat. 68-71 ; L. transverse 8/10; Vert. 56. Castle Loch, Lochmaben in Dumfries­shire.

*C. pollan,* Thompson *(Proc. Zool. Soc.,* 1835), Cuv. and Val. (the Pollan). D. 13-14; A. 12-13; V. 12 ; L. lat. 80-86; L. transverse 9/11; Vert. 60-61. Two jaws of same length. Teeth if present very minute. Bluish along the back, silvery along the sides and beneath. Usual length of adults 10 to 11 inches, maximum 13 inches. Ireland, in Loughs Neagh, Erne, Derg, Corrib, and the Shannon.

Thirty-seven species of *Coregonus* have been distinguished besides these four. Some are migratory ; but the greater number are inhabitants of large lakes. The anadromous species are confined to the Arctic Sea, and the greater number belong to the coast and