

CARL H. EIGENMANN.

FLEHINGEN, GERMANY.
MARCH 9, 1863.

SAN DIEGO, CALIFORNIA.
APRIL 24, 1927.

To Carl H. Eigenmann, teacher, colleague, friend, I address these brief remarks.

Sir: You came to America from Germany while still a boy. You entered Indiana University, where you obtained the degrees of A. B., A. M., and Ph. D. It was while here that you met, among others, David Starr Jordan, who revealed to you the possibilities in the field of Zoology. It was Jordan's enthusiasm and love for the subject which gave you the



CARL H. EIGENMANN.

inspiration. This contact was the spark which kindled the blaze. The materials were already present. The initial stimulus was all that was needed. This fire within you continued to burn brighter and brighter until disease entered, wedge-like, to force you toward the grave. During your active career you accomplished many great things and were the recipient of many honors. You were Professor of Zoology at Indiana University from 1891 to the time of your death. You were Dean of the Graduate School at Indiana University from the time of its organization in 1908, and you were the founder and director of the Biological Station from its beginnings in 1895. During your productive years, you did three things which stand out pre-eminently. The first is your work on the segregation of the sex cells of *Cymatogaster*; the second is your work on the blind vertebrates of North America; and the third your

studies on the fishes of South America. In the two latter fields, you became the leading authority. In recognition of this work you were elected to membership in many scientific societies, including the National Academy. These accomplishments are truly great, but perhaps even greater was your inspiration to students and faculty of Indiana University, to members of this Academy, and to biologists of the State and Nation.

Sir, we regret that you are gone. We miss the friendly smile, the cordial handshake, the witty remark, and the inspiration which your presence always aroused. On the other hand, we rejoice in your many accomplishments and in the fact that your influence will continue.

PAPERS BY CARL H. EIGENMANN.

1. A review of the American Elothridinae. (With Morton W. Fordice.)
Proc. Acad. Nat. Sci. Phila. for 1885, VIII, pp. 55-80. 1886.
2. Notes on skeletons of Etheostomatinae. (With David Starr Jordan.)
Proc. U. S. Nat. Mus., VIII, pp. 68-72. 1886.
3. A catalogue of the fishes of Bean Blossom creek, Monroe county,
Indiana. (With M. W. Fordice.) Proc. Acad. Nat. Sci. Phila.
for 1885, pp. 233-252. 1886.
4. A review of the genera and species of Diodontidae found in Ameri-
can waters. Ann. N. Y. Acad. Sci., III, pp. 297-311. 1885.
5. A review of the American Gasterosteidae. Proc. Acad. Nat. Sci.
Phila. for 1886, pp. 233-252. 1887.
6. A review of the Gobiidae of North America. (With D. S. Jordan.)
Proc. U. S. Nat. Mus., IX, pp. 477-518. Nov., 1886.
7. Folk-lore of a German village. Current, V, No. 124. 1886.
8. A review of the Chaetodontidae of North America. (With Jennie E.
Horning.) Ann. N. Y. Acad. Sci., III, pp. 1-18. 1887.
9. Notes on the specific names of certain North American fishes. Proc.
Acad. Nat. Sci. Phila. for 1887, pp. 295-296. 1887.
10. A review of the North American species of the genera Lagodon,
Archosargus, and Diplodus. (With Elizabeth G. Hughes.) Proc.
U. S. Nat. Mus., X, pp. 65-74. May, 1887.
11. Description of a new species of Ophichthys (*Ophichthys retropinnis*)
from Pensacola, Fla. Proc. U. S. Nat. Mus., X, p. 116.
July, 1888.
12. Notes on a collection of fishes sent by Mr. C. C. Leslie from Charles-
ton, S. C. (With D. S. Jordan.) Proc. U. S. Nat. Mus., X, pp.
269-270. Aug., 1888.
13. A list of the American Globiidae and Callionymidae, with notes on
the specimens contained in the Museum of Comparative Zo-
ology, at Cambridge, Mass. (With R. S. Eigenmann.) Proc.
Calif. Acad. Sci., 2d ser., I, pp. 51-78. Jan., 1888.
14. South American Nematognathi. (With R. S. Eigenmann.) Am.
Nat., XXIII, pp. 647-649. July, 1888.
15. Preliminary notes on South American Nematognathi, I. (With R. S.
Eigenmann.) Proc. Calif. Acad. Sci., 2d ser., I, pp. 119-172.
July, 1888.

16. Notes on some California fishes, with descriptions of two new species. (With R. S. Eigenmann.) Proc. U. S. Nat. Mus., XI, pp. 463-466. Sept., 1888.
17. *Cyprinodon californiensis*, Girard. (With R. S. Eigenmann.) W. Am. Sci., V, pp. 3-4. Sept., 1888.
18. Description of a new species of *Cyprinodon*. (With R. S. Eigenmann.) Calif. Acad. Sci., 2d ser., I, p. 270. Jan., 1889.
19. On the development of California food fishes. Am. Nat. XXIII, pp. 107-110. March, 1889.
20. Preliminary descriptions of new species and genera of Characinidae. (With R. S. Eigenmann.) W. Am. Sci., VI, pp. 7-8. April, 1889.
21. Description of new Nematognathoid fishes from Brazil. (With R. S. Eigenmann.) W. Am. Sci., VI, pp. 8-10. April, 1889.
22. Preliminary notes on South American Nematognathi, II. (With R. S. Eigenmann.) Proc. Calif. Acad. Sci., 2d ser., II, pp. 28-56. Aug., 1889.
23. On the phosphorescent spots of *Porichthys margaritatus*. (With R. S. Eigenmann.) W. Am. Sci., VI, pp. 32-34. May, 1889.
24. Contributions from San Diego Biological Laboratory, I. (With R. S. Eigenmann.) W. Am. Sci., VI, pp. 44-47. June, 1889.
25. Contributions from the San Diego Biological Laboratory, II. On the genesis of the color-cells of fishes. W. Am. Sci., VI, pp. 61-62. July, 1889.
26. Notes from the San Diego Biological Laboratory, I. The fishes of Cortez Banks; additions to the fauna of San Diego; fishes of Aetna springs, Napa county, California; fishes of Allen springs, Lake county, California. (With R. S. Eigenmann.) W. Am. Sci., VI, pp. 123-132. Nov. 9, 1889.
27. A review of the Sciænidæ of America and Europe. (With D. S. Jordan.) Ann. Rep. Com. Fish and Fisheries for 1886, pp. 343-451, 4 plates. 1889.
28. Notes from the San Diego Biological Laboratory, II. The young stages of some selachians. (With R. S. Eigenmann.) W. Am. Sci., VI, pp. 147-151; Am. Nat., XXV, pp. 150-151.
29. A review of the Erythrininæ. (With R. S. Eigenmann.) Proc. Calif. Acad. Sci., 2d ser., II, pp. 100-116, 1 plate. Nov., 1889.
30. A revision of the edentulous genera of Curimatinae. (With R. S. Eigenmann.) Ann. N. Y. Acad. Sci., IV, pp. 1-32. Nov., 1889.
31. On the genus *Clevelandia*. Am. Nat., XXIII, pp. 916-918. Oct., 1889.
32. The development of *Micrometrus aggregatus*, one of the viviparous surf-perches. Am. Nat., XXIII, pp. 923-927. Oct., 1889.
33. Additions to the fauna of San Diego. (With R. S. Eigenmann.) Proc. Calif. Acad. Sci., 2d ser., III, pp. 1-24. March 24, 1890.
34. The evolution of the catfishes. Zoe, I, pp. 10-15. 1890.
35. Description of a fossil species of *Sebastodes*. Zoe, I, p. 16. 1890.
36. On the egg membranes and micropyle of some osseus fishes. Bull. Mus. Comp. Zool., XIX, pp. 129-154, 3 plates. March, 1890.
37. The barracuda. Zoe, I, pp. 55-56. 1890.
38. The Point Loma blind fish and its relatives. Zoe, I, pp. 65-72, 2 plates. 1890.

39. Charles Harvey Bollman. W. Am. Sci., VII, pp. 5-6. 1890.
40. The coloration of fishes. W. Am. Sci., p. 35. 1890.
41. The food fishes of California fresh waters. Rep. State Board Fish Com. Calif. for 1890, pp. 53-65. 1890.
42. A revision of the South American Nematognathi or Catfishes. (With R. S. Eigenmann.) Occasional Paper Calif. Acad. Sci., I, pp. 508, figures, map. July, 1890.
43. Descriptions of new species of Sepastodes. (With R. S. Eigenmann.) Proc. Calif. Acad. Sci., 2d ser., III, pp. 36-38. May 28, 1890.
44. A review of the genera and species of Serranidæ found in the waters of America and Europe. (With D. S. Jordan.) Bull. U. S. Fish Com., VIII, pp. 329-441, 20 plates. 1890.
45. On the precocious segregation of the sex cells in *Micrometrus aggregatus* Gibbons. Jour. Morph., V, pp. 480-492, 1 plate. 1891.
46. A catalogue of the fresh-water fishes of South America. (With R. S. Eigenmann.) Proc. U. S. Nat. Mus., XIV, pp. 1-81. July, 1891.
47. On the genesis of the chromatophores in fishes. Am. Nat., XXV, pp. 112-118, 4 plates. Feb., 1891.
48. The spawning season of San Diego fishes. Am. Nat., XXV, pp. 578-579. June, 1891.
49. *Cottus beldingi*, sp. nov. (With R. S. Eigenmann.) Am. Nat. XXV, pp. 1132-1133. Dec., 1891.
50. A new Diodont. Am. Nat., XXV, p. 1133. Dec., 1891.
51. A catalogue of the fishes of the Pacific coast of America north of Cerros Island. (With R. S. Eigenmann.) Ann. N. Y. Acad. Sci., VI, pp. 349-358. June, 1892.
52. The fishes of San Diego. Proc. U. S. Nat. Mus., XV, pp. 123-178, 9 plates. Aug., 1893.
53. *Branchiostoma elongatum* Sundevall, at San Diego. Am. Nat., XXVI, p. 70. Jan., 1892.
54. On the presence of an operculum in the Aspredinidæ (abstract). Am. Nat., XXVI, p. 70. Proc. Ind. Acad. Sci. for 1891, p. 175. Jan., 1892.
55. The Percopsidæ on the Pacific slope. Sci., p. 233. 1892.
56. Recent additions to the fauna of California. (With R. S. Eigenmann.) Abstract. Ind. Acad. Sci. for 1891, pp. 159-161. 1892.
57. New fishes from Western Canada. (With R. S. Eigenmann.) Am. Nat., XXVI, pp. 961-964. Nov., 1892.
58. The continuity of the germ plasm in vertebrates. Proc. Ind. Acad. Sci. for 1891, pp. 169-172. 1892.
59. The eyes of blind fishes. Proc. Ind. Acad. Sci. for 1891, p. 175. 1892.
60. Biological stations. Proc. Ind. Acad. Sci. for 1891, pp. 172-175. 1892.
61. Preliminary description of new fishes from the Northwest. (With R. S. Eigenmann.) Am. Nat., XXVII, pp. 151-154. Feb., 1893.
62. On the occurrence of the spiny box-fish (genus *Chilomycterus*) on the coast of California. Proc. U. S. Nat. Mus., XV, p. 485, 1 plate. July, 1893.
63. Catalogue of the fresh-water fishes of Central America and Southern Mexico. Proc. U. S. Nat. Mus. for 1893, XVI, pp. 53-60. 1893.

64. Preliminary note on the relationship of the species usually united under the generic name *Sebastodes*. (With C. H. Beeson.) *Am. Nat.*, XXVII, pp. 668-671. July, 1893.
65. Early stages in the development of *Cymatogaster*. *Proc. Ind. Acad. Sci. for 1892*, pp. 58-62. 1893.
66. Explorations in Western Canada. *Proc. Ind. Acad. Sci. for 1892*, p. 56. 1893.
67. Local variations. *Proc. Ind. Acad. Sci. for 1892*, p. 81. 1893.
68. A revision of the American Cichlidæ. (With William L. Bray.) *Ann. N. Y. Acad. Sci.*, VII, pp. 607-624. Jan., 1894.
69. Notes on some South American fishes. *Ann. N. Y. Acad. Sci.*, VII, pp. 625-637. Feb., 1894.
70. On the viviparous fishes of the Pacific coast of North America. *Bull. U. S. Fish Com. for 1892*, pp. 381-478, 27 plates. 1894.
71. Results of explorations in Western Canada and Northwestern United States. *Bull. U. S. Fish Com. for 1894*, pp. 101-132, 4 plates. July 7, 1894.
72. Biological survey of Indiana: zoology. *Proc. Ind. Acad. Sci. for 1893*, pp. 67-76. Aug., 1894.
73. The effect of environment on the mass of local species. *Proc. Ind. Acad. Sci. for 1893*, pp. 226-229. Aug., 1894.
74. A revision of the fishes of the sub-family *Sebastinæ* of the Pacific coast of America. (With C. H. Beeson.) *Proc. U. S. Nat. Mus.*, XVII, pp. 375-407. 1894.
75. The fishes of Indiana. Report of the Indiana State Biological Survey. (With C. H. Beeson.) *Proc. Ind. Acad. Sci. for 1893*, pp. 76-108. 1894.
76. The fishes of Indiana. Reprinted from *Proc. Ind. Acad. Sci. for 1893*. *Rep. Ind. State Fish Com. for 1894*, pp. 40-64. 1894.
77. Names and locations of Indiana streams. *Rep. State Fish Com. Ind. for 1894*, pp. 65-79. 1894.
78. *Pteropodus dallii*, n. sp. *Am. Nat.*, 1894, p. 66. 1894.
79. *Leuciscus balteatus* (Richardson). A study in variation. *Am. Nat.*, XXIX, pp. 10-25, 5 plates, Jan., 1895; *Proc. Ind. Acad. Sci. for 1894*, pp. 87-99. 1895.
80. Development of sexual organs in *Cymatogaster*. *Proc. Ind. Acad. Sci. for 1894*, p. 138. Oct., 1895.
81. A new biological station and its aim. *Proc. Ind. Acad. Sci. for 1894*, pp. 34-35. Oct., 1895.
82. First report of the Indiana University Biological Station. Pt. I, Turkey lake as a unit of environment, pp. 209-239. Pt. II, The inhabitants of Turkey lake, pp. 239-264. Pt. III, Variation, pp. 265-296. *Proc. Ind. Acad. Sci. for 1895*, plates. Feb., 1896.
83. The bearing of the origin and differentiation of the sex cells in *Cymatogaster* on the idea of the continuity of the germ plasm. *Am. Nat.*, XXX, pp. 265-271. April, 1896.
84. Sex differentiation in the viviparous teleost *Cymatogaster*. *Archiv f. Entwicklungsmechanik*, IV, pp. 125-179, 6 plates, April, 1896. Abstract in *Trans. Am. Micr. Soc.*, XVII, pp. 172-173. 1896.
85. *Steindachneria*. *Am. Nat.*, XXXI, pp. 158-159. 1897.

86. Viviparous fishes. Overland Mo., 1899, pp. 217-224. 1899.
87. The Amblyopsidæ, the blind fish of America. Rep. Brit. Asso. for 1897, pp. 685-686. 1898.
88. The origin of cave faunas (abstract). Ind. Acad. Sci. for 1897, pp. 229-230. 1898.
89. The Amblyopsidæ and eyes of blind fishes (abstract). Proc. Ind. Acad. Sci. for 1897, pp. 230-231. 1898.
90. A new blind fish. Proc. Ind. Acad. Sci. for 1897, p. 231. 1898.
91. A case of convergence. Sci., N. S., IX, No. 217, 280-282 (Feb., 1899); Proc. Ind. Acad. Sci. for 1898, pp. 247-257. 1899.
92. Biological stations. Ind. Woman. April, 1898.
93. The Indiana University Biological Station. Sci., N. S., X, pp. 925-929 (Dec. 22, 1899); Inland Educ. for 1900, pp. 61-65, figures. 1899.
94. Plans for the new buildings of the Biological Station. Proc. Ind. Acad. Sci. for 1898, pp. 55-58. 1899.
95. Explorations in the caves of Missouri and Kentucky. Proc. Ind. Acad. Sci. for 1898, pp. 58-61. 1899.
96. The blind fishes of North America. Pop. Sci. Mo., LVI, pp. 473-486. Feb., 1899.
97. The eyes of the blind vertebrates of North America, I. The eyes of the Amblyopsidæ. Archiv f. Entwicklungsmechanik, VIII, pp. 545-617, 5 plates. March, 1899.
98. Notes on the blind fishes. Sci., N. S., IX, p. 370. March 10, 1899.
99. Preliminary notes upon the arrangement of rods and cones in the retina of fishes. (With George Hansell.) Proc. Ind. Acad. Sci. for 1898, p. 239. 1899.
100. Degeneration in the eyes of the Amblyopsidæ, its plan, process and causes. Proc. Ind. Acad. Sci. for 1898, pp. 239-241. 1899.
101. The ear and the hearing of the blind fishes. (With Albert C. Yoder.) Proc. Ind. Acad. Sci. for 1898, pp. 242-247, 2 plates. 1899.
102. *Chologaster agassizii* and its eyes. Proc. Ind. Acad. Sci. for 1898, p. 251. 1899.
103. The eye of Typhlomolge from the artesian wells of San Marcos, Tex. (abstract). Proc. Ind. Acad. Sci. for 1898, p. 251. 1899.
104. The eyes of *Typhlotriton spelæus* (abstract). (With W. A. Denny.) Proc. Ind. Acad. Sci. for 1898, pp. 252-253. 1899.
105. The blind rat of Mammoth cave. (With James Roll'n Slonaker.) Proc. Ind. Acad. Sci. for 1898, pp. 253-257, figures. 1899.
106. Cave animals, their character, origin, and their evidence for or against the transmission of acquired characters. Sci. N. S., X, p. 883. Dec. 15, 1899.
107. The blind fishes. Biol. Lectures Marine Biol. Lab. of Woods Hole for 1899, pp. 113-126. 1900.
108. The mosaic of single and twin cones in the retina of fishes. (With George Daniel Shafer.) Am. Nat., XXXIV, pp. 109-118, 1 plate. Feb., 1900.

109. Degeneration in the eyes of the cold-blooded vertebrates of the North American caves. *Sci., N. S.*, XI, pp. 492-503, figures. March 30, 1900.
110. The structure of blind fishes. *Pop. Sci. Mo.*, LVII, pp. 48-58. May, 1900.
111. The eyes of blind vertebrates of North America, II. The eyes of *Typhlomolge rathbuni* Stejneger. *Trans. Am. Micr. Soc.*, XXI, pp. 49-60, 2 plates. May, 1900.
112. Causes of degeneration in blind fishes. *Pop. Sci. Mo.*, LVII, pp. 397-407. Aug., 1900.
113. Some cases of saltatory variation. (With Ulysses Cox.) *Sci., N. S.*, XII, p. 300. Aug. 24, 1900.
114. A contribution to the fauna of the caves of Texas. *Sci., N. S.*, XII, p. 301. Aug. 24, 1900.
115. Sobre alguns peixes de Sao Paulo, Brazil. (With Allen A. Norris.) *Revista do Museu Paulista*, IV, pp. 349-362. 1900.
116. Degeneration in the eyes of the cold-blooded vertebrates of the North American caves. *Proc. Ind. Acad. Sci. for 1899*, pp. 31-46, illustrations. 1900.
117. Convergent evolution as illustrated by the blind lizard *Rhineura*. *Sci., N. S.*, XII, p. 302. Aug., 1900.
118. The development of the eyes in the blind-fish *Amblyopsis*. *Proc. Am. Asso. Adv. Sci.*, 1900, p. 230; *Sci., N. S.*, XII, p. 302. 1900.
119. The eyes of the cave salamander *Typhlotriton*. *Sci., N. S.*, XII, p. 302. Aug. 24, 1900.
120. The development of the Conger eel. *Sci., N. S.*, XII, pp. 401-402. Sept. 14, 1900.
121. The eyes of the blind vertebrates of North America, III. The structure and ontogenic degeneration of the eyes of the Missouri cave salamander. (With Winfield Augustus Denny.) *Biol. Bull.*, II, pp. 33-40, 1 plate. Oct., 1900.
122. Description of a new cave salamander, *Sperlerpes stejnegeri*, from the caves of southwestern Missouri. *Trans. Am. Micr. Soc.*, XXII, pp. 189-192, 2 plates (1900); abstract, *Proc. Ind. Acad. Sci. for 1900*, p. 167 (1901). 1900.
123. Some cases of saltatory variation. (With U. O. Cox.) *Am. Nat.*, XXXV, pp. 33-38. Jan., 1901.
124. Bergiaria. (With Allen A. Norris.) *Com. Mus. Nac. Buenos Aires*, 1, p. 272. March 18, 1901.
125. Unilateral coloration with a bilateral effect. (With Clarence Kennedy.) *Sci.*, XIII, pp. 828-830. 1901.
126. Description of a new oceanic fish (*Psenes edwardsii*, n. sp.) found off southern New England. *Bull. U. S. Fish Com.*, XXI, p. 35 (1901); abstract, *Proc. Ind. Acad. Sci. for 1900*, p. 166. 1901.
127. The egg and development of the Conger eel (*Leptocephalus conger*). *Bull. U. S. Fish Com.*, XXI, pp. 37-44, illustrations (1901); abstract, *Proc. Ind. Acad. Sci. for 1900*, pp. 165-166. 1901.

128. Investigations into the history of the young Squeteague (*Cynoscion regalis*). Bull. U. S. Fish Com., XXI, pp. 45-51, illustrations (1901); abstract, Proc. Ind. Acad. Sci. for 1900, p. 166. 1902.
129. The Leptocephalus of the American eel and other American Leptocephalia. (With Clarence Hamilton Kennedy.) Bull. U. S. Fish Com., XXI, pp. 81-92, illustrations (1901); abstract, Sci., N. S. XIV, p. 631 (Oct. 25, 1901). 1901.
130. The mounting of the remains of *Megalonyx jeffersoni* from Henderson, Ky. Proc. Ind. Acad. Sci. for 1900, p. 166. 1901.
131. The solution of the eel question. Trans. Am. Micr. Soc., XXIII, pp. 5-18, 4 plates; Sci., N. S., XV, p. 636. 1902.
132. The physical basis of heredity. Pop. Sci. Mo., LXI, pp. 32-44, illustrations. May, 1902.
133. The blind fish of Cuba. Sci., N. S., XVI, p. 347; Carnegie Institution Year Book, Washington, D. C., 1904, No. 2, p. xlii. Aug. 29, 1902.
134. The Carnegie institution. Sci., N. S., XVI, pp. 792-793. Nov. 14, 1902.
135. The eyes of the blind vertebrates of North America, IV. The eyes of *Rhineura floridana*. Proc. Wash. Acad. Sci., IV, pp. 533-548, 3 plates (Sept. 1902); abstracts, Proc. Ind. Acad. Sci. for 1901, p. 107 (1902); Sci., N. S., XIV, p. 631 (Oct. 25, 1901). 1901, 1902.
136. The history of the eye of Amblyopsis (abstracts). Proc. Ind. Acad. Sci. for 1901, pp. 101-105 (1902); Sci., N. S., XIV, p. 631 (Oct. 25, 1901); Sci., N. S., XV, pp. 523-524. 1901, 1902.
137. Zoological miscellany. Proc. Ind. Acad. Sci. for 1901, pp. 107-113. 1902.
138. The solution of the eel problem. World Today, IV, pp. 478-482. April, 1903.
139. In search of blind fishes in Cuba. World Today, V, pp. 1131-1136, illustrations. Sept., 1903.
140. Auf der Suche nach blinden Fischen in Cuba. Die Umschau, VII, pp. 365-367. May 2, 1903.
141. Variation notes. (With C. H. Kennedy.) Biol. Bull., IV, pp. 227-230. April, 1903.
142. Report on the fresh-water fishes of western Cuba. Bull. U. S. Fish Com. for 1902, pp. 211-236, 4 plates. July, 1903.
143. The water supply of Havana, Cuba. Sci., N. S., XVIII, pp. 281-282 (Aug. 28, 1903); Proc. Ind. Acad. Sci. for 1902, pp. 65-67. 1903.
144. On a collection of fishes from Paraguay with a synopsis of the American genera of cichlids. (With C. H. Kennedy.) Proc. Acad. Sci. Phila. for 1903, pp. 497-537. Sept., 1903.
145. Some new genera of South American fresh-water fishes and new names for some old genera. Smithson. Miscel. Collect., XLV, pp. 144-148. Dec., 1903.
146. The eyes of the blind vertebrates of North America, V. The history of the eye of Amblyopsis from the beginning of its development to its disintegration in old age. E. L. Mark anniversary volume, pp. 167-204, plates xii-xv; abstract, Proc. Ind. Acad. Sci. for 1901, pp. 101-105. 1904.

147. On a *Leptocephalus* of the Conger eel. *Sci., N. S., XIX*, pp. 629-630, figures. 1904.
148. Divergence and convergence in fishes. *Biol. Bull. Woods Hole, VIII*, pp. 59-66, 4 figures. 1905.
149. The mailed cat-fishes of South America (*Loricariidae*). *Sci., N. S., XXI*, pp. 792-795. 1905.
150. The *Gymnotidae*. (Joint author with David Perkins Ward). *Proc. Wash. Acad. Sci., VII*, pp. 159-188, plates vii-xi. June 20, 1905.
151. The fishes of Panama. *Sci., N. S., XXII*, pp. 18-20. July 7, 1905.
152. Fresh-water fishes of South and Middle America. *Pop. Sci. Mo., June, 1906*, pp. 515-530. 1906.
153. The Smithsonian Institution and research. *Sci., N. S., XXIV*, pp. 553-556. Nov. 2, 1906.
154. An account of Amazon river fishes collected by J. B. Steere, with a note on *Pimelodus clarias*. (With Barton A. Bean.) *Proc. U. S. Nat. Mus., XXXI*, pp. 659-668, 5 figures. Jan. 16, 1907.
155. On a collection of fishes from Buenos Aires. *Proc. Wash. Acad. Sci., VIII*, pp. 449-458, plates xxi-xxiii. March 4, 1907.
156. The *Poeciliid* fishes of Rio Grande do Sul and the La Plata Basin. *Proc. U. S. Nat. Mus., XXXII*, pp. 425-433, 11 figures. May 23, 1907.
157. An annotated list of characin fishes in the United States National Museum and the Museum of Indiana University, with descriptions of new species. (With Fletcher Ogle.) *Proc. U. S. Nat. Mus., XXXIII*, pp. 1-36. Sept. 10, 1907.
158. Review of Fowler's 'Heterognathous fishes', with a note on the *Stethaprioninae*. *Am. Nat. XLI*, pp. 767-772. Dec., 1907.
159. On further collections of fishes from Paraguay. (With Waldo L. McAtee and David Perkins Ward.) *Ann. Carnegie Mus., IV*, pp. 110-157, plates xxxi-xlv. 1907.
160. Preliminary descriptions of new genera and species of *Tetragonopterid* characins. *Bull. Mus. Comp. Zool., LII*, pp. 93-106. Dec., 1908.
161. Adaptation. (In 'Fifty years of Darwinism,' pp. 182-208, plates iii and iv. Henry Holt and Co.) May, 1909.
162. The fresh-water fishes of Patagonia and an examination of the *Archiplata-Archhelenis* theory. *Rep. Princeton Univ. Exped. Patagonia, 1896 to 1899, Zool., III*, pp. 225-374, plates xxx-xxxvi, 2 maps. 1909.
163. Cave vertebrates of North America: a study in degenerative evolution. *Publ. of the Carnegie Institution, No. 104*, p. 341, frontispiece, plates A and 1-29. June 9, 1909.
164. Reports on the expedition to British Guiana of the Indiana University and the Carnegie Museum, 1908, *Rep. No. 1*. Some new genera and species of fishes from British Guiana. *Ann. Carnegie Mus., VI*, pp. 4-54. Aug. 17, 1909.
165. Catalogue of the fresh-water fishes of tropical and south temperate America. *Rep. Princeton Univ. Exped. Patagonia, 1896 to 1899, Zoology, III*, pp. 375-511. Feb. 12, 1910.

166. Description of two new Tetragonopterid fishes in the British museum. *Ann. and Mag. Nat. Hist.*, Ser. 8, VII, pp. 215-217.
Feb., 1911.
167. New characins in the collection of the Carnegie Museum. *Ann. Carnegie Mus.*, VIII, pp. 164-181, plates iv-ix. Dec., 1911.
168. Description of a new species of *Pygidium*. *Ann. Carnegie Mus.*, p. 214, plate xxxii. 1911.
169. A list of localities at which Mr. Haseman collected. *Ann. Carnegie Mus.*, VII, pp. 299-314. Oct., 1911.
170. The fresh-water fishes of British Guiana, including a study of the ecological groupings of species, and the relation of the fauna of the plateau to that of the lowlands. *Mem. Carnegie Mus.*, V, pp. xx, 578, plates A and i-ciii. Aug., 1912.
171. The Cuban blind fishes. *Proc. 7th Internat. Zool. Congr.*, Boston, 1907, pp. 697-698. 1912.
172. The origin of the fish-fauna of the fresh waters of South America. *Proc. 7th Internat. Zool. Congr.*, Boston, 1907, pp. 958-959. 1912.
173. Some results from an ichthyological reconnaissance of Colombia, South America, I. *Ind. Univ. Studies*, No. 16, p. 27.
Dec. 23, 1912.
174. A naturalist in British Guiana. *Outdoor World and Recreation*, XLVIII, No. 5, pp. 250-251. April, 1913.
175. Some results from an ichthyological reconnaissance of Colombia, South America, II. *Ind. Univ. Studies*, No. 18, p. 32.
June, 1913.
176. On two new species of fishes collected by Miss Lola Vance in Peru. *Ann. Carnegie Mus.*, VIII, pp. 421-422. May 5, 1913.
177. The fishes of South America. *Bull. Pan-American Union XXXVII*, No. 6, pp. 781-800, 18 figures. Dec., 1913.
178. Los peces de Sud America. *Boletin de la Union Panamericana*, XXXVIII, No. 1, pp. 1-21. 1914.
179. New fishes from western Colombia, Ecuador, and Peru. (With Arthur Henn and Charles Wilson.) *Ind. Univ. Studies*, No. 19, p. 15. Jan., 1914.
180. Some results from studies of South American fishes. *Ind. Univ. Studies*, No. 20, pp. 18-48. April, 1914.
181. On new species of fishes from the Rio Meta basin of eastern Colombia and on albino or blind fishes from near Bogota. *Ind. Univ. Studies*, No. 23, pp. 229-230. Sept., 1914.
182. On new species of fishes from Colombia, Ecuador, and Brazil. (With Arthur Henn.) *Ind. Univ. Studies*, No. 24, pp. 231-234.
Sept., 1914.
183. The Gymnotidae of transandean Colombia and Ecuador. (With Homer G. Fisher.) *Ind. Univ. Studies*, No. 25, pp. 235-237.
Sept., 1914.
184. The Cheirodontinae, a sub-family of minute characid fishes of South America. *Mem. Carnegie Mus.*, VII, pp. 1-90. Dec. 20, 1915.
185. The Serrasalminae and Mylinae. *Ann. Carnegie Mus.*, IX, pp. 226-272.
June 1, 1915.

186. Description of a new *Sphagbranchus* from the Bahamas. Ann. Carnegie Mus., X, pp. 55-56. Jan. 31, 1916.
187. On *Apareiodon*, a new genus of characid fishes. Ann. Carnegie Mus., X, pp. 71-76. Jan. 31, 1916.
188. New and rare fishes from South American rivers. Ann. Carnegie Mus., X, pp. 77-86. Jan. 31, 1916.
189. Description of three new species of characid fishes. (With Arthur W. Henn.) Ann. Carnegie Mus., X, pp. 87-90. Jan. 31, 1916.
190. On the species of *Salminus*. Ann. Carnegie Mus., X, pp. 91-92. Jan. 31, 1916.
191. Some species of *Farlowella*. (With Lola Vance.) Ann. Carnegie Mus., XI, pp. 297-303. March, 1917.
192. *Pimelodella* and *Typhlobagrus*. Mem. Carnegie Mus., VII, pp. 229-258. April, 1917.
193. The American Characidae. Mem. Mus. Comp. Zool., Harvard Coll. XLIII, Pt. 1, pp. 1-102, plates 1-8, 12, 14, 15, 16, 95, 98, 100, 101. Aug., 1917.
194. On some species of *Rhandia*, a genus of South American Siluridae, in the Carnegie Museum. (With Homer G. Fisher.) Ann. Carnegie Mus., XI, pp. 394-397. Nov., 1917.
195. New and rare species of South American Siluridae in the Carnegie Museum. Ann. Carnegie Mus., XI, pp. 394-404. Nov. 3, 1917.
196. Eighteen new species of fishes from northwestern South America. Proc. Am. Phil. Soc., LVI, pp. 674-689. 1917.
197. Descriptions of sixteen new species of Pygidiidae. Proc. Am. Phil. Soc., LVI, pp. 690-703. 1917.
198. The homes of blind fishes. The Geographical Rev., IV, No. 3, pp. 171-182. Sept., 1917.
199. The American Characidae. Mem. Mus. Comp. Zool., Harvard Coll., XLIII, Pt. 2, pp. 103-208, plates 9, 10, 11, 13, 17 to 29, 33, 78 to 80, 93. Jan., 1918.
200. The Irwin expedition. Sci., N. S., XLVIII, pp. 108-109. Aug. 2, 1918.
201. The aquatic vertebrates. (In Ward and Whipple's 'Fresh-water biology', pp. 1021-1066.) 1918.
202. The Pygidiidae, a family of South American cat-fishes. Mem. Carnegie Mus., VII, pp. 259-373, plates xxvi to lvi. Sept., 1918.
203. The Pygidiidae. Proc. Ind. Acad. Sci. for 1917, pp. 59-66. Sept., 1918.
204. The Irwin expedition. Sci., N. S., L, pp. 100-102. Aug. 1, 1919.
205. *Trogloglanis Pattersoni*, a new blind fish from San Antonio, Tex. Proc. Am. Phil. Soc., LVIII, pp. 397-400. 1919.
206. *Steindachneridion*. (With Rosa Smith Eigenmann.) Sci., N. S., L., pp. 525-526. Dec. 5, 1919.
207. The Irwin expedition to Peru, Bolivia, and Chile. Ind. Univ. Alum. Quart., VII, No. 1, pp. 1-16. Jan., 1920.
208. Limits of the genera *Vandellia* and *Urinophilus*. Sci., N. S., LI, p. 441. April 30, 1920.

209. The fishes of Lake Valencia, Caracas, and the Rio Tuy at El Concejo, Venezuela. *Ind. Univ. Studies*, VII, No. 44, p. 13, 3 plates, 3 text-figures. June 1, 1920.
210. The fish fauna of the Cordillera of Bogota. *Jour. Wash. Acad. Sci.*, X, pp. 461-468. Oct., 1920.
211. South America west of the Maracaibo, Orinoco, Amazon, and Titi-caca basins, and the horizontal distribution of its fresh-water fishes. *Ind. Univ. Studies*, VII, No. 45, p. 24. Dec., 1920.
212. The fishes of the rivers draining the western slope of the Cordillera Occidental of Colombia, Rios Atrato, San Juan, Dagua, and Patia. *Ind. Univ. Studies*, VII, No. 46, p. 19. Dec., 1920.
213. The fresh-water fishes of Panama east of longitude 80° N. *Ind. Univ. Studies*, VII, No. 47A, p. 19. Dec., 1920.
214. The Magdalena basin and the horizontal and vertical distribution of its fishes. *Ind. Univ. Studies*, VII, No. 47B, p. 15. Dec., 1920.
215. The origin and distribution of the genera of the fishes of South America west of the Maracaibo, Orinoco, Amazon, and Titicaca basins. *Proc. Am. Philos. Soc.*, LX, pp. 1-6. 1921.
216. The nature and origin of the fishes of the Pacific slope of Ecuador, Peru and Chile. *Proc. Am. Philos. Soc.*, LX, pp. 503-522. 1921.
217. A leaf mimicking fish. *Biol. Bull.*, XLI, pp. 301-305. 1921.
218. The American Characidae. *Mem. Mus. Comp. Zool.*, Harvard Col., XLIII, Pt. 3, pp. 209 to 310, plates 30 to 32, 40 to 55, 61, 62, 64, 66, 69, 85, 87, 89, 92. July, 1921.
219. The fishes of western South America. Pt. I. The fresh-water fishes of northwestern South America, including Colombia, Panama, and the Pacific slopes of Ecuador and Peru, together with an appendix upon the fishes of the Rio Meta in Colombia. *Mem. Carnegie Mus.*, IX, pp. 1-346, plates i-xxxviii. Oct., 1922.
220. Yellow fever and fishes. *Proc. Am. Philos. Soc.*, LXI, pp. 204-210. 1922.
221. A new genus and two new species for Max Weber volume. *Pygidiidae*.
222. Yellow Fever and fishes in Colombia. *Proc. Am. Philos. Soc.* 1924.
223. A review of the Doradidae, a family of South American Nematognathi, or catfishes. *Trans. Am. Philosophical Soc.*, XXII, Pt. 5. 1925.
224. The American Characidae. *Mem. Mus. Comp. Zool.*, Harvard Col., XLIII, Pt. 4, pp. 311-428, plates 34 to 39, 56, 58 to 60, 65, 67, 68, 75 to 77, 84, 86, 88, 90, 91, 96, 97, 99. May, 1927.
225. The Fresh-Water Fishes of Chile. *Mem. Nat. Acad. Sci.*, Second Mem., XXII, pp. 1-81, plates I-XVI. 1927.

FERNANDUS PAYNE,
Indiana University.