

ILLUSTRATIONS.

PLATES.

	Facing page.
GOLDEN TROUT OF THE SOUTHERN HIGH SIERRAS:	
Plate I. Golden trout of Volcano Creek, <i>Salmo roosevelti</i>	3
II. (1) Marble Fork of Kaweah River. (2) South Fork of Kaweah River. (3) South Fork of Kaweah River.....	4
III. (4) Middle Tule River. (5) First series of falls in Little Kern River. (6) Upper part of first series of falls in Little Kern River.....	6
IV. (7) View upstream from sandspit at head of Kern Lake. (8) Kern Lake from near its head. (9) Wet Meadow Creek.....	8
V. (10) Looking up Kern Lake from a point near outlet on west side. (11) Looking up Kern River from sandspit at upper end of Kern Lake. (12) Alluvial ridge separating Volcano Creek and South Fork of Kern. (13) Tunnel connecting Volcano Creek and South Fork of Kern.....	8
VI. (14) View of upper Kern River Canyon. (15) Toowa Valley. (16) Meadow at Siberian Outpost.....	8
VII. (17) Coyote Creek, showing second and third falls. (18) Broder Falls, Coyote Creek. (19) Fourth falls in Coyote Creek.....	8
VIII. (20) Fifth falls, Coyote Creek. (21) Volcano Creek. (22) Shields Falls, Volcano Creek.....	10
IX. (23) Langley's Camp and small lakes at end of horse trail, base of Mount Whitney. (24) Looking northwest from Mount Whitney. (25) Cliffs south of Langley's Camp, base of Mount Whitney.....	10
X. (26) Whitney Creek as it enters Crabtree Meadow. (27) Whitney Falls in Whitney Creek. (28) Mouth of Volcano Creek Canyon and floor of Upper Kern Canyon.....	12
XI. (29) View north-northwest from Siberian Outpost. (30) Toowa Valley. (31) South side of Toowa Valley.....	12
XII. (32) Agua-bonita Falls, Volcano Creek. (33) Stewart Falls, Volcano Creek.....	14
XIII. (34) Surby Falls, Volcano Creek. (35) Twin Falls, Volcano Creek. (36) View down Kern Canyon.....	14
XIV. (37) Natural bridge over small tributary of Volcano Creek. (38) View from slope above camp at Siberian Outpost. (39) Basaltic cliff at first crossing of trail over Volcano Creek.....	14
XV. Kern River trout, <i>Salmo gilberti</i>	18
XVI. Golden trout of Soda Creek, <i>Salmo whitei</i>	20
XVII. Map of Kern River region.....	52
OPISTHOBRANCHIATE MOLLUSCA FROM MONTEREY BAY AND VICINITY:	
Plate XVIII. (1-5) <i>Archidoris montereyensis</i> . (6-11) <i>Anisodoris nobilis</i> . (12-17) <i>Discodoris heathi</i> . (18-21) <i>Rostanga pulchra</i> . (22-24) <i>Dialula sandiegensis</i> . (25-26) <i>Aldisa sanguinea</i> . (27-31) <i>Cadlina marginata</i>	152
XIX. (32-37) <i>Cadlina flavomaculata</i> . (38-40) <i>Doriopsis fulva</i> . (41-44) <i>Ægires albopunctatus</i> . (45-50) <i>Laila cockerelli</i> . (51-55) <i>Triopha carpenteri</i> . (55a-59) <i>Triopha maculata</i> . (60-64) <i>Triopha grandis</i>	152
XX. (65-72) <i>Polycera atra</i> . (73-80) <i>Acanthodoris hudsoni</i> . (81-88) <i>Acanthodoris brunnea</i> . (89-92) <i>Ancula pacifica</i>	152
XXI. (93-96) <i>Ancula pacifica</i> . (97-103) <i>Hopkinsia rosacea</i> . (104) <i>Acanthodoris brunnea</i> . (105, 111) <i>Polycera atra</i> . (106-107) <i>Triopha maculata</i> . (108, 113) <i>Triopha carpenteri</i> . (109) <i>Rostanga pulchra</i> . (110) <i>Cadlina flavomaculata</i> . (112, 114) <i>Aldisa sanguinea</i>	152
XXII. (1-2) <i>Anisodoris nobilis</i> . (3) <i>Doriopsis fulva</i>	152
XXIII. (4) <i>Archidoris montereyensis</i> . (5) <i>Dialula sandiegensis</i> . (6) <i>Discodoris heathi</i>	152
XXIV. (7) <i>Aldisa sanguinea</i> . (8) <i>Rostanga pulchra</i>	152
XXV. (9) <i>Cadlina flavomaculata</i> . (10-12) <i>Cadlina marginata</i>	152
XXVI. (13-14) <i>Chromodoris porterae</i>	152
XXVII. (15) <i>Laila cockerelli</i> . (16-17) <i>Triopha carpenteri</i>	152
XXVIII. (18) <i>Triopha maculata</i> . (19) <i>Triopha grandis</i>	152
XXIX. (20-21) <i>Acanthodoris brunnea</i> . (22) <i>Polycera atra</i>	152
XXX. (23) <i>Ancula pacifica</i>	152
XXXI. (24-25) <i>Hopkinsia rosacea</i>	152
HIRUDINEA AND OLIGOCHÆTA OF THE GREAT LAKES REGION:	
Plate XXXII. Lake Erie leeches.....	172

FISHES OF SAMOA:

	Facing page.
Plate XXXIII. <i>Callyodon abacurus</i>	324
XXXIV. <i>Callyodon fumifrons</i>	326
XXXV. <i>Tetraodon nigropunctatus</i>	370
XXXVI. (1) <i>Asterropteryx semipunctatus</i> . (2) <i>Heteroleotris clara</i> . (3) <i>Heteroleotris phaenna</i>	392
XXXVII. (1) <i>Vitreola sagitta</i> . (2) <i>Rhinogobius neophytus</i> . (3) <i>Chænogobius erythroptus</i>	400
XXXVIII. (1) <i>Archamia lineolata</i> . (2) <i>Grammistes sexlineatus</i> . (3) <i>Pharopteryx melas</i>	456
XXXIX. <i>Oceanops latovittata</i>	456
XL. (1) <i>Pomacentrus pavo</i> . (2) <i>Pomacentrus vaiuli</i>	456
XLI. (1) <i>Abudefduf celestinus</i> . (2) <i>Abudefduf dicki</i>	456
XLII. (1) <i>Abudefduf amabilis</i> . (2) <i>Abudefduf antjerius</i>	456
XLIII. (1) <i>Abudefduf leucopomus</i> . (2) <i>Abudefduf uniozellatus</i> . (3) <i>Abudefduf taupou</i>	456
XLIV. (1) <i>Chromis cæruleus</i> . (2) <i>Pseudocheilinus hexatænia</i>	456
XLV. (1) <i>Stethojulis casturi</i> . (2) <i>Stethojulis bandanensis</i> . (3) <i>Leptojuilis pardalis</i>	456
XLVI. (1) <i>PlatyGLOSSUS marginatus</i> . (2) <i>PlatyGLOSSUS flos-coralis</i> . (2) <i>Halichæres centiquadrus</i>	456
XLVII. (1) <i>Halichæres trimaculatus</i> . (2) <i>Halichæres dædalma</i> . (3) <i>Halichæres opercularis</i>	456
XLVIII. (1) <i>Callyodon spilonotus</i> . (2) <i>Callyodon prasiognathus</i> . (3) <i>Callyodon maoricus</i>	456
XLIX. <i>Callyodon latak</i>	456
L. (1) <i>Megaprotodon trifasciatus</i> . (2) <i>Oxymonacanthus longirostris</i>	456
LI. <i>Pterois volitans</i>	456
LII. (1) <i>Dendrochirus sausaulele</i> . (2) <i>Valenciænnea violifera</i>	456
LIII. (1) <i>Kelloggella cardinalis</i> . (2) <i>Synchiropus lili</i> . (3) <i>Petroscirtes atrodorsalis</i>	456

TEXT FIGURES.

	Page.	FISHES OF SAMOA—Continued.	Page.
PHYSIOLOGICAL EFFECTS UPON FISHES OF CHANGES IN DENSITY AND SALINITY OF WATER:		27. <i>Decapterus lundini</i>	230
1-2. Device used in experiment to determine the part played by the gills in osmotic exchanges.	98	28. <i>Caranx plumbeus</i>	233
HIRUDINEA AND OLIGOCHÆTA OF THE GREAT LAKES REGION:		29. <i>Caranx gilberti</i>	234
1. <i>Actinobdella annectens</i> , anterior end	161	30. <i>Monodactylus argenteus</i>	237
2. <i>Actinobdella annectens</i> , posterior end.....	161	31. <i>Amia exostigma</i>	238
3. <i>Stylaria fossularis</i>	168	32. <i>Amia crassiceps</i>	239
4. <i>Schmardaella filiformis</i>	168	33. <i>Amia savayensis</i>	240
5. <i>Limnodrilus gracilis</i>	169	34. <i>Amia koilomatodon</i>	241
6. Diagram of the principal reproductive organs contained in the tenth, eleventh, and twelfth somites of <i>Limnodrilus gracilis</i> , as seen from the side.....	170	35. <i>Amia aroubiensis</i>	242
FISHES OF SAMOA:		36. <i>Amia novemfasciata</i>	243
1. <i>Periophthalmus barbarus</i>	178	37. <i>Amia novemfasciata</i> , color variation	243
2. <i>Himantura fai</i>	184	38. <i>Amia fusca</i>	244
3. <i>Anchovia apiensis</i>	187	39. <i>Amia doryssa</i>	246
4. <i>Anchovia evermanni</i>	188	40. <i>Amia lateralis</i>	246
5. <i>Chleevastes fasciatus</i>	195	41. <i>Mionorus græffei</i>	247
6. <i>Rhinamuræna eritima</i>	196	42. <i>Foa fo</i>	248
7. <i>Gymnothorax talofa</i>	201	43. <i>Foa vaiulæ</i>	249
8. <i>Echidna trossula</i>	204	44. <i>Apogonichthys marmoratus</i>	250
9. <i>Anarchias allardicei</i>	205	45. <i>Apogonichthys isostigma</i>	251
10. <i>Anarchias knighti</i>	205	46. <i>Ambassis lafa</i>	253
11. <i>Zenarchopterus vaisiganis</i>	208	47. <i>Ambassis vaivænsis</i>	254
12. <i>Cypsilurus unicolor</i>	209	48. <i>Chorististium susumi</i>	256
13. <i>Cypsilurus specularis</i>	209	49. <i>Variola flavimarginata</i>	257
14. <i>Cypsilurus pœcilopterus</i>	210	50. <i>Pomacentrus eclipticus</i>	283
15. <i>Cypsilurus quindecimradiatus</i>	210	51. <i>Abudefduf metallicus</i>	289
16. <i>Cypsilurus katoptron</i>	211	52. <i>Stethojulis phekadopleura</i>	297
17. <i>Corythoichthys waiti</i>	212	53. <i>Thalassoma cyanogaster</i>	306
18. <i>Corythoichthys sealei</i>	213	54. <i>Scarichthys cæruleopunctatus</i>	312
19. <i>Corythoichthys mataafæ</i>	213	55. <i>Callyodon pyrhrurus</i>	315
20. <i>Microphis brachyurus</i>	214	56. <i>Callyodon ruberrimus</i>	316
21. <i>Microphis caudatus</i>	214	57. <i>Callyodon purpureus</i>	317
22. <i>Microphis torrentius</i>	215	58. <i>Callyodon erythæcus</i>	318
23. <i>Atherina uisila</i>	216	59. <i>Callyodon upolensis</i>	320
24. <i>Myripristis sanguineus</i>	221	60. <i>Callyodon zonularis</i>	322
25. <i>Holotrachys lima</i>	222	61. <i>Callyodon bataviensis</i>	323
26. <i>Holocentrus praslin</i>	225	62. <i>Callyodon kelloggii</i>	327
		63. <i>Callyodon cyanogrammus</i>	330
		64. <i>Callyodon ultramarinus</i>	332
		65. <i>Callyodon lazulinus</i>	334
		66. <i>Hepatus aquilinus</i>	353
		67. <i>Lo vulpinus</i>	361
		68. <i>Amanes scopas</i>	365

ILLUSTRATIONS.

VII

FISHES of SAMOA—Continued.		Page.	FISHES of SAMOA—Continued.		Page.
69.	<i>Monacanthus melanocephalus</i>	366	91.	<i>Gobius ornatus</i>	402
70.	<i>Tetraodon nigropunctatus</i>	370	92.	<i>Mapo crassiceps</i>	403
71.	<i>Sebastopsis scabra</i>	375	93.	<i>Glossogobius vaisiganis</i>	404
72.	<i>Sebastapistes laotale</i>	377	94.	<i>Waitea mystacina</i>	407
73.	<i>Gobiomorphus sclateri</i>	384	95.	<i>Mars strigiliceps</i>	408
74.	<i>Hypseleotris guntheri</i>	385	96.	<i>Sicyopterus tauæ</i>	411
75.	<i>Eviota zonura</i>	386	97.	<i>Enneapterygius tusitalæ</i>	417
76.	<i>Eviota prasites</i>	387	98.	<i>Enneapterygius pardochir</i>	417
77.	<i>Eviota afelei</i>	388	99.	<i>Enneapterygius tutuilæ</i>	418
78.	<i>Eviota smaragdus</i>	388	100.	<i>Enneapterygius cerasinus</i>	419
79.	<i>Eviota distigma</i>	389	101.	<i>Enneapterygius hudsoni</i>	420
80.	<i>Eviota sebreei</i>	390	102.	<i>Hypleurocheilus vaillanti</i>	421
81.	<i>Eviota herrei</i>	390	103.	<i>Alticus thalassinus</i>	425
82.	<i>Eviota pruinosa</i>	391	104.	<i>Alticus musilæ</i>	426
83.	<i>Trimma caesiura</i>	392	105.	<i>Salarias sindonis</i>	428
84.	<i>Gnatholepis deltoides</i>	395	106.	<i>Salarias atkinsoni</i>	428
85.	<i>Vaimosa fontinalis</i>	396	107.	<i>Salarias garmani</i>	430
86.	<i>Zonogobius semidoliatus</i>	397	108.	<i>Salarias bryani</i>	430
87.	<i>Vaillima stevensoni</i>	398	109.	<i>Petroscirtes azureus</i>	432
88.	<i>Drombus tutuilæ</i>	399	110.	<i>Petroscirtes xestus</i>	433
89.	<i>Rhinogobius corallinus</i>	400	111.	<i>Alticus saliens</i>	439
90.	<i>Rhinogobius muscarum</i>	401			