

# INDEX.

## REPORT OF THE COMMISSIONER.

Page.	Page.
<b>Abbott, W. H.</b> .....	175, 179, 198
<b>Abrilhos Islands, Brazil, birds of</b> .....	66
<b>Acapulco</b> .....	105
<b>Acipenser oxyrinchus sturio</b> .....	193
<b>Adams, A. C.</b> .....	22, 125
<b>Adelbert College</b> .....	162
<b>Afognak Bay</b> .....	132
Island .....	7, 98
<b>Africa, voyage to, for mackerel</b> .....	203
<b>Agassiz, Alexander</b> .....	4, 67, 98, 100, 108
<b>Agoria yarrowi</b> .....	142
<b>Agricultural Department, relations with</b> .....	73
<b>Alaska fishes</b> .....	66
Investigation of .....	100, 132
Peninsula .....	104
Salmon canneries .....	134
<b>Alaska salmon:</b>	
Investigation of .....	7, 98, 132
Methods of catching .....	133
Protection of .....	135
Varieties of .....	133
<b>Albacora thynnus</b> .....	195
<b>Albacore</b> .....	103
<b>Albatross, steamer</b> .....	2, 99, 108, 133
Collections, reports on .....	66
Explorations in Alaska .....	100, 132
Explorations in Gulf of California .....	4
Explorations near Galapagos Islands .....	4
Explorations, reports on .....	4
Used by Senate Committee on Indian Affairs .....	2
<b>Alewives</b> .....	193
Fishery of Potomac River .....	182
Statistics .....	183
Yearlings, occurrence of .....	32
<b>Alexander, A. B.</b> .....	100, 174
<b>Alitak Bay</b> .....	132
<b>Alligator River</b> .....	150
<b>Alpena Station, Mich.:</b>	
Production of .....	11
Report on .....	42
<b>Amak Island</b> .....	102
<b>Andrews, E. A.</b> .....	153, 154
<b>Apparatus for destroying starfish</b> .....	115
<b>Appropriation for—</b>	
Great Falls fishway .....	68
Gulf States fish-hatchery .....	59
Leadville Station .....	47
<b>Appropriation for—Continued.</b>	
Montana fish-hatchery .....	59
Neosho Station .....	45
New York fish-hatchery .....	50
Put-in Bay Station .....	38
Vermont fish-hatchery .....	50
<b>Appropriations, statement of</b> .....	1
<b>Aquaria at Central Station:</b>	
Report on .....	54
Specimens, collections of .....	55
<b>Archaeogonus probatocephalus</b> .....	193
<b>Arizona Fish Commission</b> .....	71
<b>Arkansas Fish Commission</b> .....	71
<b>Arkansas, investigations in</b> .....	143
<b>Arkansas River, mining operations on</b> .....	141
<b>Asterias vulgaris</b> .....	119
<b>Atkins, Charles G.</b> .....	14, 15, 20
<b>Atlantic coast:</b>	
Investigations of .....	110
Temperature stations on .....	130
<b>Atlantic salmon:</b>	
Embryology of .....	151, 161
Distribution of .....	77, 88
Propagation of .....	17, 18, 28
<b>Aurelia flavidula</b> .....	153
<b>Bahia, Brazil, fishes of</b> .....	67
<b>Baird Banks</b> .....	2, 97, 102
<b>Baird, Spencer F.</b> .....	102
<b>Baird Station, Cal.:</b>	
Appropriation for .....	49
Buildings .....	40
Production of .....	12
Report on .....	49
<b>Bait supply, fishery for</b> .....	202
<b>Baldwin &amp; Chronister</b> .....	48
<b>Banks, fishing, location of</b> .....	105
<b>Banks frequented by cod</b> .....	2
<b>Barrett, F. N.</b> .....	166
<b>Bartlett, S. P.</b> .....	44
<b>Batrachians, report on</b> .....	66
<b>Battery Island, Md.:</b>	
Production of, station .....	31
Purchase of .....	30
Report on .....	11
<b>Battle, John D.</b> .....	120, 122, 123
<b>Bay Farm Island</b> .....	107
<b>Bayley, W. B.</b> .....	38
<b>Bay mackerel</b> .....	188

## 644 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

## REPORT OF THE COMMISSIONER—Continued.

Page.	Page.		
Beam-trawl fishery of Great Britain .....	109	Cape Charles City, Va .....	158, 159, 188, 189
Bean, Barton A .....	194	Cape Charles .....	56, 190, 191
Bean, Tarleton H .....	7, 64, 66, 132, 133, 169	Cheerful .....	100
Behr, Herr von .....	73	Chigagof .....	102
Belgium, fish for .....	73	Constantine .....	102
Benedict, James E .....	110, 120, 170	Corrientes .....	109
Bering Sea, investigation of .....	97, 100	Flattery, soundings off .....	105
Bigelow, R. P .....	126, 153, 155	Mala .....	108
Birds:		Mendocino .....	104, 105, 106
Collection of .....	67	Newenham .....	102
Skeletons of .....	66	Peiree .....	103
Black bass:		San Francisco .....	109
Distribution of .....	34, 35, 44, 82, 83, 93, 94	<i>Caranx hippos</i> .....	192
Occurrence of .....	150, 193	Carp:	
Propagation of .....	36	Distribution of .....	34, 35, 46, 75, 85, 86
Spawning of .....	46	Propagation of .....	35, 36, 37, 44, 45
Black-cod, occurrence of .....	106	Cars, miles traveled by .....	60
Blackford, E. G .....	125	Catfish:	
Black-spotted trout:		Distribution of .....	44, 75
Distribution of .....	80	Statistics .....	182
Propagation of .....	37, 48	Cedar Lakes .....	147
Black-will .....	193	Census Office, relations with .....	72, 106
Blake, steamer .....	5, 126	Central America, explorations in .....	108
Blodgett, Rufus .....	64	Central Station, Washington, D. C.:	
Bluefish statistics .....	182, 190	Production of .....	11
Bogoslof Island .....	100	Report on .....	33
Bollman, Charles Harvey .....	66	<i>Centropristes striatus</i> .....	193
Bonobank .....	147	<i>Chatodipterus faber</i> .....	192
Bonito eggs, characteristics of .....	26	<i>Challenger</i> , steamer .....	108
Bonito, spawning of .....	26	Chambers, C. O .....	149
Bonito statistics .....	191	Chemical investigation of waters of Long	
Booth, Franklin .....	132	Island Sound .....	5
<i>Bopyrus palamontes</i> .....	153	Chesapeake Bay fisheries .....	184
Borne, Max. von dem .....	17, 73	oyster beds .....	4, 98
Boston fisheries .....	195	investigation .....	4, 122
Boston Society of Natural History .....	152	Chilkat .....	104
Boyer, E. R .....	153	Church Point, oyster beds at .....	187
Brachiopoda, collection of .....	66	Clackamas Station, Oregon:	
<i>Brevoortia tyrannus</i> .....	193	Production of .....	12
Brice, J. J .....	51	Report on .....	52
Bristol Bay:		Water supply .....	53
Banks of .....	2	Clarion Island .....	67
Investigations of .....	100	Clark, Frank N .....	39, 42
British Museum, London, England .....	171	Clark University .....	153, 170
Brooklyn Training School .....	17	Clinton County, Ky., fishes of .....	148
Brook pike, distribution of .....	44, 81	<i>Clupea aestivalis</i> .....	103
Brooks, W. K .....	119, 123, 129, 152, 167	<i>pseudoharengus</i> .....	103
Brook trout:		<i>sapidissima</i> .....	103
Distribution of .....	35, 80, 91	Coalfish .....	191
Propagation of .....	17, 18, 33, 34, 36, 37, 40, 41, 43, 45	Coal mine at Horendeen Bay .....	3, 100, 103
Broughal, James T .....	45	Coast Survey, coöperation of .....	5
Brown University .....	162	Cobia .....	191
Buck, H. H .....	20	Cocos Island .....	108
Buffalo-fish, distribution of .....	44, 76	Coe College .....	143, 144
Buller, William .....	39	Cod:	
Bulls-eye .....	203	Abundance of .....	101, 103, 155
Bumpus, H. C .....	154, 162	Blind .....	24, 27
Butter-fish .....	193	Distribution of .....	84, 96
Cable, W. W .....	48	Eggs, characteristics of .....	26
<i>Calanocrinus diomedae</i> .....	109	hatching of .....	27
California coast, investigation off .....	104, 105, 106	sinking of .....	27
California Fish Commission .....	50, 71	transportation of .....	23
California, fishery resources .....	170	Embryology of .....	157
Canada, fish for .....	73	Occurrence of .....	2, 156, 157

## REPORT OF THE COMMISSIONER—Continued.

	Page.	Page.	
Cod—Continued.			
Propagation of.....	22, 23, 24, 25, 155	Deutsche Fischerrei Verein.....	73
Results of artificial propagation of .....	6, 155, 204	<i>Dibothrium cordiceps</i> .....	139, 140
Spawning of .....	26	Dimick, F. F.....	175, 195
Cold Spring Harbor Station, N. Y.:		Distribution:	
Production of.....	11	Details of .....	75, 85
Report on.....	28	Of food-fishes .....	12
Collins, J. W. ....	8, 69, 72, 173, 196	Summary of .....	13
Colorado Fish Commission.....	71	District of Columbia Commissioners, relations with.....	73
Colorado:		Dodd, S. T.....	126
Fishes of.....	142	Dodd, W. H.....	126
Investigations in.....	7, 140	Doller, Valentine .....	38
Colorado streams, characteristics of.....	141	Dougherty, W. E.....	51
Columbia College .....	171	Douglas, Henry .....	37
Conklin, E. G .....	154	Drake, J. C.....	120
Connecticut oyster industry .....	110, 114	Drow, Frank M .....	143
Connecticut River Station, Car No. 3,		Drum .....	193
production of .....	12	Duluth Station, Minn.:	
Cope, E. D .....	66	Production of .....	11
Copeland, C. H.....	148	Report on .....	43
Copepods, injurious to fish eggs .....	24, 27	Water supply of .....	43
Cottoid fish .....	66	Dumping grounds in Long Island Sound. ....	111, 118
Crab-fishery, notes on.....	200	Earll, R. Edward .....	192
Crabs, statistics of .....	183	Echinoderms, early stages of.....	119
Craig Brook Station, Mo.:		Edmunds, Frank II .....	51
Appropriations for .....	15, 16	Edwards, V. N .....	6, 151, 155, 161
Buildings .....	16	<i>Elacate canadæ</i> .....	191
Ponds .....	16	Elkhart River .....	147
Production at .....	10	Embryology of Spanish mackerel.....	6
Propagation at .....	17, 18	<i>Esox reticulatus</i> .....	150
Purchased .....	15	European oyster-culture .....	5, 124
Report on .....	15	Evermann, B. W .....	59, 140, 147
Craig Ship-Building Company .....	38	Expenditures, reports of .....	1
Crappie, distribution of.....	34, 35, 14, 83, 84, 94, 95	Experiments at Woods Hole Station .....	155
Crayfish statistics .....	183	Farallones .....	106
<i>Crepidula</i> .....	154	Fauna of Yellowstone National Park.....	7
Crevalle, statistics of .....	192	Ferguson, T. B .....	31
Crisfield, Md .....	192, 200	Fesler, Bert .....	140
Crustaceans, sense organs of .....	154	Field, George W .....	119, 154
<i>Ctenolabrus adspersus</i> .....	160	Field investigations of the fisheries .....	173
Cultus-cod, occurrence of .....	105	Fields, H. H.....	56
Cunner:		Fish-cultural stations, list of .....	10
Characteristics of eggs .....	26	Fish-culture, report on .....	10
Propagation .....	160	Fish, distribution of .....	13
Spawning of .....	26	Fisheries:	
Currents off New England coast .....	128	Investigation of .....	173
<i>Cyanea artica</i> .....	153	Methods of .....	8
<i>Cynoscion nebulosum</i> .....	190	Boston .....	195
<i>regale</i> .....	160, 191	Cape Charles City .....	188
<i>Cyprinodon</i> .....	160	Chesapeake Bay .....	184
Dakota University .....	170	Gloucester .....	195
Dall, William H. ....	66	Gulf coast .....	9, 179
Dana, Richard .....	24	New England coast .....	9, 175
Darters, spawning of .....	55	New York .....	195
Davenport, C. B .....	153	Pacific coast, investigation of .....	174
Davidson Glacier .....	104	Potomac River .....	180
Davis, Bradley M. ....	140	South Atlantic coast .....	9, 177
Dean, Bashford .....	5, 120, 122, 125, 150	Statistics of .....	8
Doan, H. D .....	47, 48	Fishery treaty between Great Britain and	
Delaware Fish Commission .....	71	the United States .....	201
Delaware River fisheries .....	181	Fishes:	
Density observations, changes in .....	131	Development of .....	154
Density of water .....	26, 28	Diseases of .....	17, 168
Denton, S. F.....	55	Distribution of .....	12, 170

## REPORT OF THE COMMISSIONER—Continued.

Page	Page.
Fishes—Continued.	
Inquiry respecting . . . . .	2, 97
Galapagos Islands . . . . .	60, 67
Mississippi Basin, distribution of . . . . .	44
Port Castries . . . . .	66
Parasites of . . . . .	153, 168
Fish food in Yellowstone National Park . . . . .	138
Fish Hawk steamer . . . . .	28, 29, 110, 116, 120, 131, 152, 158
Fish production of . . . . .	12
Report of operations . . . . .	55
Spanish mackerel, work by . . . . .	56
Fishing-grounds:	
Investigations of . . . . .	2, 97, 99
Location of . . . . .	97
Fish mortality . . . . .	146, 147
Fish ponds, Washington, D. C.:	
Production of . . . . .	11
Report on . . . . .	35
Fish production by stations . . . . .	10
Fishways at Great Falls of Potomac . . . . .	68
Flatfish:	
Characteristics of eggs . . . . .	26
Distribution of . . . . .	84, 96
Propagation of . . . . .	25, 27
Spawning of . . . . .	26, 27
Flattery Rocks . . . . .	105
Florida, investigations in . . . . .	149, 150
Flounders:	
Characteristics of eggs . . . . .	26, 161
Occurrence of . . . . .	3, 105, 106, 193
Propagation of . . . . .	161, 162
Spawning of . . . . .	26
Forbes, S. A. . . . .	135, 137, 145, 168, 169
Foreign countries, fish eggs sent to . . . . .	35
Fort Gaston Station, Cal.:	
Establishment of . . . . .	51
Production of . . . . .	12
Report on . . . . .	51
Fort Washington Station, Md.:	
Production of . . . . .	11
Report on . . . . .	32
Fort Toussaint . . . . .	104
Foster, Austin M. . . . .	20
Four-spotted flounder:	
Characteristics of eggs . . . . .	26
Propagation of . . . . .	162
Spawning of . . . . .	26
France, fish sent to . . . . .	73
Freeman, A. A. . . . .	194
Fresh-water drum, distribution of . . . . .	44, 82
Frogs, statistics of . . . . .	183
<i>Fuljur</i> . . . . .	112
<i>Pundulus heteroclitus</i> . . . . .	154
<i>Gadus morrhua</i> . . . . .	155
Galapagos Islands . . . . .	67, 100, 109
Birds of . . . . .	66
Explorations in . . . . .	4, 108
Fishes of . . . . .	66
Galveston Harbor, Texas . . . . .	25
Gascoyne, George E. . . . .	38
Gay, John . . . . .	28, 47
Geneva Lake, investigations in . . . . .	145
Georgia Fish Commission . . . . .	71
Germany:	
Fish from . . . . .	12, 73
Sent to . . . . .	73
Gilbert, Charles H. . . . .	66, 67, 100, 135, 170, 174
Gill, Herbert A. . . . .	61
Gloucester fisheries . . . . .	195
Gloucester Station, Mass.:	
Production of . . . . .	10
Report on . . . . .	22
Gloucester City Station, N. J.:	
Production of . . . . .	11
Report on . . . . .	28
Goldfish:	
Distribution of . . . . .	34, 35, 46, 75, 76, 86, 87
Propagation of . . . . .	35, 36, 37
Spawning of . . . . .	46
Golden Gate . . . . .	106
Golden ide:	
Distribution of . . . . .	34
Growth of . . . . .	46
Propagation of . . . . .	35
Gorham, C. E. . . . .	69
Goshen, Ind. . . . .	147
Government Departments, relations with . . . . .	72
Government Printing Office, courtesies from . . . . .	73
<i>Grace</i> , schooner . . . . .	155
<i>Grampus</i> , schooner . . . . .	5, 22, 125, 152
Grand River, Colo., mining operations on . . . . .	141
Gravel Bank . . . . .	103
Grays Harbor . . . . .	105
Gray trout . . . . .	191
Gray, William . . . . .	166
Great Britain, fish sent to . . . . .	74
Great Falls fishway, appropriations for . . . . .	68
Great Lakes fisheries, review of . . . . .	200
Great Pond, examination of . . . . .	150
Green Lake, examination of . . . . .	147
Green Lake Station, Me.:	
Appropriation for . . . . .	16
Buildings . . . . .	20, 21
Establishment of . . . . .	20
Production of . . . . .	10
Propagation at . . . . .	21
Purchased . . . . .	20
Report on . . . . .	20
Greenman, M. J. . . . .	134
Griffin, George A. . . . .	156
Guaymas . . . . .	108, 109
Gulf of California, explorations in . . . . .	4
Gulf coast fisheries, investigation of . . . . .	170, 180
Gulf States fish-hatchery, appropriation for . . . . .	50
Gurley, Revere R. . . . .	168
Haddock:	
Distribution of . . . . .	84, 96
Propagation of . . . . .	22, 23, 24, 25
Hagemeister Island . . . . .	102, 103
Halibut, occurrence of . . . . .	3, 101, 105
Hall, Ansley . . . . .	175, 179
Harris, A. . . . .	126
Harrison, R. G. . . . .	154, 167
Harvard University . . . . .	153
Harvest-fish . . . . .	193

## INDEX.

## REPORT OF THE COMMISSIONER—Continued.

	Page.		Page.
Haskell, E. E.....	110, 115, 116	Killifish, spawning of .....	55
Hattie S. Clark, schooner.....	203	Kingfish .....	193
Havre de Grace shad-hatchery.....	30	King crab:	
Heceta Bank, location of .....	3, 105	Hatching of.....	55
Henshall, James A.....	148	Pari sites.....	153, 154
Herondeen Bay .....	3, 102	Kirsch, Philip H.....	148
Coal mine.....	3, 100, 103	Kirtland, J. P.....	148
Description of.....	103	K. K. Naturhistorisches Hof-Museum, Vienna, Austria.....	171
Herrick, F. H.....	6, 152, 154, 162	Kulukak Bay, fishing-banks of .....	2
Herring.....	193	Kulukak' ground.....	100, 102
Herring fishery of Maine .....	202	Kuskokwim River.....	100, 103
Hessel, R.....	35	Kvichak River.....	100
High School, Bridgton, Me.....	171	Lake Forest University.....	125
Council Bluffs, Iowa.....	170	Lake Maxinkuckee .....	147
Springfield, Mass.....	171	Mendota .....	168
Hillsboro River.....	150	Ronkonkoma .....	150
Hodge, C. F.....	110, 113, 115, 153, 164	Lake trout:	
Homarus americanus.....	162	Distribution of.....	46, 80, 91, 92
Hoonyah Bay.....	104	Eggs, collection of .....	42
Hoover, C. S.....	148	Production of .....	28
Horse-mackerel .....	103	Propagation of .....	17, 34, 39, 40, 41, 43, 44, 45
Howard, L. O.....	66	Lamprey eel:	
Hubbard, Waldo F.....	52	Characteristics of eggs.....	26
Hudson River.....	181	Spawning of .....	26
Hunger Creek .....	189	Landcraft, Mr .....	115
Hunt, L. G.....	47	Landlocked salmon:	
Idaho, collections in .....	12	Distribution of .....	77, 78, 88
Illinois Fish Commission .....	71	Production of .....	28
Illinois State Laboratory of Natural History .....	137	Propagation of .....	14, 15, 17,
Indiana Fish Commission .....	71	18, 21, 33, 34, 40, 42, 43, 44	
Indiana, investigations in .....	147	Size of .....	14, 15, 21
Indiana State Normal School .....	170	Law, John .....	47, 48
Indiana University .....	143, 149, 170	Lawrence University .....	170
Ingersoll, Charles E.....	181	Leadville Station, Colo.:	
Inquiry respecting food-fishes, report on .....	97	Appropriation for .....	47
International Marine Exhibition .....	198	Buildings .....	47, 48
Investigation of U. S. Fish Commission by U. S. Senate .....	61	Production of .....	12
Iowa Fish Commission .....	71	Report on .....	47
Iowa streams, characteristics of .....	144	Lee, Thomas G .....	154
James River oyster-grounds .....	184	Leidy, Joseph .....	139
Jelly-fishes, life history of .....	153	Leiostomus xanthurus .....	193
Johns Hopkins University .....	110, 123, 152, 153, 154, 158, 167	Leponis gibbosus .....	150
Jones, Alexander .....	20	Lewis, Robert E .....	132
Jones, H. M .....	157	Libbey, jr., William .....	125
Jordan, D. S .....	7, 66, 67, 135, 136, 140, 170, 174	Library of the U. S. Fish Commission .....	64
Juan de Fuca, Straits of .....	2	Light-House Board, co-operation of .....	5, 72, 120
Juueau .....	104	Lima, Ind .....	147
Kadiak Island .....	7, 98	Linton, Edwin .....	7, 135, 137, 153, 160
Kankakee .....	147	Lobsters:	
Kansas City, Fort Smith and Southern Railway .....	47	Care of .....	164
Kansas Fish Commission .....	71	Characteristics of eggs .....	26, 123
Karluk Lake .....	132	Development of .....	153, 162, 166
Karluk River .....	7, 132, 133	Diminution of .....	166
Karta Bay .....	104	Discoloration of .....	166
Kellogg, J. L .....	154, 167	Distribution of .....	84, 96
Kendall, W. C .....	110, 120	Feeding of .....	153, 164
Kentucky Fish Commission .....	71	Habits of .....	162
Kentucky:		Investigation of .....	99
Fishes of .....	149	Larval stage of .....	162
Investigations in .....	148	Life history of .....	6, 154
		Moltung of .....	163, 166
		Propagation of .....	25, 28, 162, 165
		Spawning of .....	26, 153, 163, 165

## REPORT OF THE COMMISSIONER—Continued.

Page.		Page.	
Lobsters—Continued.		Missouri, investigations in .....	143
Transplanting of.....	25	Missouri Valley College.....	171
Loch Leven Trout:		Mollusca, collection of .....	66
Distribution of.....	78, 88	Mollusks, edible .....	167
Production of .....	28	Monteal, H. W .....	149
Propagation of.....	17, 18, 40, 41, 43	Montana fish-hatchery, appropriation for .....	59
Locke, E. F.....	175	Moonfish.....	192
Long Island Sound:		Moore, J. Percy .....	123, 158
Chemical investigation of.....	5, 118	Morgan, T. H .....	153
Dumping-grounds .....	111	Morgan, W. H .....	51
Oyster investigations.....	5, 98, 110, 116	Morton, Levi P .....	59
Pollution of.....	112	Mount Vernon Seminary .....	171
Tides in .....	116, 117, 118	Mudge, L. S .....	126
Water, analysis of .....	118	Muhlenberg College .....	170
Louisiana State University and Agricultural and Mechanical College .....	171	Muir Glacier .....	104
Lucas, Frederic A .....	66	Museum of Comparative Zoölogy .....	109, 170
Lynn Haven oysters.....	186, 187	Mussels, spawning of .....	55
Lynn Haven River.....	186	National Academy of Sciences .....	152
Mackerel:		National Zoölogical Park, animals for .....	73
Characteristics of eggs .....	26	Natural-history specimens, distribution of .....	170
Distribution of .....	84	Navy Department, relations with .....	72
Grounds, investigation of .....	129	Nebraska Fish Commission .....	71
Propagation of .....	25, 160	Nebraska Institute for Deaf and Dumb .....	171
Spawning of .....	26	Neher, Fred .....	110, 118
Voyage to Africa for .....		Neosho Station, Mo.:	
Mackey Ferry .....	147	Appropriation for .....	45
<i>Macrura</i> , embryology and metamorphosis of .....	152	Buildings .....	45
Magie, Wm. F.....	125, 129	Production of .....	11
Maine Fish Commission .....	71	Railroad siding to .....	47
Malpelo Island .....	108	Report on .....	45
Marine biological laboratory .....	152	Nevada Fish Commission .....	71
Marine fishes:		New England coast currents .....	128
Artificial propagation of .....	6	New England coast fisheries .....	9, 175, 176
Embryology of .....	151	waters, investigation of .....	5, 125
Marine invertebrates, distribution of .....	170	New Hampshire Fish Commission .....	71
Marsh, C. Dwight .....	147	New Jersey Fish Commission .....	71
Martin, S. J.....	175, 195	New Orleans University .....	170
Maryland oyster-fishery .....	4	New York Fish Commission .....	12, 71
Massachusetts Agricultural College .....	171	New York fish-hatchery, appropriation for .....	59
Massachusetts Fish Commission .....	71	New York fisheries .....	195
Mather, Fred .....	28, 150	New York, investigations in .....	153
Maxwell, John .....	24	Northampton County, Va. ....	191
McGown, Carlton .....	16, 20	Northern Atlantic Ocean, physical characteristics of .....	98
McNeill, M.....	125, 126	Northern Pacific Ocean, investigations in .....	2
Meckelia .....	154	Northville Station, Mich.:	
Meek, S. E .....	143, 144	Appropriation for .....	40
Mendenhall, T. C .....	126	Production of .....	11
Mendota Lake, investigations in .....	145	Purchase of .....	41
Mehladden:		Report on .....	39
Movement of .....	202	Norway, fish sent to .....	74
Occurrence of .....	202	Nye, Willard .....	156
Statistics .....	193	Ocean currents off New England coast .....	128
<i>Menticirrhus saxatilis</i> .....	193	O'Connor, J. J .....	61
Mexico:		Ohio Fish Commission .....	37, 72
Explorations off .....	108	Ohio, fishes of .....	148
Fish sent to .....	74	Ohio, investigations in .....	148
Michigan Fish Commission .....	71	Ohio River .....	148
Mine Harbor .....	103	Ohio State University .....	170
Minnesota Fish Commission .....	71	Oldwife .....	193
Minnow, embryology of .....	154	Olean, N. Y .....	170
Mississippi Basin fishes, distribution of .....	44	Olga Bay .....	132
Missouri Fish Commission .....	71	Oliver Lake .....	147

## REPORT OF THE COMMISSIONER—Continued.

	Page.		Page.
Ontario, Ind.....	147	Physical characteristics of North Atlantic .....	98
Oregon Agricultural College.....	70	Physical inquiries off the New England coast.....	5, 125, 127
Oregon Fish Commission .....	53, 172	Pigeon River .....	147
Orford Reef.....	103	Pike, distribution of.....	35
<i>Ostrea virginica</i> .....	107	Pike perch:	
Ottawa University.....	170	Distribution of .....	44, 82, 93
Oyster beds:		Propagation of .....	37, 39, 43, 44
Damaged by starfish .....	112	Pillar Point.....	106
Long Island Sound beds not polluted .....	112	Plants of Alaska.....	66
Oyster-breeding in San Francisco Bay...	98	Platt, Robert.....	55, 110, 120, 158
Oyster-culture:		<i>Floroneectes maculatus</i> .....	162
At Norfolk .....	186	Plymouth, Indiana .....	147
In Europe, study of .....	5, 124	Pocomoke Sound oyster investigation.....	122, 123
Oyster fisheries:		Point Arena .....	106
Chesapeake Bay .....	4, 184	Conception .....	106
Connecticut.....	110, 111	Pillar .....	106
James River .....	184	Reyes .....	106
Maryland .....	4	San Pedro .....	108
Potomac River.....	181	Pollock:	
South Atlantic coast .....	178	Distribution of .....	84, 96
Virginia .....	4	Propagation of .....	22, 23, 24
Oyster grounds of South Carolina, characteristics of.....	121	Pollution of Long Island Sound oyster beds .....	112
Oyster investigations:		<i>Pomatomus saltatrix</i> .....	190
<i>Fish Hawk</i> .....	4, 98, 122	Pompano, statistics of .....	191
Chesapeake Bay.....	4, 98, 122	Porgies, statistics of .....	192
Long Island Sound.....	5, 98, 110	Porpoise fisheries of North Carolina .....	195
Poconos Sound.....	122, 123	Portago Bay .....	104
San Francisco Bay.....	107	Port Castries, fishes of .....	66
South Carolina .....	4, 98, 120	Chester .....	104
Tangier Sound.....	5, 122, 123, 124	Möller .....	3, 100, 102, 103
Winyah Bay.....	120	Wrangall .....	104
Oyster packing industry, statistics of ...	186	Porter, Robert P.....	196
Oyster spat, fixation of .....	154	Potomac River fisheries .....	180, 181, 183
Oyster statistics of South Atlantic .....	179	froshot .....	35
Oysters for Pacific coast .....	107	Prime, W. C.....	154
Oysters, wiring of .....	194	Princeton College .....	125, 154
Oyster tongs, improved form of .....	201	Proceedings of U. S. National Museum .....	66
Pacific coast:		Production of fish, by stations .....	10
Investigation of .....	99, 174	<i>Pseudopleuronectes americanus</i> .....	161
Oyster industry .....	107	<i>Ptychocheilus lucius</i> .....	142
Oysters for .....	107	Publications:	
Temperature station .....	130	Distribution of .....	67
Page, William F.....	45	Division of Fisheries .....	199
<i>Palæmonites vulgaris</i> .....	153	List of .....	64
<i>Paralichthys dentatus</i> .....	161, 193	Puget Sound .....	104
<i>oblongus</i> .....	162	Purdue University .....	170
Parasites, reports on .....	169	Put-in Bay Station, Ohio:	
Partridge, Thomas.....	16	Appropriation for .....	38
Patten, William.....	154	Buildings .....	38
Patterson Glacier.....	194	Production of .....	11
Pavloff Harbor .....	104	Purchase of .....	38
Peaco River.....	150	Report on .....	38
Peck, James I .....	153	Quincy Station, Illinois:	
<i>Pelagia</i> .....	153	Production of .....	11
Pelagic fauna, distribution of .....	109	Report on .....	44
Pennsylvania Fish Commission .....	38, 39, 72	Quinnat salmon:	
Pennsylvania State College .....	171	Distribution of .....	50, 77, 88
<i>Perca flavescens</i> .....	146	Propagation of .....	49, 52, 53, 54
Perch:		Race, E. E.....	175, 179
Distribution of .....	44	Railroad service .....	00
Mortality .....	146, 147	Railroads, transportation granted by .....	00
Statistics .....	183		
<i>Physalia</i> , natural history of .....	152		

## REPORT OF THE COMMISSIONER—Continued.

Page		Page	
Rainbow trout:		San Pablo Bay .....	107
Distribution of .....	34, 35, 46, 78, 79, 89, 90	Santa Barbara Channel .....	106
Propagation of .....	17, 24, 26, 40, 42, 46	Santa Fe River .....	150
Spawning of .....	55	Santa Lucia, birds of .....	66
Rathbun, Miss M. J. ....	170	Sauerhoff, William P. ....	23, 48
Rathbun, Richard .....	2, 97	Savannah River .....	120
Ravenel, W. de C. ....	30, 177	<i>Sciara ocellata</i> .....	193
Red drum .....	193	Schoodic Station:	
Redfish .....	193	Production of .....	10
Reed, F. C. ....	53	Report on .....	14
Report on Fish Commission investigation .....	61	Spawning operations at .....	14
Reptiles:		Schnuster, Herr Carl .....	73
Collection of .....	67	<i>Schuyler Colfax</i> , schooner .....	203
Report on .....	68	<i>Scomber colias</i> .....	203
Rettger, Louis .....	143, 149	<i>scombrus</i> .....	203
<i>Rhinichthys dulcis</i> .....	142	<i>Scomberomorus maculatus</i> .....	188
Rhode Island Fish Commission .....	72	Scottish sea trout, propagation of .....	18
Ridgley, D. C. ....	148	Seup:	
Ridgway, Robert .....	66	Characteristics of eggs .....	26
Ripon College .....	147	Distribution of .....	84
Robinson, E. M. ....	47, 48	Habits of .....	153
Robinson, James .....	45	Propagation of .....	25, 160
<i>Roccus lineatus</i> .....	192	Spawning of .....	26
Rock .....	192	Sea bass:	
Rock bass:		Characteristics of eggs .....	26
Distribution of .....	34, 35, 44, 46, 95, 96	Distribution of .....	82
Propagation of .....	36, 37	Embryology of .....	151, 158
Spawning of .....	46	Occurrence of .....	153, 193
Rock-cod, abundance of .....	3	Planting of .....	158
Rockfish, occurrence of .....	106	Propagation of .....	25, 157
Rockwood, jr., C. G. ....	125, 126	Spawning of .....	26
Rocky Mountain trout .....	142	Seagle, George A. ....	36
Ryder, John A. ....	158	Seal, W. P. ....	54, 194
Sailbing:		Senecca, S. J. ....	30
Distribution of .....	89	Sevier River, fishes of .....	142
Propagation of .....	17	Shad:	
St. John's College .....	171	Distribution of .....	76, 77, 87, 88
St. Johns River .....	181	Eggs taken at Fort Washington Sta-	
St. Joseph River .....	147	tion .....	33
St. Paul Island, mesozoic fossils of .....	66	Fisheries of the Potomac River .....	180, 182, 193
St. Peter Island, mesozoic fossils of .....	66	Fry held in confinement .....	31
<i>Salmo mykiss</i> .....	142	Occurrence of, on Pacific Coast .....	9, 175
macdonaldi .....	143	Operations of <i>Fish Hawk</i> .....	55
<i>Salmo salar</i> .....	161	Propagation of .....	28, 29, 30, 32, 33, 34, 55
Salmon-canning industry .....	134, 174	Propagation, results of .....	9, 175, 181
Salmon fishing, methods of .....	133	Rearred at Fish Ponds .....	36
Salmon investigation in Alaska .....	7, 132	Statistics .....	182, 183, 193
Salmon, natural history of .....	7	Yearlings, occurrence of .....	32
Salmon rivers of Alaska, study of .....	98	Shaw Bay .....	101
Salmon trout .....	100	Shaw, Kendall & Co .....	38
<i>Salpa</i> , study of .....	152	Sheep Island .....	108
Salt Lake Basin, fishes in .....	142	Sheepshead statistics .....	193
Sand-dab:		Shells, description of .....	67
Characteristics of eggs .....	26, 162	Signal Office, courtesies from .....	72
Propagation of .....	26, 162	Sitka .....	104
Spawning of .....	26	Skate eggs, characteristics of .....	26
Sandusky Station, Ohio:		Skate, spawning of .....	26
Production of .....	11	Slime Bank, description of .....	2, 101
Report on .....	37	Smelt:	
San Francisco Bay:		Distribution of .....	92
Oyster investigation in .....	98, 107	Propagation of .....	34
Fish trade .....	174	Smiley, C. W. ....	72
San Leandro Bay .....	108	Smith, H. M. ....	8, 173, 175
		Socorro Island .....	67

## REPORT OF THE COMMISSIONER—Continued.

	Page.		Page.
South Atlantic fisheries .....	9, 177, 178	Straits of Magellan, birds of.....	66
oyster statistics.....	179	Stranahan, J. J.....	38
South Carolina oyster investigations .....	4, 98, 120	Striped bass on the Pacific coast .....	9
South Jersey Institute .....	170	statistics of.....	192
Spanish mackerel:		<i>Stromateus paru</i> .....	193
Distribution of.....	96	Sturgeon fishery of Potomac River.....	182, 193
Embryology of.....	6	Sturgeon yearlings, occurrence of.....	32
Fishery for .....	188, 203	Sunfish .....	191
Inquiries regarding .....	6	distribution of.....	35, 44, 84, 96
Off Florida.....	203	Superintendent of schools, Olean, N. Y....	170
Propagation of.....	56, 158, 159	Sweeny, sr., R. O.....	43
Statistics .....	189	Switzerland, fish sent to.....	74
Specimens for aquaria, collection of.....	55	<i>Sycotypus</i> .....	112
Spindel, I .....	26	Syrian College.....	170
Sponges, reproduction of .....	167	Tables, list of:	
Spot .....	193	Appropriations .....	1
Spotted catfish, distribution of .....	34	Bluefish statistics.....	100
Spotted squeteague.....	190	Central Station, operations at.....	33, 34, 35
statistics .....	191	Cold Spring Harbor Station, produc-	
Squeteague:		tion at.....	28
Distribution of.....	84	Craig Brook rearing operations .....	17, 18, 19
Eggs, characteristics of.....	26	Distribution, details of.....	76-96
Fishery .....	190	Fort Washington, shad eggs collected	
Propagation.....	25, 160	at.....	33
Spawning of .....	26	shad taken at.....	33
Statistics .....	183	Gloucester Station, Mass., operations .....	24
Squid, spawning of .....	26	Landlocked salmon, spawning opera-	
Squire, Watson C.....	64	tions of.....	14
Starfish:		weight of .....	15
Apparatus for destroying .....	115	Lobster eggs taken .....	105
destruction of.....	114, 115	Lobsters, size of.....	105
Destructive to oysters .....	112, 113	Marine fishes, spawning of .....	26
Life history of .....	110, 152	Mississippi Basin fishes distributed .....	44
Movements of .....	113	Oyster-packing statistics .....	186
State Fish Commissions, relations with..	71	statistics of South Atlantic	
Stations:		coast .....	179
List of .....	10	Potomac River shad catch .....	183
Production of .....	10	Production of fish by stations .....	10, 11, 12
Reports on .....	14	summary of .....	13
Statistical field work .....	8	Quincy Station, fish distributed from .....	44
Statistics:		Railroads furnishing free transporta-	
Bluefish fishery .....	190	tation .....	60
Bonito fishery .....	191	Railroad service .....	60
Crevalle fishery .....	192	Schoodic Station, spawning opera-	
Menhaden fishery .....	193	tions at .....	14
Oyster-packing industry .....	186	Shad catch of Potomac River .....	183
Pompano fishery .....	191	eggs collected at Fort Wash-	
Porgy fishery .....	192	ington Station .....	33
Shad fishery .....	193	taken at Fort Washington Sta-	
Sheepshead fishery .....	193	tion .....	33
Spanish-mackerel fishery .....	189	South Atlantic Coast oyster sta-	
Spotted-squeteague fishery .....	191	tistics .....	179
Striped-bass fishery .....	192	Spanish mackerel, propagation of .....	56
The fisheries, report on .....	8, 173	statistics .....	189
Weakfish fishery .....	101	Spawning operations at Schoodic	
Steam launch for Put-in Bay .....	38	Station .....	14
Stearns, Robert E. C.....	67	Squeteague statistics .....	191
Stearns, Silas .....	180	State fish commissions, fish furnished .....	71
<i>Stenotomus chrysops</i> .....	160	Stations, list of .....	10
Stevens, C. W .....	154	production of .....	10, 11, 12
Stevenson, C. H .....	175, 179, 195	Temperatures .....	26, 28, 34
Sticklebacks, spawning of .....	55	Temperature stations, list of .....	130
Stockbridge, Francis B .....	64	Transportation furnished by rail-	
Stone, Livingston .....	132	roads .....	60

## REPORT OF THE COMMISSIONER—Continued.

	Page.		Page.
Tables, list of—Continued.		Vermont Fish Commission.....	72
Water density at Woods Holl.....	26, 28	Vermont fish hatchery, appropriation for.....	59
temperature at Central Sta- tion.....	34	Vessels, improved types of.....	199
Woods Holl.....	26, 28	Virginia oyster fishery.....	4
Weakfish statistics.....	191	Von Behr trout: Distribution of.....	46, 70, 90, 91
Woods Holl fish-cultural operations.....	25, 26, 28	Propagation of.....	18, 34, 36, 37, 39, 41, 43, 44, 45
Tangier Sound, oyster investigation of.....	5, 122, 123, 124	Vreeland, Charles E.....	126
Tanner, Z. L.....	2, 100, 134	Wabash River, Indiana.....	147
Tautoga onitis.....	160	Walrus Islands.....	103
Tautog: Characteristics of eggs.....	26	War Department, courtesies from.....	73
Distribution of.....	84	Washington and Jefferson College.....	137, 153
Propagation of.....	25, 160	Washington treaty, abrogation of.....	201
Spawning of.....	26	Watase, S.....	153
Temperature in density observations.....	131	Water analysis of Long Island Sound.....	119
stations.....	130	Water density.....	26, 28
of water.....	26, 28	Water temperature.....	26, 28
Tench: Distribution of.....	34, 35, 46, 86	Waters, B. H.....	154
Propagation of.....	35	Weakfish, statistics of.....	191
Spawning of.....	40	West Indies, birds of.....	66
Terapin statistics.....	183	West Virginia Fish Commission.....	72
Terre Haute, Ind.....	147	White, Charles A.....	66
Thimble-eye mackerel.....	203	White, H. G.....	151
Thompson, W. J.....	28	White bass, distribution of.....	44, 82
Tides in Long Island Sound.....	110, 117	Whitefish: Distribution of.....	80, 81, 92
Tillamook Rock.....	105	Eggs, collecting of.....	42
Tippecanoe River.....	147	Propagation of.....	33, 34, 37, 38, 39, 41, 42, 43, 44
Toadfish: Characteristics of eggs.....	26	White trout.....	190
Spawning of.....	26	Wilcox, W. A.....	174, 175, 180, 105
Toke Point.....	105	Wilkins, C. F.....	188
Tolbert, George H.....	48	Willapa Bay.....	105
Towing net for intermediate depths.....	108	Williams, George B., Jr.....	49
Townsend, Charles H.....	3, 67, 100, 107	Wilson, H. V.....	6, 151, 157, 167
Trachynotus carolinus.....	191	Wilson, J. M.....	68
Transportation granted by railroads.....	60	Widom, W.....	197
Treasury Department, relations with.....	196	Winslow, Francis.....	120, 123
Trovallé.....	192	Winyah Bay, oyster investigation in.....	120
Trout destroyed by irrigating ditches.....	141	Wires, S. P.....	42
parasites, cause of.....	140	Wisconsin Fish Commission.....	72
of Yellowstone Park.....	139	Wisconsin, investigation in.....	145
Twin Lakes.....	147	Wisconsin State Normal School.....	171
Ugaguk River.....	102	Withlacoochee River.....	150
Umpqua River.....	105	Woman's College of Baltimore.....	170
Unalaska.....	101	Wood River salmon fisheries.....	98, 134
Uninuk Pass.....	100	Woods Holl Station, Mass.: Fish-cultural work at.....	155, 157, 160
U. S. Coast and Geodetic Survey.....	116, 120, 123, 126	Laboratory at.....	99, 151
U. S. Fish Commission, investigation of.....	61	Naturalist at.....	6
U. S. National Museum.....	170	Production of.....	10
University of North Dakota.....	154	Report on.....	24, 151
Pennsylvania.....	123	Woodworth, W. McM.....	153
South Carolina.....	170	Woolman, Albert J.....	149, 150
Wisconsin.....	170	World's Columbian Exposition.....	69, 171
Urosalpinx.....	154	Worms, anatomy of.....	153, 154
Utah, explorations of.....	7	Worth, S. G.....	32, 33, 181
Utah Fish Commission.....	72	Wright, A. A.....	154
Utah, investigations in.....	140	Wyoming Fish Commission.....	72
Utah Lake, trout of.....	142	Wyoming, investigations in.....	135
Valentine, Ind.....	147	Wytheville Station: Production of.....	11
Vasey, George.....	66, 67	Report on.....	36
Venus mercenaria.....	185	Yale University.....	164

## REPORT OF THE COMMISSIONER—Continued.

	Page.		Page.
Yaquina Head .....	105	Yellowstone National Park :	
Yellow perch :		Fish in .....	135, 136
Distribution of .....	34, 35, 81, 92, 93	Fish planted in .....	137
Hatching of .....	34	Invertebrate fauna of .....	7
Propagation of .....	33	Investigations in .....	7, 135
Spawning of .....	55	Streams, characteristics of .....	137, 138
Yellow River .....	147	Zimmerman, J .....	126

## INVESTIGATIONS OF THE ALBATROSS.

A. B. Field, steamer .....	214	Bank, Flattery .....	217, 275, 289
Abingdon Island .....	265	Grand .....	281, 289
Acapulco .....	258, 265, 267, 268	Gravel .....	288
Agassiz, Alexander .....	258, 259, 264, 266	Heeceta .....	217, 234, 271, 275
Aghileen .....	247	Kulukak .....	283
Agonidae, occurrence of .....	235, 236	Port Möller .....	281
Akun Island .....	280	Slime .....	232, 237, 239, 253, 254, 255, 280, 281, 283
Akutan Island .....	280	Yaquina light-house .....	217
Akutan Pass .....	253	Bank off Grays Harbor .....	216
Alaska Commercial Company .....	231, 232, 24+	Bank off Nestuggah, Oregon .....	214
Alaska, investigations in .....	207, 226	Bank off Toko Point light-house .....	217
Alaska Packing Company's cannery .....	285	Banks off Santa Cruz .....	219
Alaska Peninsula .....	239, 245, 246, 256	Banks, Hospital .....	283
Aleyonarians, occurrence of .....	225, 256	Barabaras .....	244
Aleknagik Lake .....	287	Baranoff's report, cited .....	242
Aleutian Islands .....	253, 287	Barouovitch fishery .....	208
Alexander, A. B. ....	214, 219, 229, 237, 270, 271	Barracuda, occurrence of .....	279
Alligator-fish .....	236, 237, 255	Bartlett Bay .....	209
Amak Island .....	233, 234, 237, 239, 246, 253, 281	Basket stars, occurrence of .....	235
Amphipods .....	256	Bass, sea, occurrence of .....	276
Anchovies, occurrence of .....	258, 277	Bathymasters, occurrence of .....	235
Anderson, Capt. ....	243	Bay, Chatham .....	261
Anderson, E. A. ....	257, 270	Bay, Wafer .....	262
Anderson Rock .....	227	Beam trawl, use of .....	213
Annellids, occurrence of .....	210, 213, 225, 226, 235,	Bear, steamer .....	226, 232
	236, 255	Bears, occurrence of .....	242, 249
Annette Island .....	207	Becher Bay .....	221
Año Nuevo .....	222, 276	Belcher, Sir Edward .....	261
Antedon .....	256	Bell, Capt. ....	214
Anthomastus .....	225	Bonham, A. E. K. ....	226
Antimora .....	255, 256	Bering Sea .....	227, 231, 235, 239, 243, 245, 251, 253,
Apparatus used .....	213, 217, 269		255, 256, 280, 281, 284, 287
Arago, steamer .....	232, 244	Bering Sea, fauna of .....	254
Arch Rocks .....	273	Bering Sea, investigations .....	210, 226, 238, 269
Arctic Canning Company .....	284, 287	Bering Sea, meteorological conditions in ..	252
Arctic tomcod .....	236	Biudloo Island .....	265
Arena Point .....	275	Black-cod, occurrence of .....	213, 217, 272
Ascidians, occurrence of .....	225, 235, 236	Black fulmars, abundance of .....	218
Astoria .....	213, 214, 215	Black Beach Road .....	264
Astrophyton, occurrence of .....	225, 235, 237	Black Rock .....	251
Atka Island .....	287	Bluff Point .....	248
Atlantic Ocean .....	266, 284	Boats, fishing .....	277, 285
Auks, Little .....	227	Bodega Bay .....	275
Auk Village .....	206	Bodega Head .....	275, 277
Avatanak Island .....	280	Bogoslof Island .....	242
Baird Bank .....	234, 237, 239, 240, 240, 253, 255, 281,	Bogoslof Volcano .....	242, 244
	282, 283	Bonita, steamer, collision with .....	215
Baird, Spencer F. ....	239	Booby, occurrence of .....	258
Bait, abundance of .....	281, 290	Brachiopods, occurrence of .....	225, 255
Ballestas Bay .....	276	Bristol Bay .....	228, 232, 234, 236, 245, 250, 252, 281, 282,
Banka, cod .....	230, 244		283, 284, 287
Bank, Baird .....	234, 237, 239, 240, 249, 253, 255, 281,	Bristol Bay Canning Co .....	285, 286, 287
	282, 283	Bristol Bay, fauna of .....	254
Cordell .....	220, 222, 276, 277	Bristol Bay, fishing .....	240, 280, 284

## INVESTIGATIONS OF THE ALBATROSS—Continued.

Page.	Page.
Bristol Bay, halibut.....	281
Bristol Bay, cod.....	282, 283
Bristol Bay, salmon canneries.....	284
British Columbia Indians.....	207
Broad Bay .....	245
Brothers.....	218
Broughton Straits .....	227
Brown, George.....	226
Bryozoans, occurrence of.....	225, 236, 237
California coast, explorations off.....	210, 215, 216, 210, 222
California, Lower.....	268
Calkins, C. G .....	218, 237, 270
<i>Cancer antennarius</i> .....	225
<i>Cancer magister</i> , abundance of.....	225
<i>Cancer productus</i> .....	225
Canneries of Nushagak River.....	285
Canneries, salmon.....	229, 251, 284, 285, 286, 287
Cannery at Chilkat .....	209
at Freshwater Bay.....	209
at Karta Bay.....	208
near Port Simpson.....	208
of Alaska Packing Co.....	285
Cape Cheerful.....	242, 244, 245, 288, 290
Chichagof.....	230
Constantino .....	230, 236, 240, 250, 251, 253, 283
Corrientes .....	267, 208
Falcon .....	272, 273
Flattery .....	212, 226, 254, 271, 274
Flattery fog signal.....	211
Flattery, investigations off.....	216, 217
Flattery light-house.....	217
Glasenap.....	233, 246, 247
Gregory.....	212
Gregory, investigations in vicinity of	274
Grey .....	249, 250
Hague.....	280
Kalekhta.....	244
Kutuzof.....	240
Lookout .....	214, 273
Mala .....	258, 267
Makushin.....	242, 244, 245, 289
Meares .....	273
Menchikof .....	249
Mendocino .....	215, 216, 226, 254, 271, 275
Morgan .....	253
Newenham .....	229, 230, 231, 236, 240, 252, 253, 283, 284
Northwest .....	280
Orford .....	215, 217, 254, 274
Perpetua, Oregon .....	272
Peirce.....	240, 252, 283
San Lucas.....	267, 268
Sebastian .....	215, 275
Seniavin .....	240
Strogonof .....	249
Suworof .....	250
Capelin .....	236
Captain Harbor .....	255, 280, 290
Cardena Bay .....	207
<i>Careproctus</i> .....	235, 255
Caribbean Sea .....	261, 266
Earnel Point .....	223
Carter Bay .....	207
Cave, discovery of.....	263
Cave Point .....	246
Census agent aided .....	229
Central America, investigations off west coast .....	256
Central Pacific R. R. ....	263
Cerros Island .....	257
Charles Island .....	264, 265
Charleston, steamer .....	218, 226
Charts .....	256
Charts, inaccuracy of .....	228
Chatham Bay .....	261, 262
Chatham Island .....	264
Chatham Straits .....	208, 209
Chernofsky .....	245, 289, 290
Chernofsky Bay .....	245
Chestakof Island .....	249
Chilkat .....	209
Clarence Straits .....	208
Clark, J. W. ....	220, 285
Clark Point .....	250, 251
Clipperton Island .....	267
Coal Bluff .....	248
Cobos, Señor Manuel A .....	264
Cocos Island .....	258, 260, 261, 262, 267, 268
Cod, abundance of .....	237, 245
Cod affected by weather .....	282
Cod, black, occurrence of .....	213, 217, 272
Cod, cultus, occurrence of .....	213, 220, 275, 276
Cod banks .....	224, 230, 234, 245
Cod banks in Bering Sea .....	245
Cod grounds .....	232
Cod, occurrence of .....	208, 214, 236, 230, 240, 255, 281 288, 289
Cod, pebbles found in .....	283
Cod, young, abundance of .....	290
Coffee Point .....	251, 286
Coiba Island .....	258
Collision with steamer <i>Bonita</i> .....	215
Colnett, Capt .....	261
Colon .....	258
Columbia River .....	226, 271
Columbia River boats, type of .....	285
Columbia River soundings .....	275
<i>Comatula</i> .....	225
Compass errors .....	231
Conway Bay .....	265
Cook, Capt .....	242
Coquille River .....	274
Corals .....	256
Corals, aleyronarian .....	225
Corals, occurrence of .....	218, 225, 256
Cordell Bank .....	220, 222, 276, 277
Corrientes, Cape .....	268
<i>Corwin</i> , steamer .....	243
Crabs, hermit .....	237
Crabs, occurrence of .....	225, 226, 237, 246, 255, 277
Crew, reduction of .....	269
Crinoids .....	256
Crooked Island .....	251
Crow Reef .....	248
Crustacea, abundance of .....	226, 236, 255
Cultus-cod, occurrence of .....	213, 217, 220, 275, 276
Cup corals .....	213, 225, 256

## INVESTIGATIONS OF THE ALBATROSS—Continued.

	Page.		Page.
Cypress Point .....	221, 223, 278	Fort Alexander .....	251, 285
Dampier, vessel.....	261	Fort Tongas .....	207
Dawes, H. L.....	207	Fox Rock .....	254
Deer Island.....	249	Freshwater Bay .....	209
Deep-sea sounding apparatus.....	269	Frigate-birds .....	258
Departure Bay.....	207, 210, 212, 226, 227, 254	Fulmars, abundance of .....	218
Difficulties encountered by fishermen.....	218	Fur seals, occurrence of .....	226
Dog Point.....	248, 249	Galapagos Islands .....	256, 263, 264, 265, 267, 268
Dogfish, abundance of .....	213	Galera Point .....	263
Dog salmon .....	255	Gardner, Jas. E.....	237, 256
Drake Bay .....	220, 276, 277	George L. Chance, schooner .....	275
Drake, N. H.....	256, 270	Gerstle Bay .....	247
Dredging apparatus.....	218, 270	Gilbert, C. H.....	210, 226, 235, 237, 254, 256
Dredging and trawling stations, record of, 302-310		Gill-net salmon fishing .....	285
Dredge rope .....	270	Gilmer, W. W.....	226, 237, 268
Drowning of men .....	218	Glacier Bay .....	209
Dry dock at Esquimalt .....	210	Glyptocephalus zachirus .....	225
Duncan, Mr.....	207	Golden Gate .....	220, 223
Duncan Island .....	265	Goleta Channel .....	211, 227
Duncan Rock .....	211, 212	Gonies, occurrence of .....	218
Eagle Rock .....	248	Goodnews Bay .....	231, 252
Eberle, E. W.....	237, 256	Gorgonian corals .....	225, 237
Echinorachnitus .....	235	Grand Bank .....	282, 289
Ecuador, coast current .....	268	Gravel Bank .....	283
Eelpouts, occurrence of .....	235	Grays Harbor Bank .....	216
Ekuk .....	228, 251	Great Glacier .....	200
Elder Point .....	245	Guadeloupe .....	257
Electric light used in collecting .....	217	Guaymas .....	265, 266, 267
El Jarrow Point .....	222	Guillemons .....	243
Engine, accident to .....	211	Gulf of California .....	217, 238, 266
Engine, reeling .....	270	Dulce .....	258, 267
Engine, repair of .....	212	Georgia .....	227
Enright, J., drowning of .....	218	Mexico .....	266
Entrance Point .....	234, 238, 242, 247, 248, 249	Panama .....	201, 203, 264, 265, 267
Esquimalt, dry dock .....	210	Gulls, occurrence of .....	218, 227, 258
Eskimos, illness of .....	230	Hacienda del Prógreso .....	264
Eskimo village .....	251	Hagemeister Channel .....	230, 236, 252
Esteros Bay .....	221	Hagemeister Island .....	236, 240, 252, 283
Etolin Point .....	228, 250	Hagfish, occurrence of .....	210
Exhibition of <i>Albatross</i> at Portland, Oreg. ....	215	Hague Channel .....	238, 248
Falcon Rocks, investigations of .....	214	Half-tide Rock .....	248
False Tillamook .....	272	Halibut, occurrence of .....	208, 217, 236, 244, 245, 255, 275, 281, 282, 289
Fanny Shoal .....	278	Harbor Point .....	247, 248
Farallon Islands .....	223, 276, 277	Hassler, steamer .....	226
Fassett, Harry C.....	237, 270	Heceta Bank .....	213, 216, 217, 254, 271, 275
Fauna of Bering Sea .....	254	Heceta Head .....	272, 274
Bristol Bay .....	254	Herendeen Bay .....	234, 235, 238, 239, 241, 242, 247, 249, 253, 255, 256, 282
Pacific Ocean .....	254	Herendeen Bay coal .....	241
Finback whales .....	245	Hermit crabs .....	237
Fishermen, difficulties encountered by ..	218	Herring, schools of .....	227
Fishes found off California coast .....	224	Hexagrammus .....	236
Fishing boats .....	277	High Island .....	251, 252
Fishing-grounds .....	232, 276, 282, 284	Holcombe, J. H. L.....	257, 270
Fishing-grounds off Orford Reef .....	217	Holothurians, occurrence of .....	213, 225, 226, 237, 255
Fishing stations, table of .....	311-315	Hoonyah Bay .....	209
Flattery Bank .....	217, 275, 289	Hospital Banks .....	283
Flattery Rocks .....	216, 217	Humboldt Current .....	263, 267, 268
Flatfish, occurrence of .....	217, 220	Humpback salmon, abundance of .....	290
Flounders, occurrence of .....	213, 217, 225, 235, 236, 237, 255, 272, 273, 275, 277, 281, 290	Hundred-fathom curve .....	216
Flying fish .....	258	Hunt, A. M.....	269, 270
Forest fires .....	210	Hydrocorallinae .....	225
Foraminifera .....	261, 266		

## INVESTIGATIONS OF THE ALBATROSS—Continued.

	Page.		Page.
Hydrographic information.....	245	Mare Island navy-yard .....	216, 218, 222, 226, 256,
Hydrographic operations off coast of Washington.....	271	Mariotu Point.....	258
Hydrographic soundings, record of.....	291-301	Marion, U. S. S.....	226
Hydroids .....	236, 255, 256	Matthew Turner, schooner.....	243
Iey Straits.....	209	Mattie T. Dyer, schooner.....	232
Iliniuk.....	227, 231, 242, 244, 245, 287, 290	Medusa, occurrence of.....	232, 237, 254, 255
Indefatigable Island .....	265	Mendenhall, Thomas C.....	269
Indians of British Columbia.....	207	Mendocino Cape .....	227, 275
Isanotski Strait.....	246	Merriam, Dr. C. Hart.....	269
Italian fishermen of San Francisco.....	275	Meteorological conditions in Bering Sea ..	252
Izenbek Bay.....	233, 246, 281	Meteorological observations, record of ..	329-342
James Island .....	265	Mexico, coast of .....	256, 265, 266
Jellyfishes .....	280	Mexico, Gulf of .....	266
Jencen, H. C.....	284	Microstomus pacificus .....	225
Jicarita Island .....	258	Midway Rock .....	248
Jones, J. K .....	207	Miller, N. B.....	237, 270
Johnson, P. H.....	229	Mine Harbor .....	238, 239, 241, 248, 249, 255
Johnston, Marbury.....	218, 237, 256	Mollusks .....	213, 236
Johnston Channel.....	238, 248	Moffett Point .....	247
Johnston Hill.....	249	Monterey Bay .....	221, 222, 223, 278, 279
Johnston Straits .....	227	Monterey fishermen .....	279
Juneau.....	209, 210	Morro Puercos .....	258
Karluk, steamer.....	232	Muir Inlet .....	200
Karta Bay .....	208	Muranoides .....	236
Kastrometinoff, George .....	208	Myctophium .....	235, 255
Keen, J. W.....	207	Naked mollusks .....	237
Khudiakoff Islands .....	247	Naknek River .....	228, 236, 240, 245, 249, 250, 282, 287
Khudubine Islands .....	247	Nateekin Bay .....	245
Kichly, John.....	257	Natural-history observations .....	235, 254
King salmon .....	286	Navy-yard, Mare Island .....	218, 226, 256, 268
Koos Bay .....	215	Negretti and Zambra thermometers .....	260, 270
Kootznahoo Roads.....	208, 209	Nelson Lagoon .....	247
Kritskoi .....	247	Nestuggah, Oregon, bank off .....	214
Kuskokwim River .....	229, 230, 231, 236, 245, 249,	Net, Tanner .....	263, 265
	252, 283	Net, trammel, use of .....	276
Kulunkak Bay .....	240, 245, 251	New Bogoslof .....	242, 243
Bank.....	240, 283	Newenham, Cape .....	284
Kvichak River.....	245, 282	New Metlaheatlah .....	207
Lako Nushagak .....	287	Nichols Hills .....	250
Lee, W. W., drowning of .....	218	Northern Pacific Industrial Exposition ..	215
Lemesuret Point .....	210	North Farallon .....	222
Lionel Wafer, vessel .....	261	Noonday Rock .....	230, 232, 277
Ling, occurrence of .....	172	Northwest Cape .....	231, 232, 233, 237, 245, 246, 280
Liparis, occurrence of .....	236	Notacanthus .....	255
Lithodes, occurrence of .....	226	Nunivak Island .....	284
Little auks .....	227	Nushagak Canning Co .....	220, 285
Lobas Point .....	276	Nushagak Lake .....	287
Long-finned sole, occurrence of .....	225	Nushagak Packing Co .....	251
Lopez Rock .....	223	Nushagak pilot .....	228
Lower California .....	268	Nushagak River .....	228, 230, 236, 240, 245,
Lower Nushagak .....	251, 256		250, 262, 284, 286
Low Point .....	239	Nushagak River canneries .....	285
Lycodes .....	235	Octopus, occurrence of .....	225, 255, 256
McCormick, C. M.....	237, 256	Okhotsk Sea .....	290
Mackerel attracted by electric light .....	217	Old Bogoslof .....	242
Macrurus .....	255, 256	Old Metlaheatlah .....	207
Makushin Bay .....	244, 289, 290	Olya, schooner .....	234
Makushin Volcano .....	243, 256	Ophiurans, occurrence of .....	210, 213, 223, 235, 237, 255
Malpelo Island .....	258, 262, 267	Oregon coast, investigations off .....	210, 212, 216, 254
Manderson, C. F.....	207	Orford Reef .....	214, 217, 274
Man-of-war hawks .....	258	Orange rockfish, occurrence of .....	272
Marble Point .....	238, 248	Otter Bay .....	212

## INVESTIGATIONS OF THE ALBATROSS—Continued.

	Page.		Page.
Oyster investigation in San Francisco			
Bay.....	269	Port Möller Bank.....	281
Pacific coast curve.....	218	Orford.....	215
Pacific Ocean, fauna of .....	254	Simpson .....	207
Pacific whiting, occurrence of .....	217	Townsend .....	210, 211, 212, 254
Padgett, R. S., drowning of.....	218	Wrangell.....	208
Panama.....	257, 258, 262	Port Townsend and Southern R. R.....	254
Panama, Gulf of.....	261, 263	Post-office Bay.....	265
Panama Road.....	258	Prawns, occurrence of.....	218, 225, 236, 255
Panama, current off.....	268	Pribilof Islands.....	269
Parmenter, H. E.....	218	Priest Point.....	244, 288, 290
Pavloff Harbor.....	209	Programnoi Volcano.....	246
Pavloff Volcano.....	247	Protection Point.....	228, 240, 250
Pearl Islands.....	265	Puffins.....	212
Pearl, schooner .....	240, 249	Pyramid Harbor.....	209
Perice Cape.....	240, 252, 283	Queen Charlotte Islands.....	253, 256, 274, 289
Pelicans .....	258	Queen Charlotte Sound.....	227
Pennatulas .....	225	Rankin, Mr.....	289
Perch, abundance of.....	279	Red rockfish, occurrence of.....	273, 273, 276, 277
Perch, viviparous, occurrence of .....	279	Red salmon.....	286
Peril Straits .....	208, 209	Reeling engine.....	270
Perpetua, Cape, Oregon .....	272	Reindeer, occurrence of.....	242, 249
Personnel of vessel .....	237, 270	Repair of <i>Albatross</i> .....	216, 218, 220, 256, 263
Petrels, occurrence of.....	218, 258	Repair of engines.....	212, 270
Petroff, Ivan .....	220, 230	Reeve, ship, rescuing men of .....	257
Philippi, Walter, drowning of.....	218	Rovilagigedo Islands.....	217
Piedras Blancas Point .....	221, 223	Reyes Point fisheries.....	275, 277
Pigeon Point.....	219, 220, 222	Rivadeneyra Shoal.....	262
Pilot Station.....	250	Rock-cod, occurrence of .....	213, 214, 217, 220, 236
Plover, capture of .....	227	Rockfish, occurrence of .....	272, 273, 275, 276, 277
Point Año Nuevo .....	276	Roelker, C. R.....	235, 237, 241, 257
Arena.....	220, 222, 254, 275	Rosario Straits .....	254
Arguello.....	221, 223	Round Island.....	230, 236, 261
Bonita .....	219, 220	Round Point.....	233
Buchon .....	221, 223	Rush, steamer.....	244, 253
Carmel.....	221	Russian River.....	220, 222, 277
Coffee .....	286	Sail Rock.....	242, 243
Conception .....	221, 223	St. Michaels.....	284
Cypress, trials with hand lines and beam trawl .....	278	St. Paul, steamer .....	232
Divide.....	235, 238, 239, 247, 248	Salmon canneries .....	200, 220, 251, 284, 285, 286, 287
Esteros .....	223	Salinas River .....	223
Galeria .....	263	Salmon, dog .....	255
Lobas .....	276	methods of fishing for .....	285
Pilar .....	223	occurrence of .....	208, 209, 240, 249, 286
Pinos .....	222, 223	price paid for putting up, etc... .....	286
Purisima .....	223	red .....	286
Reyes .....	222, 223, 254, 275, 277	silver .....	286
Reyes light .....	220	spawning season .....	287
Sal .....	223	traps .....	287
San Luis.....	221, 223	young, occurrence of .....	236
San Pedro .....	276	Salpa, occurrence of .....	226
Sur .....	223	Salt Point .....	222
Tomas .....	275	San Diego .....	207, 208
Pollock, occurrence of .....	235, 236, 237	San Francisco, Cal .....	210, 220, 253, 256, 257, 267, 268
Polyp .....	225	San Francisco Bay, oyster industry .....	269
Porpoises, marking of .....	227	San Francisco fishermen .....	275
Porpoises, occurrence of .....	218, 226, 227, 258	San Luis Obispo .....	223
Portage Bay .....	209	Sannak Island .....	227, 235, 253, 288
Portland, Oregon .....	271	San Pablo Bay .....	218
Port Chester .....	207	San Simeon Bay .....	218, 221, 223, 278
Haliden .....	240, 249, 253	San Simeon Point .....	223, 276
Möller .....	234, 235, 238, 239, 242, 249, 253, 282	Santa Barbara .....	221
		Santa Barbara beach .....	279
		Santa Barbara channel .....	221, 222

## INVESTIGATIONS OF THE ALBATROSS—Continued.

Page	Page		
Santa Barbara Islands.....	267	Sulima River .....	249
Santa Catalina Island.....	257	Surf ducks.....	212
Santa Cruz.....	219, 222, 223	<i>Synaphobranchus</i> .....	255
Santa Cruz banks.....	219	Tables:	
Santa Cruz channel.....	257	California coast fishes .....	224
Santa Cruz fisherman.....	279	Dredging stations.....	302-310
Santa Cruz light-house .....	219	Fishing stations .....	311-315
Santa Rosa Island.....	221	Hydrographic soundings .....	291-301
Sausalito.....	219, 220	Meteorological observations .....	329-342
Sawmill near Port Simpson .....	208	Ocean temperatures .....	321-327
Schizaster, occurrence of.....	225	One-hundred-fathom curve .....	216
<i>Schizothærus</i> .....	255	Serial temperatures .....	328
Scientific results of cruise.....	266	Specific gravities .....	321-327
Scott Islands.....	254	Summary of operations .....	237
Sculpins, occurrence of .....	235, 236, 237, 255, 275, 281	Towing-net stations .....	320
Sea-anemones.....	230, 255, 256	Tacoma, Washington.....	207, 210
Sea bass, occurrence of.....	276	Tanner net.....	263, 265
Sea birds, occurrence of .....	226	Tanner tow-net, description of .....	259
Seal Islands.....	249, 253, 269	Tehuantepec.....	258, 267
Sea Lion Rock.....	234, 247	Temperatures, record of .....	321, 327, 328
Sea lions .....	243, 247, 273, 281	Thermometers, Negretti and Zambra .....	260, 270
Sea lions destructive to fish .....	214, 217, 231	<i>Thetis</i> , steamer.....	218
Seal Rock.....	252	Tide rips off Esteros Bay .....	221
Sea trout.....	236	Tigaldi Island .....	280
Seattle, Washington.....	210	Tillamook Bay .....	273
Sea-urchins .....	210, 225, 255	Tillamook, False .....	272
Sebastian, Capo.....	275	Tillamook Rock .....	212, 217, 273
<i>Sebastodes</i> , occurrence of .....	235, 236	Togink Bay .....	251
<i>Sebastolobus</i> , occurrence of .....	236	Toke Point light-house .....	217
Senate Committee on Indian Affairs .....	210	Tomales Bay .....	275
Serial temperatures, record of .....	328	Tomales Point .....	222, 275
Seymour Islands.....	265	Tomcod .....	236, 275, 277
Seymour Narrows .....	210, 227	Tongue Point .....	230, 252
Sharks .....	218, 226, 227, 262	Tow-net, submarine, description of .....	250
Shaw Bay .....	228, 246	Tow-net, Tanner, description of .....	259
Shells, occurrence of .....	210, 225, 235, 236	Townsend, C. H. ....	233, 237, 264, 269, 270
Shingle Point .....	248	Trachiopods .....	213
Shishaldin Volcano .....	246	Trade winds .....	267
Shrimps, occurrence of .....	225, 235, 230, 256	Trammel net used .....	276
Shumagin Island .....	253, 288	Trap on Wood River .....	229
Siletz Bay .....	273	Traps, salmon .....	287
Silver salmon .....	286	Trendwell Mine .....	209
Sitka .....	208, 209	Tres Marias Islands .....	206, 268
Siuslaw River .....	272	Trinity Islands .....	253
Skates, occurrence of .....	235	<i>Trophon</i> .....	237
Slime Bank .....	232, 237, 239, 233, 254, 255, 280, 281, 283	Trout, occurrence of .....	209, 290
Smelt, abundance of .....	279	Turtles .....	258
Smith, A. W.....	282	Twine, Barbour .....	285
Sole, occurrence of .....	217, 277, 278	Twins .....	251
South America.....	263	Ugashuk River .....	240, 249, 250, 282
South Head.....	250	Ugashik River .....	240, 249, 282
Southern Pacific R. R.....	263	Ulakhta Head .....	245
South Farallon light .....	219	Umbellulias .....	225
South Farallones .....	210, 222	Umnak Island .....	242, 243, 244, 287
Specific gravities, record of .....	321-327	Umnak Pass .....	289
Sponges, occurrence of .....	213, 225, 234, 235, 236, 237,	Umpqua River .....	216
	255, 256	Unalga Island .....	253
Squids, abundance of .....	225	Unalaska .....	210, 228, 231, 232, 235, 242, 244, 245,
Starfish.....	210, 255, 256		253, 255, 290
Stockbridge, Hon. F. B.....	207	Unalaska Bay .....	244
Straits of Fuca .....	211, 212	Unalaska cod banks .....	245
Submarine tow-net, description of .....	259	Unalaska Islands .....	287, 288
Submarine Valley off Monterey Bay .....	222	Uunimak Cape .....	228
Succ Islands .....	254	Uunimak Island .....	228, 236, 289, 246, 290

## INVESTIGATIONS OF THE ALBATROSS—Continued.

	Page.		Page.
Unimak Pass.....	227, 235, 246, 253, 280	Wassilieff, Capt.....	224
U. S. Census agent, aided .....	229	Wellington coal.....	247
U. S. <i>Grant</i> , steamer.....	278	Wenman Island.....	262
U. S. Senate Committee on Indian Affairs.....	207, 209, 210	Western bank.....	278, 282
Vancouver .....	261	Whales, feeding of.....	229
Vancouver Island.....	227	Whales, occurrence of.....	218, 226, 227, 245, 278
Vanderbilt, schooner.....	234, 282	Whiting, occurrence of.....	215
<i>Verrillia</i> , occurrence of.....	225	Willoughby Island.....	204
Victoria.....	207, 212	Wilmer, J. R.....	257, 268
Viviparous perch, occurrence of.....	279	Williams, Charles S.....	237, 270
Volcano.....	242, 244, 246, 247, 250	Winds, trade.....	267
Wafer Bay.....	262	Wislow Bay.....	246
Walla Walla Point, investigations off.....	220	Wolf Point.....	247
Walrus, abundance of.....	281	Wood River.....	239, 251
Walrus Islands..	230, 233, 236, 240, 242, 247, 248, 250, 251, 252	Wreck Bay.....	264
Waring, H. S.....	218	Yaquina Head.....	216, 271, 273
Washington coast, explorations off .....	210, 216, 254	Yaquina light-house.....	213
		Yaquina light-house bank .....	217

## OYSTER RESOURCES AND OYSTER FISHERY OF THE PACIFIC COAST.

Acapulco .....	361, 362	Enemies of the oyster in San Francisco Bay .....	348-350
Alameda Creek .....	354	False Bay .....	364
<i>Albatross</i> , steamer .....	344, 345, 346, 361, 362	Ferry, Governor E. P.....	370
Algudones Lagoon.....	361	Fixation of spat.....	350-351
Altata.....	362	Forbes, Cleaveland.....	351
Alviso Slough.....	363	Foreign species of oysters, proposed in- troduction.....	360-362
Angela Creek .....	363	Gedney, steamer.....	367
Angelos Bay .....	362	George Island.....	362
Angel Guardia Island.....	362	Guaymas.....	364
Alvarado.....	356, 357	Gulf of California .....	364
Australian oysters .....	362	Harkness, Dr. H. W .....	353
Ballona Bay.....	364	Hermosillo .....	362
Bay Center.....	367	Hood Canal .....	370
Bay Farm Island.....	352	Humboldt Bay .....	364
Beard Creek.....	363	International Oyster Co., of New York ..	354
Bellingham Bay.....	370	Introduction of foreign species of oysters ..	360-362
Belmont.....	345, 363	La Paz .....	302
Bruceport .....	367	Laramie, Colonel .....	370
Booth, A .....	353	Lawson, Capt .....	364
Budd Inlet .....	369	Los Angeles .....	364
California City .....	345	Manson, M .....	359
Carmen Island .....	362	Mare Island .....	346
Carp introduced into California waters .....	344	McArthur, steamer .....	347, 370
Catfish introduced into California waters .....	344	McNear, Mr .....	360
Cayote Creek .....	363	McNear's Landing .....	359
Chesapeake Oyster Company .....	354	Mexican Oyster Company .....	362
Conception Bay .....	362	Millerton Station .....	364
Corville & Co .....	353, 357	Millbrae .....	349, 350, 356, 357
Crawford, James .....	369	Moraghan, M. B .....	345, 349, 350, 357, 360, 367
Culiacan .....	362	Moraghan oyster establishment .....	357
Davidson, Prof. George .....	346, 360	Morgan, Mr .....	354
Doane, Capt. W. J .....	369	Morgan Oyster Company .....	356, 357, 358, 360
Doane, Mr .....	351	Morgan & Co .....	354
Doane & Co .....	354, 357	Mud Creek .....	363
Dumbarton Point .....	352, 356, 357	<i>Myliobatis californicus</i> .....	348
Dunn, H. D. ....	352, 360	Native Oyster Company of Bay Center ..	367
Eastern oysters in Puget Sound and Wil- lapa Bay .....	370	Natural propagation, evidences of .....	351-353
Ellis Landing .....	352	Newark .....	363
Employees of oyster industry in San Francisco Bay .....	358	North Belmont .....	357

## OYSTER RESOURCES AND OYSTER FISHERY OF THE PACIFIC COAST—Continued.

Page.	Page.
North Cove .....	367
Notes on the oyster industry of San Francisco Bay .....	353, 354
Oakland Creek.....	347, 351, 354
Olympia.....	369, 370
Oyster Bay.....	370
Oyster beds in San Francisco Bay, peculiar situation.....	348
Oyster laws of California .....	365
Ostrea lurida .....	359, 355, 356, 357, 359, 364, 366
<i>iridescens</i> .....	361, 362
<i>palmula</i> .....	362
<i>var. glomerata</i> .....	362
<i>virginica</i> .....	350, 351, 360, 361, 362
Oyster product of Puget Sound .....	369
Oysters put on the market, quantity .....	355
Oysterville.....	366, 367, 370
Pacific Coast native oyster .....	355, 356
Palmer, Dr. Edward .....	362
Pinole Point .....	353
Point San Bruno .....	353, 354, 356, 357
Point San Pedro .....	352
Point San Quentin .....	352, 354
Port Discovery .....	370
Port Orford .....	370
Preparation of ground for laying out oysters .....	350
Puget Sound .....	369-370
Ray, Lieut. W. P. ....	347
Redwood .....	363
Redwood City Creek .....	363
Salinas Bay .....	362
Sanish Bay .....	370
San Diego Bay .....	364
Harbor .....	364
River .....	364
San Francisco Bay .....	343-363
San Jose .....	363
San Josef Island .....	362
San Leondro Bay .....	352
San Mateo .....	345, 355, 357
San Pablo Bay .....	349, 359
Santa Monica .....	364
Sausalito .....	354
Seed oysters, transportation of .....	354
Sheep (or Brooks) Island .....	352, 354
Shoalwater (or Willapa) Bay .....	366-369
Soft-shelled clam introduced into California waters .....	344
South Belmont .....	357
Southern California .....	364
Spawning season .....	353
Starfish .....	350, 370
Steinberger Creek .....	363
Stingrays and stake protection against them .....	348-349
Striped bass introduced into California waters .....	344
Suggestions as to oyster cultivation .....	363
Swanborg & West .....	353, 354, 357
Temperatures at Olympia .....	370
in Oakland Creek .....	347
near mouth of Yaqui River .....	361
of San Francisco Bay .....	345-348
of water and air in the Golden Gate .....	348
of Willapa Bay .....	367-368
one mile from Dumbarton Point .....	348
taken off foot of Market street and Union Iron Works, San Francisco .....	340-347
Tide Land and Water Front Co. ....	360
Tide lands of San Francisco Bay .....	359-360
Washington .....	370-371
Tomales Bay .....	364
Union City Creek .....	363
Urosalpinx cinerea .....	349
Vessels of San Francisco Bay .....	358
Willapa Bay .....	368-369
Weinard & Terry .....	364
Willapa (or Shoalwater) Bay .....	366-369
Wilmington .....	364
Wright, W. P. ....	370
Yaqui River .....	361-362

## COAST FISHERIES OF TEXAS.

Alligator hunting .....	385	Espiritu Santo Bay fisheries .....	407-408
Aransas Bay fisheries .....	409-412	Fish cultivation .....	396
bay seine .....	410	protection .....	396
hook and line .....	410	Fisheries, geographical review .....	397-415
importance .....	409	importance .....	374, 386, 409
oyster .....	410	Fishermen .....	375
turtle .....	411	Flounder fishery .....	384, 400
markets .....	412	spearing .....	400
Bay-seine fishery .....	377, 382, 400, 405, 410, 413, 415	Galveston Bay fisheries .....	398-400
Cast-net fishery .....	381, 400, 405, 415	bay seine .....	400
Coast of Texas, description of .....	397	cast net .....	400
Corpus Christi Bay fisheries .....	412-414	crab .....	402
bay seine .....	413	flounders .....	400
crab .....	413	hook and line .....	401
hand line .....	413	oyster .....	401
oyster .....	414	shrimp .....	402
markets .....	414	spears .....	400
Crab fishery .....	385, 402, 413, 415	surf seine .....	400

## COAST FISHERIES OF TEXAS—Continued.

	Page.	Page.	
Galveston Bay fisheries, wagon.....	400	Oyster industry, extent .....	386
markets.....	403	importance .....	386
Gill nets.....	381	law of Texas.....	419
Hook and line fishery.....	382, 401, 405, 410	Porpoises .....	385
Laguna Madre fisheries.....	414, 415	Pound nets:.....	381
bay seine.....	415	Products, marketing .....	303, 403, 412, 414
cast net.....	415	Red-snapper fishery .....	382
crab.....	415	Rio Grande fisheries .....	414, 415
oyster.....	415	Sabine Lake fisheries .....	397
turtle.....	415	San Antonio Bay fisheries .....	408
Matagorda Bay fisheries .....	404-407	Seine fishery .....	377, 382, 400, 405, 410, 413, 415
bay seine.....	405	Shrimp fishery .....	382, 402
cast net.....	405	Statistics of Texas fisheries .....	410-418
hook and line .....	405	Surf-seine fishery .....	377, 382, 400, 405, 410, 413, 415
oyster.....	405	Tabular statements:.....	
markets.....	407	Apparatus and capital invested .....	416
Mesquit Bay fisheries .....	408	Persons employed .....	416
Oyster beds, area.....	387, 402, 405, 410, 414, 415	Products .....	417
cultivation .....	391	Turtle fishery .....	382, 411, 415
location .....	387, 401, 402, 405, 410, 414, 415	Vessels and boats .....	376, 389
Oyster industry.....	386-393, 401, 405, 410, 414, 415		

## SPAROID FISHES OF AMERICA AND EUROPE.

## Analyses of—

Anisotremus, species of.....	481-484
Aprión, American species of.....	456
Apsilus, American species of.....	455
Archosargus, species of.....	519-520
Boridiá, species of.....	526
Cæsiosoma, American species of.....	538
Calamus, species of.....	508-510
Conodon, species of.....	488
Diplodus, American species of.....	523
Doxidixodon, species of.....	532
Etelis, American species of.....	457
Erythrichthys, American species of.....	528
Genyatromus, species of.....	504
Girella, American species of.....	531
Hæmulon, species of.....	464-468
Hermosilla, species of.....	533
Hoplopagrus, species of.....	431
Isacia, species of.....	501
Kyphosus, American species of.....	534
Lagodon, species of.....	518
Lutjanus, American species of.....	433-438
Medialuna, species of.....	537
Nemipterus, species of.....	505
Ocyurus, species of.....	452
Orthopristis, species of.....	496-498
Pagellus, supposed American species of .....	517
Parapristipoma, species of.....	502
Pomadasys, species of.....	489-492
Rhomboptiles, species of.....	453
Sparidae, European and American genera of .....	424-430
Sparidae, subfamilies.....	422-423
Sparus, American species of.....	516
Spicara, supposed American species of .....	527
Stenotomus, species of.....	506, 507
Xenichthys, species of.....	461
Xenistius, species of .....	460

## Analyses of—

Xenocys, species of .....	459
Verilius, species of .....	458
Anisotremus .....	426, 480-487
bicolor .....	482, 485
cæsius .....	481, 484
catharinum .....	483, 487
davidsoni .....	483, 486
dovii .....	481, 484
pacifici .....	481, 484
scapularis .....	482, 485
serula .....	484, 487
surinamensis .....	482, 484-485
taeniatus .....	483, 486
virginicus .....	483, 486
Aprion .....	425, 455-456
macrophthalmus .....	456
Apsilus .....	424, 454-455
dentatus .....	455
Aplodactylus .....	423, 430
guttatus .....	539
punctatus .....	539
vermiculatus .....	539
Archosargus .....	428, 519-522
aries .....	520, 522
pourtalesii .....	519, 521
probatocephalus .....	520, 522
tridens .....	519, 521
unimaculatus .....	510, 520-521
Bathystoma .....	487
Boridiá .....	428, 526
grossidens .....	526
Boridium .....	423, 428, 526
Boops .....	420, 529
salpa .....	529
Box .....	420, 520
boops .....	529
Brachydenterus .....	491
Brachygenys .....	467

## SPAROID FISHES OF AMERICA AND EUROPE—Continued.

	Page.		Page.
<i>Caesiosoma</i> .....	430, 538	<i>Hæmulon rimator</i> .....	467, 477-478
<i>chilense</i> .....	538	<i>sehranki</i> .....	468, 473
<i>Calamus</i> .....	427, 508-514	<i>scirurus</i> .....	466, 474
<i>arctifrons</i> .....	510, 514	<i>scudderi</i> .....	465, 472
<i>bajonado</i> .....	509, 512	<i>sexfasciatum</i> .....	464, 469
<i>brachysomus</i> .....	509, 512	<i>striatum</i> .....	468, 479
<i>calamus</i> .....	508, 511	<i>Hermosilla</i> .....	430, 533
<i>leucosteus</i> .....	509, 513	<i>azurea</i> .....	533
<i>macrops</i> .....	509, 513	<i>Hoplopagrinus</i> .....	422, 424, 431-432
<i>medius</i> .....	510, 514	<i>Hoplopagrus</i> .....	424, 431, 432
<i>penna</i> .....	510, 514	<i>güntneri</i> .....	432
<i>pennatula</i> .....	509, 512	<i>Isacia</i> .....	420, 501
<i>proridens</i> .....	508, 511	<i>conceptionis</i> .....	501
<i>taurinus</i> .....	510, 513	<i>Iscaciella</i> .....	497
<i>Centracanthus</i> .....	428, 527	<i>Kyphosinus</i> .....	423, 430, 533-538
<i>cirrus</i> .....	527	<i>Kyphosus</i> .....	430, 533-536
<i>Charax</i> .....	428, 525	<i>analogus</i> .....	534
<i>puntazzo</i> .....	525	<i>elegans</i> .....	534, 535
<i>Conodon</i> .....	426, 488	<i>lutescens</i> .....	534, 536
<i>nobilis</i> .....	488	<i>occurus</i> .....	534, 536
<i>serrifer</i> .....	488	<i>sectatrix</i> .....	534, 535
<i>Dentex</i> .....	427, 505	<i>Lagodon</i> .....	428, 518, 519
<i>deutex</i> .....	505	<i>rhomboides</i> .....	518, 519
<i>filosus</i> .....	505	<i>Lutjaninæ</i> .....	422, 424-425
<i>macrophthalmus</i> .....	505	<i>Lutjanus</i> .....	424, 432-451
<i>maroccanus</i> .....	505	<i>ambiguus</i> .....	438, 450
<i>Denticinæ</i> .....	423, 427, 505-506	<i>analis</i> .....	436, 448-449
<i>Diplodus</i> .....	428, 523-525	<i>aratus</i> .....	438, 451
<i>annularis</i> .....	525	<i>argentiventralis</i> .....	435, 444-445
<i>argenteus</i> .....	523, 524	<i>aya</i> .....	436, 447-448
<i>fasciatus</i> .....	525	<i>brachypterus</i> .....	437, 449
<i>holbrookii</i> .....	523, 524	<i>buccanella</i> .....	435, 445
<i>sargus</i> .....	523, 525	<i>caninus</i> .....	433, 439
<i>vulgaris</i> .....	525	<i>caxi</i> .....	435, 443-444
<i>Dipterodon</i> .....	433	<i>colorado</i> .....	437, 449
<i>Doydixodon</i> .....	429, 531-532	<i>cyanopterus</i> .....	434, 440-441
<i>fremenvillei</i> .....	532	<i>griseus</i> .....	434, 441-442
<i>levifrons</i> .....	532	<i>guttatus</i> .....	437, 449
<i>Erythrichthys</i> .....	428, 528	<i>inermis</i> .....	438, 451
<i>cyanescens</i> .....	528	<i>joci</i> .....	434, 443
<i>vittatus</i> .....	528	<i>lutjanoides</i> .....	435, 445
<i>Etelis</i> .....	425, 450-457	<i>mahogoni</i> .....	438, 451
<i>oculatus</i> .....	457	<i>novemfasciatus</i> .....	434, 440
<i>Evolites</i> .....	433	<i>synagris</i> .....	437, 450
<i>Genyatremus</i> .....	426, 504	<i>viridis</i> .....	433, 430
<i>luteus</i> .....	504	<i>vivanus</i> .....	436, 445-446
<i>Genyorego</i> .....	433	<i>Lythrulon</i> .....	468
<i>Girella</i> .....	429, 530, 531	<i>Miæna</i> .....	428, 526
<i>nigricans</i> .....	531	<i>miæna</i> .....	526
<i>Girellinae</i> .....	423, 429, 530-532	<i>zebra</i> .....	526
<i>Hæmulinæ</i> .....	423, 426, 462-504	<i>Mæniina</i> .....	423, 428, 526-528
<i>Hæmulon</i> .....	426, 462-480	<i>Medialuna</i> .....	430, 536, 537
<i>album</i> .....	465, 469-470	<i>californiensis</i> .....	537
<i>aurolineatum</i> .....	467, 478	<i>Microlopidotus</i> .....	408
<i>bonariense</i> .....	465, 470-471	<i>Nemipterus</i> .....	427, 505-506
<i>carbonarium</i> .....	465, 472	<i>macroneurus</i> .....	506
<i>chrysargyreum</i> .....	467, 476	<i>Oblada</i> .....	420, 530
<i>flaviguttatum</i> .....	468, 479	<i>melanura</i> .....	530
<i>flavolineatum</i> .....	466, 476	<i>Ocyurus</i> .....	424, 452-453
<i>macrostoma</i> .....	465, 470	<i>chrysurus</i> .....	462-453
<i>maenlicauda</i> .....	468, 480	<i>Orthopristis</i> .....	426, 495-501
<i>molanurum</i> .....	466, 473	<i>bennetti</i> .....	400, 409
<i>parra</i> .....	465, 471-472	<i>brevipinnis</i> .....	498, 500
<i>plumieri</i> .....	466, 475	<i>cantharinus</i> .....	497, 500

## SPAROID FISHES OF AMERICA AND EUROPE—Continued.

	Page.		Page.
<i>Orthopristis chalcea</i> .....	496, 499	<i>Pomadasis axillaris</i> .....	491, 494
<i>chrysopterus</i> .....	497, 499	<i>branicki</i> .....	491, 493
<i>inornatus</i> .....	498, 501	<i>corvinaformis</i> .....	492, 495
<i>lethopristis</i> .....	497, 500	<i>crocro</i> .....	490, 493
<i>pocyi</i> .....	497, 500	<i>elongatus</i> .....	492, 495
<i>ruber</i> .....	496, 499	<i>lumilis</i> .....	489, 492
<i>Orthostethus</i> .....	468	<i>lenciscus</i> .....	492, 495
<i>Sparus</i> .....	427, 515-516	<i>macracanthus</i> .....	490, 493
<i>aurata</i> .....	515	<i>nitidus</i> .....	492, 495
<i>bertheloti</i> .....	515	<i>panamensis</i> .....	491, 494
<i>ceruleostictus</i> .....	515	<i>productus</i> .....	489, 493
<i>ehrenbergi</i> .....	515	<i>ramosus</i> .....	491, 494
<i>pagrus</i> .....	515, 516	<i>Pseudopristipoma</i> .....	491
<i>Spicara</i> .....	428, 527	<i>Rabirubia</i> .....	438
<i>aledo</i> .....	527	<i>Raizero</i> .....	438
<i>martinica</i> .....	527	<i>Rhomboplites</i> .....	424, 453-454
<i>smaris</i> .....	527	<i>aurorubens</i> .....	453-454
<i>Spondyliosoma</i> .....	429, 530	<i>Scatharina</i> .....	423, 429, 529-530
<i>cantharus</i> .....	530	<i>Scatharus</i> .....	429, 530
<i>orbicularare</i> .....	530	<i>graculus</i> .....	530
<i>Stenotomus</i> .....	427, 506-507	<i>Sectator</i> .....	534
<i>aculeatus</i> .....	506, 507	<i>Sparidæ</i> , definition.....	421
<i>caprinus</i> .....	507	<i>Sparine</i> .....	423, 427-428, 506, 525
<i>chrysops</i> .....	506, 507	<i>Summary</i> .....	540-544
<i>Pagellus</i> .....	427, 517	<i>Xenichthyine</i> .....	423, 425, 459-461
<i>acarne</i> .....	517	<i>Xenichthys</i> .....	425, 460-461
<i>bogaraveo</i> .....	517	<i>agassizii</i> .....	461
<i>centrodontus</i> .....	517	<i>xanti</i> .....	461
<i>erythrinus</i> .....	517	<i>Xenistius</i> .....	425, 459-460
<i>mormyrus</i> .....	517	<i>californiensis</i> .....	460
<i>Pagrus</i> .....	515	<i>Xenocypris</i> .....	425, 450-460
<i>Parapristipoma</i> .....	426, 502-503	<i>jessiae</i> .....	459
<i>mediterraneum</i> .....	502, 503	<i>Verilus</i> .....	425, 458
<i>viridense</i> .....	502, 503	<i>sordidus</i> .....	458
<i>Pomadasis</i> .....	480, 489-495		

## FISH ENTOZOA FROM YELLOWSTONE NATIONAL PARK.

<i>Acanthocephala</i> .....	535-556	<i>Explanation of plates</i> .....	502-564
<i>Ascaris capsularia</i> .....	560	<i>Jordan, Dr. David Starr</i> .....	545, 556
<i>tenuissima</i> .....	569, 560	<i>Leidy, Dr. Joseph</i> .....	547
<i>Catostomus ardens</i> .....	545, 540, 555, 561	<i>Leuciscus atrarius</i> .....	546, 547, 553, 555,
<i>Cestoda</i> .....	545-552	<i>Ligula catostomi</i> .....	545, 547
<i>Coregonus oxyrinchus</i> .....	554	<i>Monobothrium terebrans</i> .....	545, 548-552, 561
<i>Ctenillanus globosus</i> .....	557	<i>Nematoda</i> .....	557-561
<i>Dacnites globosa</i> .....	545, 557, 558	<i>Pelecanus erythrorynchus</i> .....	547
<i>encysted specimens of</i> ..	558	<i>Salmo fario</i> .....	554, 557
<i>Dibothrium cordiceps</i> .....	545, 547, 548, 558	<i>mykiss</i> .....	545, 547, 554, 555, 557-560
<i>Distomum laurentium</i> .....	553, 554	<i>Thymallus vulgaris</i> .....	554
<i>Echinorhynchus agilis</i> .....	556	<i>Trematoda</i> .....	553-556
<i>globulosus</i> .....	555, 561	<i>Wagener, G. R.</i> .....	560
<i>tuberosus</i> .....	555-556		

## PLANKTONIC STUDIES.

<i>Translator's preface</i> .....	565-566	<i>Chorological terminology</i> —Continued.	
<i>Historical explanations</i> .....	566-572	<i>Autopelagic, bathypelagic, and epipelagic Plankton</i> .....	582-588
<i>Planktonic studies</i> .....	573-577	<i>Holoplanktonic and meroplanktonic Organisms</i> .....	584-606
<i>Chorological terminology</i> .....	577-583	<i>Protophytes of the Plankton</i> .....	584-589
<i>Marine Flora and Fauna</i> .....	578	<i>Chromaceae</i> .....	585
<i>Plankton and Benthos</i> .....	579	<i>Calcoctyota</i> .....	585
<i>Plankton and Nekton</i> .....	579-580	<i>Murrayctyota</i> .....	586
<i>Haloplankton and Limnoplankton</i> .....	580		
<i>Oceanic and neritic Plankton</i> .....	581		
<i>Pelagic, zonary, and bathybetic Plankton</i> .....	581-582		

## PLANKTONIC STUDIES—Continued.

Page.	Page.
<i>Summary of the Planktonic organisms—</i>	
Continued.	
<i>Protophytes of the Plankton—Cont'd.</i>	
Diatomeæ .....	587
Xanthellæ .....	587-588
Dyctyocheæ .....	588-589
Peridinæ .....	589
<i>Metaphytes of the Plankton</i> .....	589-591
Halosphaeræ .....	590
Oscillatoriæ .....	590
Sargasseæ .....	590-591
<i>Protozoa of the Plankton</i> .....	591-594
Infusoria .....	591-592
Thalamophora (Foraminifera) .....	592
Radiolaria .....	593-594
<i>Cœlenterates of the Plankton</i> .....	594-597
Cnidaria .....	594
Medusaæ .....	595-596
Siphonophores .....	596-597
Ctenophores .....	597
<i>Helminths of the Plankton</i> .....	597-598
Chaetognathæ .....	598
<i>Mollusks of the Plankton</i> .....	598-599
Pteropods and Heteropods .....	598-599
Cephalopods .....	599
<i>Echinodorms of the Plankton</i> .....	599-600
<i>Articulates of the Plankton</i> .....	600-604
Annelids .....	600
Crustacea .....	600
Copepoda .....	601-602
Ostracoda .....	602-603
Schizopoda .....	603
Insecta .....	603-604
<i>Tunicates of the Plankton</i> .....	604-605
<i>Vertebrates of the Plankton</i> .....	605-606
<i>Fish Eggs</i> .....	606
<i>Composition of the Plankton</i> .....	607-628
<i>Polymixic and Monotonic Plankton</i> .....	608-612
<i>Monotonic Protophytic-Plankton</i> .....	609
<i>Monotonic Metaphytic-Plankton</i> .....	609
<i>Monotonic Protozoic-Plankton</i> .....	610
<i>Polycyttaria-Plankton</i> .....	610
<i>Acantharia-Plankton</i> .....	610
<i>Phaeodaria-Plankton</i> .....	610
<i>Monotonic Cnidaria-Plankton</i> .....	610-611
<i>Monotonic Sagittide-Plankton</i> .....	611
<i>Monotonic Pteropoda-Plankton</i> .....	611
<i>Monotonic Crustacea-Plankton</i> .....	612
<i>Monotonic Tunicata-Plankton</i> .....	612
<i>Monotonic Fish-Plankton</i> .....	612
<i>Temporal Planktonic Differences</i> .....	613-616
<i>Yearly Oscillations</i> .....	614
<i>Monthly Oscillations</i> .....	615
<i>Daily Oscillations</i> .....	615
<i>Hourly Oscillations</i> .....	616
<i>Clinical Planktonic Differences</i> .....	616-621
<i>Currentic Planktonic Differences</i> .....	621-628
<i>Halocurrents or Ocean Streams</i> .....	622-623
<i>Bathycurrents or Deep Streams</i> .....	624-625
<i>Nerocurrents or Coast Streams</i> .....	625-626
<i>Zoocurrents or Planktonic Streams</i> .....	626-628
<i>Methods of Planktology</i> .....	628-639
<i>Distribution of the Plankton</i> .....	629-630
<i>Oceanic Population—Statistics</i> .....	631
<i>Counting of Individuals</i> .....	632
<i>What is an Organic Individual</i> .....	632-633
<i>Economic Yield of the Ocean</i> .....	633-634
<i>Volume and Weight of the Plankton</i> .....	634
<i>Cycle of Matter in the Ocean (Stoff- wechsel des Meeres)</i> .....	635-636
<i>Comparative and Exact Methods</i> .....	636-638
<i>Planktological Problems</i> .....	638-639
<i>Literature</i> .....	640-641