Over 90 genera and 525 species are treated. Only about 15 species occur in the United States, although several described by Say are unknown to the author. The Malay archipelago and Madagascar are especially rich in large and curious forms. The article is illustrated by nine plates.

Professor F. Meunier has given us another article on the dipterous fauna of the amber.* He describes species of Tabanidæ, Xylophagidæ, Leptidæ and Empidæ. But what is perhaps of most interest is a diopsid, *Sphyracephala breviata,* very similar to the one species occurring in the eastern United States.

Mr. R. Shelford has published an interesting article on insect mimicry in the Malay region.† There is a systematic arrangement of the cases of Batesian mimicry according to the natural orders, details being given in each case. This is followed by a chapter on convergent groups. Several Müllerian associations are represented, particularly the lycoid, coccinellid, and that of melipona. There is an appendix with descriptions of the new species by various specialists. It is illustrated by five colored plates. The cases figured, as well as those figured by Marshall from South Africa, are no more striking than can be found in the insects of our own country.

THE *Anales Sociedad Espanola de Historia Natural,* Vol. XXX., 1902, contains several entomological articles. Uhagon completes his revision of the Malachidæ of Spain; M. Medina y Ramos gives a synopsis of the Spanish Chrysididæ (101 in number); and A. Martinez y Fernandez-Castillo gives a revision of the group Calopteni of the grasshoppers, treating the known forms of the world; none of which, however, occurs in the United States.

An increase in entomological activity in South America is indicated by Volume V. of the *Revista Museu do Paulista* (São Paulo, Brazil, 1902), which contains three large papers on insects. One of two hundred pages with fine plates is by H. W. Broleman on the myriapoda of the Museum of São Paulo. Another is descriptive of the solitary bees of Brazil. It is by C. Schrottky, synoptic in form, illustrated by two plates, and contains notes on the habits of some species. The third article is by J. G. Foetterle on new Brazilian lepidoptera, illustrated by four handsomely colored plates, and describes fourteen species.

Dr. L. Sander has published a long account of locust invasions of the German colonies in Africa.* The migratorial African grasshoppers are species of *Pachytylus* and *Schistocerca,* the latter similar to those of South America. The author gives an historical account of the ravages of locusts, followed by chapters on structure and life-history. He considers the causes and extension of the migrations, and the various natural enemies, especially birds, that prey upon the pests. A large part of the book treats of remedies, chiefly a history of what has been done in other countries, much attention being given to American methods. An appendix contains an old German edict against grasshoppers.

M. Neveu-Lemaire has devised a new classification of the Culicidæ.† After an historical review he criticizes the classification of Theobald, and proposes his new arrangement based on mouth parts and venation. He divides the family into four subfamilies: Anophelinæ (including only *Anopheles*), Megarhininæ (two genera); Culicinæ (with eight genera); and Aëdëinæ (with six genera). He indicates the type species of each genus.

NATHAN BANKS.

THE HARPSWELL LABORATORY.

THE EDITOR OF SCIENCE asks an account of the Harpswell Laboratory. It is easy to comply, for this biological station is one of the most unpretentious structures one could imagine, as will readily be understood when it is said that the whole plant—land, building

* 'Etudes des quelques Diptères de l'Ambre,' *Ann. Sci. Nat. Zool.*, XVI., December, 1902, pp. 395–405, 1 plate.

† 'Observations on Some Mimetic Insects and Spiders from Borneo and Singapore,' *Proc. Zool. Soc. London,* 1902, II. (1903), pp. 230–281.

* 'Die Wanderheuschrecken und ihre Bekämpfung in unseren afrikanischen Kolonieen,' Berlin, 1902, pp. 344, figs. and maps.

† 'Classification de la famille des Culicides,' *Mém. Soc. Zool.*, France, 1902, pp. 195–227 (1903).

and permanent equipment—has cost within $1,000. A one-story, wooden building, measuring 24 x 42 feet on the ground, with sixteen windows, stands directly on the rocky shore a little to one side of a sandy beach. Inside, the space is divided up into nine rooms for investigators and a larger room accommodating from six to ten more elementary students. At either end are large double doors, and the building is so oriented that in the summer the prevailing southwest wind blows straight through the laboratory, keeping the temperature down on the warmest days. In the past two years there has been but one day when the thermometer has gone above 78° F. in the laboratory.

A considerable portion of the equipment is taken each year from Tufts College, to which institution the laboratory belongs, but there is also something of permanent equipment. Thus the laboratory owns two rowboats, dredges, seines and tangles, abundant glassware, several small microscopes, minor apparatus and the nucleus of a library on morphology and marine biology. The stock of chemicals and reagents is large. It has not yet been found possible to introduce running water into the laboratory, but simple makeshifts have made its absence less of a drawback than might be supposed possible.

The laboratory was established with two objects in view—to furnish a place where the instructors and students of the college could go for summer work, and, second—and this far more important—to ascertain the suitability of the location for a research station for the northern fauna and flora.

As is well known, there are three distinct faunæ on the Atlantic coast of North America—a boreal, a temperate and a subtropical, the last passing into the tropical at the southern end of Florida. The boundaries between these three faunæ are approximately Cape Cod and Cape Hatteras. For the middle or temperate fauna there are already three well-equipped biological stations—the Marine Biological Laboratory and the station of the U. S. Fish Commission at Woods Hole, and the Cold Spring Laboratory of the Brooklyn Institute on Long Island. For the southern fauna there is only the recently erected station of the U. S. Fish Commission at Beaufort, N. C. There certainly should be another farther south, but, having no knowledge of locations and conditions, I am not competent to speak of the merits of the Tortugas advocated in these pages by Dr. Mayer. For the stretch of coast from Cape Cod to Eastport (and extending down into the provinces) there is but the small Harpswell Laboratory.

A few statistics will show the richness and peculiarities of this northern fauna. Before we began our work at Harpswell 517 species of invertebrates had been reported from Casco Bay, this list being largely the result of a single summer's work in the region by the U. S. Fish Commission. In a single haul of the dredge a few miles from our laboratory 118 species were obtained. In the region around Woods Hole, Verrill's report on the invertebrata records 660 species from an area about the size of Casco Bay. Of course, subsequent collections and investigations have largely increased both these lists, but these figures, based upon about the same amount of work, show that this northern region is not far inferior to the other in the number of species.

Another comparison has even more interest. Of the 517 species from Casco Bay 273 are not included in Verrill's list of the invertebrata of Vineyard Sound. In other words, over 52 per cent. of the species occurring in Casco Bay were not then known south of Cape Cod. Of course, since these lists were made up the range of many species has been extended, and forms once known only north of Cape Cod have been found south of that promontory, and hence the percentage mentioned must be altered. Yet it is probable that at least a quarter, if not even a third, of the forms found in Casco Bay are either entirely wanting from or very rare in the waters around Woods Hole.

It is a well-known fact in the distribution of marine life that while the number of species is smaller in colder than in warmer waters, the number of individuals of a spe-

cies increases with the latitude, until, at last, the Arctic regions are noted for the immense numbers of individuals of certain species. Hence, other things being equal, the more northern the spot, the more abundant the material and the better the location for a research laboratory. Therefore, from this one standpoint Eastport may possibly hold the supremacy over other points on the New England coast north of Cape Cod. Its reputation as a collecting ground is great, and, since the days of Stimpson, numerous naturalists have gone there for material.

In the discussion of a location for our laboratory the claims of Eastport were considered, but the place was passed by in favor of South Harpswell for the following reasons: The laboratory must be comparatively easy of access. Students should be able to reach it with the least possible expense and trouble, and there must be adequate market facilities for the boarding places of those working at the laboratory. Eastport may be reached by rail by a long, circuitous and expensive journey, or by boat in twenty-four hours from Boston only on alternate days. Again, the facilities for obtaining board are such that the laboratory, as at Woods Hole, would be compelled to establish its own dining hall, and to maintain it under great difficulties and inconveniences. At South Harpswell there are numerous good hotels and boarding houses and the supplies are of the best. So, too, laboratory supplies, bought with all possible foresight, occasionally become exhausted and must be replenished at short notice. Nothing could be obtained at Eastport in less than two days. Harpswell is distant but two hours from the large wholesale city of Portland, and our experience has been that every chemical and reagent desired could be obtained from there on short notice.

Then, Eastport lies in the very center of the region of fogs, a most serious drawback, not only to the pleasures of life, but to research as well. When all the material studied must be obtained from the sea, it will be readily seen that two or three days of continuous fog might seriously interfere with a piece of research. The farther west on the Maine coast, the less numerous the fogs. At Harpswell, last year, from the middle of June to the middle of September there were only seven days when there was any fog.

Casco Bay is about twenty-five miles across, from Cape Elizabeth to Cape Small Point, and it indents the coast about a dozen miles. This whole area is cut up by numerous peninsulas—'necks' or 'points' of local terminology—and dotted by islands, the number of which passes into the hundreds, affording miles upon miles of shore collecting and between them every variety of bottom. Almost no fresh water empties into the bay, while the considerable tides—about ten feet—cause strong currents, and these bring in constantly —to use a paradoxical expression—the freshest of salt water. South Harpswell itself is at the tip of a narrow neck about ten miles long at just about the middle of the bay. It is fourteen miles from Portland, with which place it is connected, during the summer season, by five boats a day each way.

The laboratory has been practically open but two seasons, and its output of published work is as yet small. The list includes:

A. B. Lamb: 'The Development of the Eye Muscles in *Acanthias*,' *Journal of Anatomy*, Vol. I., 1902.

J. S. Kingsley: 'Preliminary Catalogue of the Marine Invertebrata of Casco Bay,' *Proc. Portland Society of Natural History*, II., 1901.

J. S. Kingsley: 'Additions to the Recorded Fauna of Casco Bay,' *l. c.*, 1902.

Frank S. Collins: 'An Algologist's Vacation in Maine,' *Rhodora*, IV., 1902.

G. M. Winslow: 'Note on the Circular Swimming of Sand Dollar Spermatozoa,' SCIENCE, XVII., 1903.

E. B. Wilson: 'Experiments on Merogony in Nemertine Eggs, with Reference to Cleavage and Localization,' SCIENCE, XVII., 1903.

Here might also be mentioned the paper of Dr. C. B. Wilson, 'On the Embryology of *Cerebratulus*,' and the several papers by Dr. Gilman A. Drew upon the structure and development of the molluscs *Nucula*, *Solemya* and *Yoldia*. The work was done in Harpswell,

but before the establishment of the present laboratory. There are now several important papers in progress, but these can hardly be mentioned until their publication.

In the summer of 1902 considerable attention was paid to the plankton, and almost every night showed novelties and interesting forms. Almost all the common types of larvæ occurred abundantly—*Cyphonautes, Mitraria,* Loven's larva, *Pilidium,* plutei and *Bipinnaria,* etc. More noticeable, however, was *Actinotrocha,* the first time the genus has been noticed north of Newport. On several evenings the rare pteropod *Spirialis gouldii* was abundant, while on others there were numbers of the larvæ of a gymnosomatous pteropod (possibly *Clione*) recalling the oft-copied figures of *Pneumodennon* larvæ. Towards the end of the season several specimens of the strange annelid *Tomopteris,* some with eggs, were taken, and we obtained several specimens of *Arachnactis,* the young of the peculiar sea-anemone, *Cerianthus,* which, by the way, is not uncommon in the deeper waters of the bay. The locality possibly offers a good chance to obtain the development of the Copelate Tunicata, as specimens of an *Appendicularia*-like form, some with apparently ripe eggs and spermatozoa, were abundant. Numerous specimens of chain salpæ were brought us by fishermen from the trawling grounds outside.

The student of elasmobranch embryology will find this a most favorable place for work, for the common dog-fish *Acanthias,* is abundant just outside the islands during most of the summer, and embryos are readily obtained from the first appearance of the blastoderm up to those an inch or two in length.

On the whole, our experience has been that no spot north of Cape Cod can excel South Harpswell as a location for a station for biological research. The present laboratory, while well adapted for elementary instruction, is, in many respects, inadequate to the demands liable to be made upon it when the richness of the fauna and the charms of the place become better known.

J. S. KINGSLEY.

*THE SOUTH AFRICAN ASSOCIATION.**

THE inauguration of the South African Association for the Advancement of Science took place at Cape Town on April 27. The *Cape Times,* to which we are indebted for the details of the proceedings, describes the successful gathering as a British Association meeting in miniature. The new Association enters upon its career with a membership of seven hundred persons from many parts of South Africa.

The main objects of the organization are the same as those of the parent body. As defined in the Constitution, they are "to give a strong impulse and systematic direction to scientific inquiry; to promote the intercourse of societies and individuals interested in science in different parts of South Africa; to obtain a more general attention to the objects of pure and applied science, and the removal of any disadvantages of a public kind which may impede its progress."

The presidential address was delivered by Sir David Gill, K.C.B., the Astronomer Royal for South Africa, who explained the nature of the work which it was hoped the new Association would accomplish. During the course of his able address Sir David Gill announced that Lord Kelvin had written that, although in 1905 he will be eighty-one years of age, he intends, if he is as well then as he is now, to accompany the British Association on the visit to South Africa.

The work of the sections began on the second day of the meeting. The presidential addresses in the various sections were delivered by the following men of science:

Section A, Astronomy, Chemistry, Mathematics, Meteorology and Physics, by Profesor P. D. Hahn; Section B, Anthropology, Ethnology, Bacteriology, Botany, Geography, Geology, Mineralogy and Zoology, by Dr. R. Marlotti; and Section C, Archeology, Education, Mental Science, Philology, Political Economy, Sociology and Statistics, by Dr. Thomas Muir, C.M.G., F.R.S., Director of Education for Cape Colony.

Among the papers read during the course of the meetings the following deserve mention. In Section A, on ferments causing 'casse' in wine, by Mr. Raymond Dubois; meteorology in South

* From *Nature.*