plied sciences, chemistry, physics, and mechanical science, put together. Geology, geography, biology, and anthropology furnish more than half of all the new members.

In the reading of papers before the sections, the same want of proportion was shown. Section F, biology, held sessions on both Thursday and Friday, morning and afternoon; and 32 papers were listed for those two days. Section I, economic science and statistics, held a session on Thursday afternoon only, and none on Friday, and only 4 papers were listed, and of these the only paper that was statistical was a five minute paper on Statistics of the Salvation Army! The Section of Biology, in fact, is so overcrowded with papers and discussions that it was decided to split it into two sections, F, Zoology, and G, Botany; while a proposition was made, although not entertained, to consolidate sections D and I into one section.

At the recent meeting of the British Association, it is reported that there were 2,500 members in attendance. At the Rochester meeting there were less than 500.

From the above facts, it appears that the American Association is not a fairly representative body of American scientific men. In it the physical sciences are dwarfed by the natural sciences. The reason for this is undoubtedly because the applied scientists, and especially those in the department of mechanical science, have so many societies of their own that they are diverted from and lose their interest in the American Association. In engineering there are four large national societies, the civil, the mechanical, the mining, and the electrical, besides numerous local societies, aggregating a membership of probably 5,000 persons, not counting duplications of those who belong to two or more societies. The small attendance at the section of economic science is probably due to the superior attractions offered by the American Social Science Association. The recent reorganization of the American Chemical Society with its branches will be very apt to diminish the interest of chemists in section C.

These facts are worthy of consideration by those interested in the future of the Association. WILLIAM KENT.

New York, Aug. 29.

BOOK-REVIEWS.

Report of the United States Board on Geographic Names. Ex. Doc. No. 16, *House of Representatives*, 52*d Congress.* Washington, Government.

THE necessity of bringing about a uniform usage and spelling of geographic names throughout the executive departments of the government has led to the creation of a board representing the Departments of State, War, Treasury, Navy, and Post Office, the Coast and Geodetic Survey, the Geological Survey, and the Smithsonian Institution, who serve without pay and can officially say in many cases what names shall be used. Names in our country have not been bestowed by any formal authority, except the more important ones of States, counties, and municipalities. The early explorers would employ aboriginal designations or others of little import; their successors often proposed others; a mountain range would receive different names from different sides of approach. Post-offices and railroad stations may not conform to the local names of the enclosing townships, or else very familiar terms have been excessively multiplied. The modes of spelling vary from time to time. To meet the various necessities, the Board adopted the following rules in case the local usage is divided: 1, Avoidance of the possessive form of names; 2, the dropping of the final "h" in the termination "burgh;" 3, the abbreviation of "borough" is "boro;" 4, the Websterian spelling of "center;" 5, the discontinuance of hyphens in connecting parts of names; 6, the omission, whenever practicable, of the letters "C. H." (court house) after the names of county seats; 7, the simplification of names consisting of more than one word by their combination into one word; 8, the avoidance of the use of diacritic characters; 9, the dropping of the words "city" and "town" as parts of names.

As to the employment of foreign words, the Board recommend that our charts for the use of the navy adopt the local names in the language of the several countries, and for home use the Anglicised forms. About 2,000 names have already been passed upon, of which a list is printed as an appendix to the report. Another appendix presents a list of all the counties in the United States.

It is easy to see that this Board is doing great service for the improvement of geographic nomenclature. Unfortunately, it cannot have power to compel the adoption of the sensible names proposed for the new States recently added to our galaxy and rejected by Congress, nor can it persuade people to use good sense after controversies have been inaugurated. The world is, however, improving, and the very objectionable names are everywhere ridiculed.

The Naturalist in La Plata. By W. H. HUDSON. London, Chapman & Hall. Ill. 396 p.

THE universal interest now taken by all classes in scientific matters has of late years given rise to a new class of books of travel. The celebrated "Voyage of a Naturalist," by Darwin, or perhaps more properly the "Wanderings in South America," by Waterton, formed the starting-point for a series which includes such books as "Travels in Peru," by von Tschudi; "Travels on the Amazon" and "Malay Archipelago," by Wallace; "Naturalist on the Amazons," by Bates; "Naturalist in Nicaragua," by Belt; "Two Years in the Jungle," by Hornaday; "Life in the East Indies," by Forbes, and many others of similar title and character. The existence and popularity of these books is evidence of the interest they have excited in the public mind; and in view of the good influence they exert there cannot be too many of them. The "Natural History of Selborne," although limited in its scope to a single parish in England, is an example of the multitude of objects which can be made interesting to all classes of readers, and it is perhaps not too much to say that there is scarcely a section of our own country about which an equally interesting book could not be written. The fact is that the objects to be studied in nature are inexhaustible. They exist in earth, in sky; in air, in water; in lane, in tree, in barren plain. Everywhere in fact that one can turn, facts of the profoundest interest are to be observed.

The ordinary globe-trotter has left few places unexplored as far as his foot alone is concerned. He has penetrated to the wilds of tropical Africa, and has left his traces amid the snow and ice of the Arctic regions; he has suffered from hunger and thirst in the deserts of Australia, and has been shipwrecked in the vast Pacific; he has explored the snowy heights of the Himalayas and the Andes, and penetrated the humid jungles of India; he has braved the sands of the desert of Gobi and the terrible glare of the Sahara. The globe-trotter used to write books describing his travels; but, alas, too frequently his eyes saw no further than his feet. He chronicled his daily aches and ills, his breakfast and supper, and mentioned the rivers he crossed or the mountains he saw. The day for such books has passed; and a man who would be listened to now must have more to tell of than how he cooked his dinner, of how many miles he sailed or walked or rode. The modern traveller must, therefore, be versed in some branch of science. He must know men, or birds, or beasts, or plants. His volume, too, must be something more than a mere itinerary; and the more closely he studies the workings of nature in her secluded haunts the wider the circle of his readers and the greater the value of his book.

Of such books as those we have mentioned above there cannot be too many. It is, therefore, with a feeling of pleasure that we welcome a late comer to the ranks, "The Naturalist in La Plata." The author is a native of the country whose phases of life he chronicles. He is an enthusiast, a lover of beasts and birds, and he makes his reader love with him. The book is filled with interesting matter, and in this notice we will mention some of the many tidbits which are offered.

One of the most interesting subjects touched upon, all too briefly be it said, is that wonderful instinct of bird migration. It seems incredible that out of twenty-five species of aquatic birds, thirteen are visitors from North America, several of them breeding in the Arctic regions and crossing the whole tropical zone to winter, or rather to summer, on the pampa. In September and even in August they begin to appear on the pampa — plover, tatler, god-

wit, curlew, "piping the wild notes, to which the Greenlander listened in June, now to the *gaucho* herdsman on the green plains of La Plata, then to the wild Indian in his remote village, and soon, further south, to the houseless *huanaco*-hunter in the gray wilderness of Patagonia." Of the godwit — *Limosa hudsonica* — some go north in March to breed; while later in the season (May) others come from the south to winter on the pampas. The north-flying birds travel thousands of miles to the hundreds traversed by those from the south. It is considered probable that these last have their breeding-places on the as yet undiscovered Antarctic continent, which they have left, after breeding, in time to winter on the pampas.

Another interesting chapter is that upon the Puma. Numerous facts are given to show that this animal, contrary to the habits of all the other wild *Felidæ*, is a friend of man, not only refraining from attacking him, but actually protecting him from the attacks of other animals, like the jaguar for example. One instance of this must suffice. During the course of an extended hunt one of the men fell from his horse, and in falling broke his leg. His companions did not notice his loss until evening, and the next morning he was found where he had fallen. He related that while lying there a puma had prowled about the vicinity but did not attempt to harm him. About midnight he heard the roar of a jaguar, and between that time and morning he several times saw the two animals engaged in fierce fights, the puma preventing the jaguar from attacking the prostrate and helpless man.

In discussing the question of fear in birds, Mr. Hudson discards the idea that it is only found in those which have been persecuted by man, and advances the theory that the older birds teach the young ones to fear their enemies. So strong is the habit of attending to the warning or danger note uttered by many birds, that when a nestling is hammering at its shell and seeking to reach the outer air, uttering meanwhile its feeble "peep," "if the warning note is uttered, even at a considerable distance, the strokes and complaining instantly cease, and the chick will then remain quiescent in the shell for a long time, or until the parent, by a changed note, conveys to it an intimation that the danger is over."

Mr. Hudson is not content to record the observations he has made. He seeks also to explain, sometimes plausibly, sometimes perhaps not so well, many of the facts. For example, we are all familiar with the, to us, absurd cackling of a hen when she has laid her egg. She wants the whole world to know it. Obviously it would in a wild state be a serious objection, and be decidedly injurious to the species as a whole, to have all the egg-feeding snakes and mammals apprised of the fact that a new egg had been laid for them to seek. The author therefore contends that this habit is a perversion of the original instinct, and that while it now serves no purpose or a bad one, originally it was useful. He finds in a certain half-wild fowl of the pampa, a habit of making her nest sometimes 400 or 500 yards away from the feeding-grounds. After the egg is laid the hen flies directly from the nest 40 or 50 yards and then, still silently, runs along to the feeding-ground. Then only does she give vent to a low cackle. The cock, if within hearing, answers her, runs to her, and the cackling ceases. "If," says Mr. Hudson, "we may assume that these fowls, in their long, semi-independent existence in La Plata, have reverted to the original instincts of the wild *Gallus bankiva*, we can see here how advantageous the cackling instinct must be in enabling the hen in dense tropical jungles to rejoin the flock after laying an egg. If there are egg-eating animals in the jungle, intelligent enough to discover the meaning of such a short, subdued, cackling call, they would still be unable to find the nest by going back on the bird's scent, since she flies from the nest in the first place."

In a chapter on spiders mention is made of the many strange and wonderful features known in connection with them. Some spin a wonderfully complex and beautiful web; some live on or in the ground; many simulate inanimate objects or death itself. Of two species belonging to the same genus, one is green, while another is like a withered or dried-up leaf. The first, when disturbed, falls rapidly to the ground like a fresh green leaf broken from a twig; but the second falls slowly like a very light, dried, and withered leaf. Some of the spiders are very large and will chase a man from thirty to forty yards, keeping pace with a slow-trotting horse. An instance is related where one ran up the lash of the author's riding-whip to within three or four inches of his hand, and would have bitten him had he not thrown the whip away. Some rather fanciful speculations are indulged in when considering how a man-like monkey would act were he to have a cord permanently attached to his waist, as the spider may be considered to have his web-making material.

In an interesting chapter on music and dancing in nature, accounts are given of the habit as indulged in by many kinds of birds. Not the least strange of these is that of the spur-winged lapwing. These birds live in pairs, each pair jealously guarding its own chosen ground. But frequently one of a pair will fly off to visit a neighboring couple, leaving its mate to guard the ground. The visitor is graciously received, and the performance gone through with is described as follows: "Advancing to the visitor they place themselves behind it; then all three, keeping step, begin a rapid march, uttering resonant drumming notes in time with their movements; the notes of the pair behind being emitted in a stream like a drum-roll, while the leader utters long single notes at regular intervals. The march ceases; the leader elevates his wings and stands erect and motionless, still uttering loud notes; while the other two, with puffed-out plumage and standing exactly abreast, stoop forward and downward until the tips of their beaks touch the ground, and, sinking their rhythmical voices to a murmur, remain for some time in this posture. The performance is then over, and the visitor goes back to his own ground and mate to receive a visitor himself later on."

We have given here but a bare outline of some of the interesting chapters of the book. The one dealing with the dying-place of the *huanaco* attempts to explain the habit the animals have of returning to a remote place in which to die. It is traced back to a probable origin in ancient times when the animals herded together in winter for protection and warmth, and the idea is advanced that at present the habit is an aberrant and perverted instinct which has descended by inheritance. When the animal feels the pangs of approaching death, its feelings impel it to the spot where long ages ago its ancestors, with their fellows, found refuge and relief. Mr. Hudson thus regards the habit, not as going to a place to die, so much as going to a place to recover health. Other chapters deal with the odoriferous skunk, of which numerous anecdotes are told; with mimicry and warning colors in grasshoppers; the value and importance of the mosquito in the economy of nature and the question why it possesses a blood-sucking apparatus in such perfection, while scarcely one out of many hundreds of thousands ever tastes blood. The humming-birds are treated of in another chapter, while in still another is given a full account of a large family of birds known popularly as "wood-hewers." The biography of the *vizcacha*, the prairie-dog of the pampa, is given in full; while an account of certain birds and animals seen once or twice and then lost, never to be again brought to view, reminds one that disappointment sometimes waits upon the investigator into nature's secrets. The book is an interesting one, and we believe worthy of an extended circulation among lovers of natural objects.

JOSEPH F. JAMES.

Washington, D.C., Aug. 22.

Mineralogy. By FREDERICK H. HATCH. London, Whittaker & Co. 12°. $1.

DR. HATCH has brought together the most essential principles of mineralogy, and embodied them into what is really an abridgment of a larger treatise. He experiences the difficulty felt by earlier authors of making popular conceptions of geometrical figures and relations, and relieves it so far as is possible by stating the principles of their construction and by giving graphic representations of the perfect solids and diagrams illustrative of the crystallographic axes. There is a very wise selection of the more important figures described. Throughout the descriptions of crystalline form, chemical composition, and the various physical properties, including the choice of the minerals described, the author has shown that he knows what selection should be made ir