swans, geese and ducks, and sea-fowl may be mentioned. In the southern rivers salmon is plentiful.

The southern part of the peninsula is inhabited by Kamtchadales, numbering some 4,000 souls. They have submitted to Russian influence, and are Christians in name, but still cling to the rites of Shamanism. Their mud huts have given place to houses, round which gardens are laid out. They keep cattle and a few horses and fowls, but neither sheep nor pigs. In the north about 3,000 Koriaks live, who are still in a primitive state, and subsist on the produce of the chase and fishing. Their most important domestic animals are dogs, which draw their sleighs.

THE MEAN COAST-DISTANCES OF CONTINENTS.

THE proximity of countries to the sea has a most important bearing on their climate, commercial development, etc., and therefore the problem of ascertaining the relative advantages in this respect of different parts of the world has long attracted the attention of geographers. In *Petermann's Mittheilungen*, Bd. 36, Nos. 3 and 4, Dr. Carl E. M. Rohrbach explains a new method of solving the problem, in which the mean distances of the continental lands from the coast play an important part. As quoted in the *Scottish Geographical Magazine*, he shows, as a preliminary investigation, that the mean distance of a circle from the circumference is one-third the radius, and that this distance is the same for a square, or other rectilinear figure, circumscribing the circle. It is found by integrating the product of an elementary area into its distance from the perimeter and dividing by the whole area. The process is, therefore, similar to that of finding the centre of gravity of the area, and, accordingly, the value may be very simply found by dividing the circle or square into indefinitely small triangles by radii drawn from the centre, the centres of gravity of which are, of course, at one-third of the radius from the perimeter. From this result Dr. Rohrbach deduces the mean distance for a rectangle, and shows how to find it for a *calotte*, or the spherical area contained by a small circle of a sphere. Even for a large *calotte* it differs very little from that of a circle of equal area. These investigations prove that of all figures containing the same area the circle and its circumscribed figures are those in which the distances from the perimeter are greatest, and this proposition is exhibited in a convenient form by means of curves, in which the abscissæ are proportional to the areas, and the ordinates to the distances from the perimeter. In the diagram thus constructed the curve (a parabola, of course) for the circle lies outside all the others, and as the area deviates more and more from the circular form, its curve approximates more closely to a straight line. Owing to this property the circle gives a convenient standard for mean distance from the coast, as will be seen presently.

In dealing with continental areas Dr. Rohrbach draws contour-lines on a map parallel to the coast-line at certain chosen intervals, and measures the areas contained with a planimeter. If great accuracy be desired, the lines must be traced on a map in which there is no distortion, and then transferred for measurement to an equal-area map, but in a first essay, to demonstrate the applicability of the method and the value of its results, Dr. Rohrbach considered Bonne's projection sufficiently accurate for tracing the lines as well as for measurement. A map of the world and another of Europe are appended to the article, on which the contour-lines are drawn, and the coast-distance of the areas between them denoted by different colors. The relative conditions of the continents are also shown, both by rectangles of which the bases are proportional to the areas, and the altitudes to the mean coast-distances, and also by curves — *chorigraphic*, as Dr. Rohrbach calls them — where the ordinates represent the coast-distances corresponding to the areas indicated by the abscissæ. Tables are given showing the areas lying beyond different distances from the coast in the various continents, both in square kilometres and in percentages. The following shows the mean coast-distances: Europe, 208 miles; Asia, 482 miles; Eurasia, 433 miles; Africa, 417 miles; Australia, 214 miles; North America, 292 miles; South America, 343 miles; the five continents, 381 miles.

As a measure of the accessibility of continents from the coast, Dr. Rohrbach proposes the quotient obtained by dividing the mean distance in a circle, or in a *calotte*, of equal area by the actual mean distance, and gives the numbers in the latter case, but the result is scarcely satisfactory. As he himself points out, Eurasia appears to greater advantage than Europe, because the mean distance in the *calotte* is calculated as though sea instead of land lay to the east, and thus the quotient is increased. It is also startling to find North America represented by a higher figure than Europe, and the five continents by a number more than twice as great. It is easy to see that these discrepancies arise because the numbers represent only the advantage each continent derives from its actual shape compared with its accessibility if formed into a *calotte*, and do not indicate the relative accessibility of the continents. A more correct idea is obtained by taking the mean coast-distance (1,416 miles) in a *calotte* of area equal to that of the five continents, or the actual mean distance (381 miles), as unity. In the latter case the numbers are as follows: Europe, 1.83; Asia, 0.79; Eurasia, 0.88; Africa, 0.91; Australia, 1.78; North America, 1.30; South America, 1.11; the five continents, 1.00.

Dr. Rohrbach claims that his method is superior to those before employed, because the mean coast-distance is a quantity admitting of simple definition, and not deduced by any artificial means from the geometrical forms. Its value also is easily reckoned, and can be worked out to any desired degree of accuracy, maps of various scales being employed according to the extent and configuration of the countries under examination. In almost all other methods the length of the coast-line has been used, the estimation of which leaves much room for speculation, causing great uncertainty in the results. In the present method this quantity is not needed, and yet the meanderings of the coast-line exercise their due influence on the curvature of the contour-lines, as may be clearly seen on the map of Europe already alluded to. And not only is the method applicable to purely morphological investigations, but charts may also be constructed, showing the relative conditions of the various parts of a country with regard to means of communication. Thus, an ice-bound coast may be treated as an inland boundary, and, where a chain of mountains intervenes, the contour-lines may be drawn so that their normals run to the sea past the extremities of the chain, or converge to the passes. Navigable rivers, railways, etc., may also be taken into account, and also the elevation, etc., charts being constructed to show the work required to transport a unit weight of goods, say a hundredweight, from the coast. Each contour-line in such charts will pass through all places to which the labor of transport is the same, and will therefore resemble an isobar or isotherm.

BOOK-REVIEWS.

Grammatica elementar do Kimbundu. Kimbundu Grammar. Por HELI CHATELAIN. Genebra, 1889.

La Lengua Cunza. Por FRANCISCO DE SAN-ROMAN. Santiago de Chile, 1890.

Kreolische Studien. Ueber das Malaisportugiesische von Batavia und Tugu. Von HUGO SCHUCHARDT. Vienna, 1891.

Etudes de Grammaire Comparée. De la Categorie des Modes. Par RAOUL DE LA GRASSERIE. Louvain, 1891.

THIS batch of recent linguistic works, in widely diverse fields, is but a faint indication of the activity in this branch of scientific research.

Mr. Chatelain has been connected with the American mission in south-west Africa, and his grammar of the Kimbundu, a member of the wide-spread Bantu group, has particular interest, not only for its practical value in missionary work, but because the Smithsonian Institution is about to publish the author's collections of folk tales and legends in the original tongue, together with translations and notes.

The Cunza language is spoken by a native tribe on the south-west coast of South America, at the northern border of the Desert of Atacama. It is supposed by the eminent linquist von Tschudi to be the ancient Calchaqui. Although San Roman does not furnish a full grammatical view of the tongue, we are glad to have even his incomplete notes, as heretofore there has been absolutely nothing on its grammatic structure.

Professor Hugo Schuchardt is the most distinguished student living of mixed languages or "jargons," and his researches into their structure have been prolific of valuable results. The above is but one — the ninth — of his numerous "Creole Studies." It is one of the most instructive, as exhibiting the results of the commingling of the Portuguese with the Malayan languages, which are particularly widely apart. Like all his essays, it is replete with erudition, and marked by soundness and caution in handling facts.

The logical processes underlying language in general have been analyzed in a number of essays by Dr. Raoul de la Grasserie in his "Studies in Comparative Grammar." He has taken up in turn such topics as "the substantive verb," "pronouns," "tenses," etc., and striven to show by a very wide induction how these fundamental grammatical notions arose in the mind, and in what varied forms they sought expression in speech. The study above referred to, on "the category of moods" extends these comparisons to that feature of the verb. It is a masterly application of the principles of psychology to the evolution of language.

The Elements of Dynamic Electricity and Magnetism. By PHILIP ATKINSON. New York, Van Nostrand. 405 p. 8°.

AS this is intended more for learners than for the learned, it appeals to a larger circle than do many other works on the subjects treated, and, for the same reason, mathematical formulæ are conspicuous by their absence. Mathematical reasoning, where required, has been, so far as possible, rendered intelligible to non-mathematical readers by the use of ordinary language and some unavoidable circumlocution, so that the amount of mathematical formulæ required has been practically reduced to a few simple expressions easily understood by persons familiar with arithmetic.

The work is divided into thirteen chapters, each of which is intended to be a complete treatise on the subject to which it relates, and the whole to embrace all the essential facts pertaining to dynamic electricity.

The chronological order of electrical development has been followed pretty closely, thus not only giving a condensed history of the progress made in the science, but also showing the relations of each successive important invention to those which preceded and followed it. The style of the work is as clear as a due regard for the conciseness necessary in such a treatise will admit.

The different parts of the subject are taken up in the following order, a chapter being devoted to each. The voltaic battery, with definitions of the terms used; one-fluid cells; two-fluid cells, and battery formation; magnetism; electromagnetism; electric measurement; the dynamo and motor; electrolysis; electric storage; the relations of electricity to heat; the relations of electricity to light; the electric telegraph; and the telephone.

Prussian Schools through American Eyes. By JAMES RUSSELL PARSONS, JR. Syracuse. Bardeen. 8° $1.

THE author of this book was recently United States Consul at Aix-la-Chapelle, and was employed by the authorities of the State of New York to make a report on the organization and methods of the Prussian schools, with a view to obtaining hints from them for the improvement of our own. Having been a school commissioner in New York State for some years, and being greatly interested in the public schools, Mr. Parsons took up the task assigned him with ardor and intelligence, and now gives us in this volume the result of his inquiries. The report is drawn up in the usual style of public documents, with little pretence of literary form, so that it is not so attractive to the reader as it might otherwise have been; but it presents a large amount of information concerning the Prussian schools in a form convenient for reference. It treats of the organization and government of the schools, the methods of discipline and of teaching, with some account of the buildings and apparatus, and gives a very full exposition of the courses of study. The normal schools are also dwelt upon at considerable length, and the mode of training teachers described.

Mr. Parsons is an admirer of the Prussian system, which he declares to be the best in the world; yet he sees that there is much in it which our people, accustomed to greater freedom and not readily submissive to government drill, would not be willing to adopt. Two of the main points of superiority in the Prussian schools, as compared with those of New York, are, in his view, the compulsory education law, which is rigidly enforced, and the official courses of study for the various schools, which insure a higher average grade of instruction than is usual in New York. Mr. Parsons also calls attention to the fact that school commissioners in Prussia must be properly trained for their work, and must have served for a time as teachers before being appointed to the higher office; whereas in this country the main qualification of such officers is the ability to secure a majority of the votes in a popular election. These are, in his opinion, the points in which we might most advantageously imitate the Prussian system; but he also notices a few others, while in some respects he shows that our own schools are superior. The report may be heartily recommended to all who are interested in the subject.

AMONG THE PUBLISHERS.

PHOTOGRAPHIC amateurs will read with interest Ellerslie Wallace's paper on "Photographic Dark Rooms," in *Outing* for May.

— The *Home Journal* devotes an entire page of its issue of May 6 to what may be called a guide to London hotels, though the formality of a "Guide" is avoided, and the information is put in a style which renders it entertaining even to the stay-at-home tourist.

— The May 2 issue of *The Medical and Surgical Reporter*, Philadelphia, is the first to appear under the new editor, Edward T. Reichert, M.D. The paper has been enlarged from twenty-eight to forty pages.

— William Cushing, 19 Ware Street, Cambridge, Mass., has been employed during the last year in collecting brief biographical notices of Harvard graduates, which he hopes soon to publish under the title "Harvard Graduates Before 1860."

— John Wiley & Sons have in preparation a work on "Car Lubrication," by W. E. Hall of the Pennsylvania Railroad; "The Mechanical Engineer's Pocket-Book," by William Kent, M.E.; also "The Transitive Curve Field Book," by Clinton R. Howard, C.E.

— The Salem Press Publishing and Printing Company, Salem, Mass., will publish in June, "Salem Witchcraft in Outline," by Caroline E. Upham, a niece of Dr. O. W. Holmes. In August they will publish "Historic Storms," by Sidney Perley; an interesting account of the great storms, cold winters, hot summers, etc., from 1620 to the present.

— Ginn & Co. have just published "Business Book-Keeping," a manual of modern methods in recording business transactions by single entry. George E. Gay of the High School, Malden, Mass., is the author. The forms given in the book are taken from the methods of the best accountants, are well adapted to their purpose, and are presented in a manner that appears to be both practical and satisfactory.

— *Babyhood* for May contains an article on "Chronic Throat Troubles Resulting from Diphtheria and Scarlet Fever, and How to Prevent Them," by Dr. D. Bryson Delavan, which lays stress on the fact, not generally known, that a considerable proportion of catarrhal diseases of the throat and nose have their origin in one of the above complaints. Many other medical topics of interest to mothers are discussed under "Nursery Problems."

— We have received from C. W. Bardeen of Syracuse a small volume entitled "Apperception," which is intended more especially for teachers. It should have been entitled "Perception," for that is the subject of the book, and indeed the barbarous term "apperception" is nowhere used except upon the title-page. The main purpose of the author is to call attention to the fact that the perception of outward things is largely a matter of interpretation, every new object requiring to be classified and assigned its proper place in the general system of our knowledge. There is nothing new or striking in the book, but it may be suggestive to teachers