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.