The new almanac bears in every part the marks of preparation with a considerate regard for the wants of that class of men likely to use it; and the make-up of its contents has evidently been in large part suggested by, or under the direction of, some officer fully acquainted with the routine and necessities of practical navigation; and subsequent issues may be expected to contain many additional improvements. The 'Coaster's almanac' is not intended to replace the 'American nautical almanac,' or navigator's edition of the large 'Ephemeris,' which has been issued by this office for each year since 1855, and will be continued as heretofore.

METALLURGY OF PRIMITIVE NATIONS.

Die metalle bei den naturvölkern, mit berücksichtigung prähistorischer verhältnisse. Von R. ANDREE. Leipzig, *Veit & Co.*, 1884. 10+166 p., 57 illustr. 8°.

IN our epoch the primitive status of savage nations rapidly disappears, and the manufacture of the last tools recalling the stone age will soon be abandoned. The factories of New England already furnish cast-steel tomahawks to our western Indians, and the Central-African negro shoots the hippopotamus and elephant with a breech-loader of the most recent pattern. Facts like these are a sufficient warning to the ethnologist for collecting *now* whatever can be brought to posterity from the implements and rude machinery of the lower races of mankind. To aid this purpose, Andree has undertaken to illustrate one branch of ethnologic research, metallurgy, and to show the extent of our present knowledge concerning its practice among the above races.

His learned treatise excludes the European and Semitic nations, of which the metallurgy is sufficiently known, and had, except within the most recent times, but little direct influence upon that of primitive nations. The most important metals to be considered were iron, copper, tin, and bronze. The Egyptians of the earliest period were acquainted with bronze and iron; but the manufacture of iron tools by the Central-Africans was an invention of their own, and not borrowed from Egypt. It first developed in north-eastern or in Central Africa, and from there must have reached southern Africa, as Andree believes. Iron tools followed immediately upon stone tools, since copper is limited to a few portions of that continent only. The East Indies had a stone period for themselves; and metals, except tin, do not seem to have been imported there. Copper is obtained by very archaic methods. It cannot be decided which metal, copper or iron, is of older use in that country.

The Malayan nations form another independent area or domain of metallurgy, their peculiar practical methods reaching from Madagascar to New Guinea. Iron was their oldest metal, and it probably was so among the Indo-Chinese as well. In its cultural development, China stands wholly for itself, and thirty-five hundred years ago it produced the finest bronzes; but Chinese prehistorics have not as yet been sufficiently studied to decide which metal was the first to be wrought in that distant realm. When Russia invaded Siberia, some of its tribes were reducing and working iron ores, having been probably taught by Turkish nomads. Meteoric iron was put to use by several American tribes, especially by the Eskimo. The reduction of ores by charcoal, and their smelting by fire, were discovered at three different spots in this western hemisphere, wholly independent of each other, — in Mexico, in Cundinamarca, and in Peru. The chief metal of Mexico was copper; of Peru, bronze; though both were used simultaneously with stone implements. Analyses made of American bronzes have proved them to be alloys of metals joined in very different proportions.

The 'Scandinavian' theory, that in every part of the world the metals should appear in the same historic order — copper, tin, bronze, iron — among all, even the most heterogeneous nations, has held supreme sway in science for almost half a century, but is now entirely upset by the investigations of R. Andree and others. A fact which alone would suffice to disprove it is this, that the production of bronze is a more difficult process than the production of iron. Many nations have borrowed metallurgic processes and methods from other nations, as proved in many instances; but these methods and practices have also been the result of inventions independent of each other; and, to explain the similarity of processes in countries widely separated from each other, the assumption of separate invention is the most probable and natural of all.

Although the above results gleaned from Andree's publication give only a superficial idea of its contents, we deem them sufficient for attracting the notice of ethnologists and archeologists, and add the statement that every page of it teems with important or unexpected disclosures.