

The history of this derelict furnishes the strongest possible proof of the importance of this subject to masters of vessels, as well as of the cordial support which they have given to the Hydrographic Office in its efforts to collect and publish early and accurate information by means of which this danger to navigation may be diminished. The various commercial nations should unite in the effort to keep the seas clear of such obstructions, and it is a subject that may well be discussed by the forthcoming International Maritime Conference.

HEALTH MATTERS.

TYPHOID STATISTICS.—Professor Ruata of Perugia is authority for the statement that there are annually in Italy nearly 300,000 cases of typhoid-fever, of which number 27,000 prove fatal. One-third of the persons in Italy who reach the age of forty-five have the fever, and in some districts more than three per cent of the population die from this one cause.

ARSENIC IN FABRICS.—The *London Chemical News* states that Mr. A. W. Stokes has examined a hundred samples of imitation Indian muslins and cretonnes, and found that twenty-three per cent contained arsenic in appreciable quantities, the highest proportion 2.1 grains of white arsenic per square yard. The colors in which arsenic was principally present were the terra-cotta reds and the greenish-browns. Of the wall-papers submitted to Mr. Stokes by various manufacturers, ten per cent were found to contain arsenic. Thirty other articles of household use, such as plushes, velvets, carpets, mats, silks, etc., were examined, and in only one sample—a little flax mat of green color—was arsenic found.

BACTERIA IN THE GLACIERS.—Dr. Schmelt of Christiania (*Centralblatt für Bacteriologie*) has found vast colonies of bacteria in the ice of the Jerstedalsbræ glacier and in the streams fed by it. They appear under the form of rods, and resemble the *Bacillus fluorescens liquefaciens*. During their period of growth these bacteria emit a fluorescent material. They multiply with great rapidity during periods of thaw.

A NEW DEODORANT.—Bromine has for a long time been recognized as being valuable in the treatment of gangrene and foul-smelling ulcers; but until recently its merits as an effectual and cheap deodorant have not been appreciated, according to the *New York Medical Journal*. It was brought into prominence a few months ago by Mr. Martin, the chemist of the health department of this city, who suggested its use upon the earth thrown up in laying the electric subways. As it is a by-product obtained in the manufacture of salt, and is not used extensively in the arts, it is sold at a very reasonable price,—about seventy cents per pound. It has the property of precipitating the hydrocarbons of illuminating-gas, and thus can be used to deodorize the earth exposed in excavations in the vicinity of gas-mains. More valuable than this is its effect upon decomposing organic bodies, which it renders completely inoffensive. This property renders it particularly valuable for use in stables, privy-vaults, urinals, cesspools, or in any place which may contain foul-smelling organic matters. It is soluble in about thirty-three parts of water; but a solution of this strength is not advisable, as there is a constant escape from it of the vapor of bromine, which is very irritating to the eyes and air-passages, and which may even attack wood and metals. For ordinary purposes it is used in solutions containing one part by weight to about eight hundred of water. In this strength it may be used freely without its affecting anything which it may touch. A few gallons used daily will remove all ammoniacal odors from stables, or a few quarts will thoroughly deodorize the entire plumbing system of an ordinary house. It also might be used with advantage upon ordinary house-garbage, which usually becomes offensive so speedily in warm weather. There would appear to be scarcely any limit to its usefulness in this branch of sanitary science; and it will, as soon as its merits are better known, undoubtedly be adopted universally as a substitute for the deodorants now in use, which usually act by substituting one unpleasant odor for another. The only drawback in its use lies in the fact that the undiluted bromine is strongly corrosive, and, if it touches the skin, causes a painful

burn. Where it is used in large quantities, this can be obviated by opening the bottle, or, what is simpler, breaking it, under water. As its use becomes more extended, it will undoubtedly be put up in pearls or tubes containing only as much as would be needed at one time in the average household.

TRANSMISSION OF DIPHTHERIA.—Dr. De la Roche believes that diphtheria can be transmitted from animals to man. He has had under his care two women suffering from diphtheria, which he thinks he has traced to the contamination of drinking-water from a cistern by the excrement of pigeons, which had been washed down by the rain from the roof on which these birds had perched. Admitting the possibility of the transmission of diphtheria in this manner, the means of combating it are simple. In places where spring-water and well-water are not available, or where the supply consists of rain-water collected in cisterns, it is well to limit pigeon-breeding, and to construct dove-cotes as far away as possible from dwelling-houses. As to the construction of cisterns, they should be built according to the rules of public hygiene laid down by Gania in his work entitled “*Utilité des Cisternes*.”

MALARIA.—Dr. Henry B. Baker, the well-known sanitarian, contributed a paper, at the last meeting of the American Medical Association, on “Malaria, and the Causation of Periodic Fever.” After an able discussion of the subject, he sums up as follows: “So far as evidence is yet presented, it seems to be proved, then, that (1) intermittent fever is proportional, directly or inversely, to the average daily range of atmospheric temperature; (2) the controlling cause of intermittent fever is exposure to insidious changes, or changes to which one is unaccustomed, in the atmospheric temperature; (3) in the mechanism of the causation of intermittent fever, the chief factor is the delay in the re-action from exposure to cool air (this delay, extending to a time when greater heat-loss should occur, results in the abnormal accumulation of heat in the interior of the body, and in disturbed nervous action,—the chill), and the final re-action is excessive because of the accumulation of heat, and sometimes because it occurs at the warmest part of the day; (4) the fever is the excessive re-action from the insidious influence of the exposure to cool air, and it is periodical because of the periodicity of nervous action, and because the exposure and the consequent chill are periodical, owing to the nightly absence of the warmth from the sun; (5) residence in valleys, or on low lands through which or upon which cold air flows at night, and thus causes insidious changes in the atmospheric temperature, favors intermittent fever; (6) in our climate, those measures, such as drainage, which enable the soil to retain warmth during the night, and thus reduce the daily range of temperature immediately over such soil, tend to decrease intermittent fever among residents thereon; (7) in the cure and prophylaxis of intermittent fever, those remedies are useful which lessen torpidity, and tend to increase the power of the body to re-act promptly to insidious changes in atmospheric temperature; (8) the slowness of the pulse, and other indications of torpidity, associated with retention of bile or with certain disturbances of the functions of the liver, are well known; but, so far as known to the writer, these conditions have not heretofore been considered as causative of the fever in the manner herein suggested.

SCIENTIFIC NEWS IN WASHINGTON.

Rock-Gas and Related Bitumens.—A Diagram of the World's War-Vessels.—The Eastern Cherokees.—Some Habits of Koreans.

Rock-Gas and Related Bitumens.

IN a communication (the second on the list) presented before the Philosophical Society on Feb. 2, Mr. W. J. McGee pointed out, that, *pari passu* with the industrial development accompanying the utilization of rock-gas, geologic science has made an unparalleled stride within a few months. When exploitation for gas began in Ohio in 1886, the geologist found himself utterly unable either to guide the efforts of the prospector or to predict the results of his work; yet within the ensuing two years the laws governing the accumulation and distribution of gas and oil have been so fully developed that the rock-gas problem to day claims a solution as satisfactory as

that of the well-known artesian-water problem, and the geologist predicts the success or failure of a prospect bore for gas or oil about as readily and reliably as he predicts artesian water or coal. The solution of the problem of rock-gas and petroleum marks an era in science no less than in industry. Mr. McGee discussed also the origin and distribution of gas, petroleum, and allied bitumens, showing that they are distributed throughout the various countries and geologic formations of the globe; that, other things equal, they are most abundant in the newer formations; that, other things equal, they are lighter in newer than in older formations; that the commercially available supplies of oil and gas are accumulated in natural reservoirs formed by flexures of the rocky strata into domes and anticlinals; and that in the American fields, at least, rock-gas, petroleum, and the heavier bitumens are simple products of natural processes of decomposition of the organic matter contained in sediments, their weight and other attributes depending upon the conditions under which decomposition took place. In conclusion, he pointed out that at the present rate of consumption the coal-fields of the earth will be exhausted within a few centuries, when it will become necessary to utilize, more completely than has yet been done, the much more abundant supplies of carbon compounds disseminated throughout the rocks of the earth in the form of bitumen. Rock-gas and related bitumens are indeed destined to form the fuels and illuminants of the future.

A Diagram of the World's War-Vessels.

Lieut. R. P. Rodgers, chief of the intelligence bureau of the Navy Department, has arranged in his room a curious and important map. It is a large map of the world on Mercator's projection, and on its surface are pinned colored tags showing the present position of all the war-vessels of the world. British vessels are represented by red tags, French by light blue, German by purple, American by dark blue, etc., and the positions of them are daily re-adjusted so as to conform to the latest advices. By this pictorial arrangement the secretary can in a moment sweep the seas, and ascertain exactly the whereabouts and strength of the naval power of the world.

Of the ships indicated in commission on the map, about one hundred and fifty belong to Great Britain and one hundred to France, while Germany and the United States have not more than forty each. Italian ships are mostly in the Mediterranean; Spanish ships, chiefly in the West Indies and at home. Germany has three war-ships at Samoa; the United States has one, and two more on the way, in the aggregate superior to the German contingent. China has a dozen or twenty ships, all on her own coast. She is not aggressive. In Central America we are outnumbered in a way to suggest that the Monroe doctrine is not to be enforced at once. We have at the Isthmus of Darien one pretty poor ship on the east side, none on the west side. France has one on each side, and Great Britain has three on each side. We have four vessels on the West African coast, and half a dozen in the seas of the Orient.

The Eastern Cherokees.

Mr. James Mooney of the Bureau of Ethnology, who has been for several years studying the Cherokees, is making some interesting reports of their condition and customs. It may not be generally known, he says, that the Cherokees, whose expulsion from Georgia and the contiguous States in 1838 was one of the most flagrant violations of treaty rights ever perpetrated by the United States Government, have not entirely abandoned their ancient country. On the contrary, a portion of the tribe, officially known as the "Eastern Band of Cherokees," still keeps up an organization in North Carolina, with its council, chiefs, and medicine-men, and numbers in all about two thousand souls, of whom about fifteen hundred are mainly full-bloods, speaking only their native language, while the remainder are more white than Indian. In addition to these, the official roster includes several hundred others who claim Cherokee rights, — to wit, a share in the tribal lands and educational privileges, — but the keenest observer could not distinguish them from any other white men; and their Indian blood, which in many cases is an extremely doubtful quantity, and denied by the Cherokees themselves, is about as dilute as that of the modern descendants of Pocahontas. Excluding these pseudo claimants, it will thus be seen, by reference to the report of the Indian commissioner, that

we still have in North Carolina a body of Indians about as numerous as the Arapahoes or Winnebagoes in the West, and far outnumbering such noted tribes as the Pawnees, Omahas, Osages, Comanches, and Nez Percés.

These Cherokees are chiefly in Swain, Jackson, and Graham Counties, and own altogether eighty-eight thousand acres. The reservation proper lies principally in Swain County, and contains one hundred and fourteen square miles, occupied by about twelve hundred souls, very few of whom can speak English. Their principal settlement is Elawâti ("paint clay"), known to the whites as Yellow Hill or Cherokee. Here are the council-house, the chief's residence, and the government training-school, containing nearly a hundred children under the efficient instruction of teachers appointed by the Quakers, under a contract with the government. There are five other day-schools supported by the interest on their *pro rata* share of the fund appropriated for the removal of the Cherokees in 1836. Aside from this, the band receives no aid from the government, the Supreme Court having decided that they are not entitled to participate in the benefits arising from any former treaties with the Cherokees, so long as they refuse to join the body of the tribe in the Indian Territory, — a proposition to which they are bitterly opposed. Their legal status is a peculiar one. Although living on a reservation, under care of an agent, and holding their lands in common, they are treated rather as intractable children, and deprived of the privileges accorded the rest of the tribe; while, on the other hand, they have the rights of citizenship, and vote at all local and general elections. In politics they are Republicans almost to a man, as they consider the success of their schools due to that party.

These Cherokees are the descendants of the few individuals who were allowed to remain under the treaty of removal in 1835, and of the larger number who fled to the mountains, and thus eluded the soldiers who were sent out under Gen. Scott to collect the Indians for removal to the West. Many of the older ones still remember with bitterness the events of this period. These Indians may fairly be called warriors, as three hundred of them served in the Confederate army during the late war, while quite a number also fought on the Union side. The former were a part of the Thomas Legion, occupied chiefly in East Tennessee. They are now quiet, law-abiding citizens, cultivating their small farms, and gathering chestnuts and ginseng in the mountains, to trade for cloth and coffee at the neighboring villages. A few are fairly prosperous, but the majority are in a condition of abject poverty. Isolated in the heart of the mountains, neglected by the general government, and deprived even of schools until within a few years ago, they are fully two-generations behind their more fortunate brethren in the West, and still keep up their old dances, ball plays, and conjuring practices, although many of them are professing Christians. Their present chief, N. J. Smith, known to his tribe as Tsalatihi, is an honorable and intelligent gentleman, of three-fourths Cherokee blood, speaking both languages fluently, and thoroughly devoted to the interests of his people. Through his efforts and the influence of the schools, the old Indian life is gradually giving place to the newer civilization.

Some Habits of Koreans.

On Saturday afternoon, Feb. 2, Mrs. E. R. Scidmore read a paper on the home-life of the Koreans, among whom she visited in 1887 as a guest of Judge Denny, the foreign adviser to the king. She said the Koreans are in most things poor copies of the Chinese. Their dress is the same as that worn by the Chinese before the Manchu conquest, which made the pigtail obligatory as a sign of submission. Wispis of straw and bits of cloth, says Mrs. Scidmore, hang at the doorways to delude the Devil and keep off evil spirits; and these are the only signs of worship seen about Seoul. They have the worship of ancestors, as the Chinese; and a trace of the old dragon-worship must order their toleration of snakes, as it is impossible to get a Korean servant to kill the snakes that drop from the mud roof and slip out of the flues of the kaugs that warm the floors of the houses.

Until the arrival of the American physicians, the king and queen had an army of necromancers and wizards in attendance upon them, and a form of shamanism was practised upon the sick. They were consulted as well in matters of state policy.

The strict seclusion of the women is relaxed on one day in June, when women may go anywhere with uncovered faces. The homes of the foreign residents in Seoul are visited then by thousands of curious women.

If a man walks over all the foot-bridges of the city on the middle day of January, he is supposed to secure good health for the year.

The city gates are closed and locked from dark until dawn, and it is death to the guardsman who opens them to admit any one. Generations of belated and wall-scaling Koreans have worn a staircase of crevices in the wall by which they mount to the gate tower; or the guardsmen will haul them up by a rope, there being a regular tariff of charges for the use of ropes, and the mandarins getting their regular percentage of the fees.

The manufactures of to-day are very crude and wholly inartistic. Peddlers of tin bring pieces of iron damascened with silver, that at once prove the Persian influence of the old arts by the decorative forms. Korean ambassadors are supposed to have met the Persians at the Peking Court in the time of Genghis and Khublai Khan.

ETHNOLOGY.

Mound-Builders and Indians.

IN a recent number of the *Ohio Archaeological and Historical Quarterly*, Mr. Gerard Fowke attempts to disprove "popular errors in regard to mound-builders." The author shares the view of Professor Cyrus Thomas, that the mound-builders were Indians, and that no great antiquity must be claimed for their works. The principal points adduced by the supporters of the theory of the existence of an ancient high state of culture and of a dense population are taken up one by one and discussed. Thus he reduces the opinion regarding the high character of the works of the mound-builders to its proper level. One of the important points to be decided, in an estimate of this ancient race, is the question regarding the density of population. The same reasons which were claimed for an ancient dense habitation of Arctic America have been considered as proof in the case of the mound-builders. It is said that numerous ruins on a limited area indicate a great number of inhabitants; but, as no proof can be given that they have been inhabited simultaneously, it is quite possible, that, notwithstanding their great number, the population was very sparse. It seems to us that the author's doubts as to a considerable antiquity of some of these ancient monuments are not well founded; but his criticism of the exaggerated views regarding the works and civilization of this ancient race is timely, and will help to the formation of a juster appreciation of the real significance of these works.

THE JADE QUESTION. — F. W. Clarke and G. P. Merrill have made an examination of a series of jade implements from the collections of the United States National Museum. The results of this investigation, which were published in the "Proceedings of the United States National Museum," are in favor of the theory that the occurrence of implements made of similar varieties of jadeites and nephrites in widely separated countries must not be considered proof of a common source of the material. The authors, whose arguments are based on very exhaustive microscopical and chemical investigations, believe that it is hardly practicable to distinguish, by means of thin sections and the microscope, between nephrites from various sources. "The presence or absence of enclosures of diopside, magnetite, or ferruginous oxides; the condition of these oxides, whether as ferric or ferrous; the varying tufted, bent, confused fibrous and even granular condition of the constituent parts, — are all, together with the color-variations and other structural peculiarities, matters of too slight import to be of weight from a petrographic standpoint. If, as seems possible, the majority of the nephrites are of secondary origin, why may we not expect to find all, or at least a great variety, of the structures described in the same or closely adjacent rock-masses? Chemical analyses on samples from near-lying, or even the same, localities are found often to vary as greatly as those from localities widely separated. Why may we not expect the same structural variations, when once they are carefully looked for? To our own minds, sufficient assurances that the widely scattered jadeite and nephrite objects were derived from many independent sources, and possess no value whatever in the work of tracing the migration and inter-communi-

cation of races, lie in the fact that these substances are comparatively common constituents of metamorphic rocks, and hence liable to be found anywhere where these rocks occur. Their presence is as meaningless as would be the finding of a piece of graphite. The natives required a hard, tough substance capable of receiving and retaining a sharp edge and polish, and took it wherever it was to be found."

SIGNALLING AMONG PRIMITIVE PEOPLES. — As is well known, the Indians of our continent use rising smoke to give signals to distant friends. A small fire is started, and, as soon as it burns fairly well, grass and leaves are heaped on top of it. Thus a large column of steam and smoke rises. By covering the fire with a blanket, the rising of the smoke is interrupted at regular intervals, and the successive clouds are used for conveying messages. Recently R. Andree has compiled notes on the use of signals by primitive people, and finds that they are well-nigh in universal use. Recently attention has been called to the elaborate system of drum signals used by the Kamerun negroes, by means of which long messages are sent from village to village. While it was supposed that this remarkable system of communication was confined to a limited region, explorations in the Kongo basin have shown that it prevails throughout Central Africa. The Bakuba use large wooden drums, on which different tones are produced by two drum-sticks. Sometimes the natives "converse" in this way for hours; and from the energy displayed by the drummers, and the rapidity of the successive blows, it seemed that the conversation was very animated. The Galla south of Abyssinia have drums stationed at certain points of the roads leading to neighboring states. Special watchmen are appointed who have to beat the drum on the approach of enemies. Cecchi, who observed this custom, designates it as a "system of telegraphs." The same use of drums is found in New Guinea. From the rhythm and rapidity of the blows, the natives know at once whether an attack, a death, or a festival is announced. The same tribes use columns of smoke or (at night) fires to convey messages to distant friends. The latter are also used in Australia. Columns of smoke of different forms are used for signals by the inhabitants of Cape York and the neighboring island. In Victoria hollow trees are filled with fresh leaves, which are lighted. The signals thus made are understood by their friends. In eastern Australia the movements of a traveller were made known by columns of smoke, and so was the discovery of a whale in Portland Bay. These notes, which might be increased considerably, show the general existence of methods of communication over long distances, — the art of telegraphing in its first stages of development.

NOTES AND NEWS.

RECENTLY much light has been thrown upon the phenomena of glaciation in Greenland. Dr. F. Nansen's daring trip across the inland ice will clear up important questions regarding the meteorological conditions of the interior and the maximum height of land. In the past year Mr. Ch. Rabot has examined the ice phenomena of the west coast, and arrived at the conclusion that the glaciers of Lapland must be considered inland ice in miniature. He is of the opinion that the latter must be considered vestiges of the glacial period in Scandinavia, which have remained to the present day in consequence of particular circumstances. He also observed that the great glacier of Jacobstown has advanced almost two miles since the year 1878.

— Mrs. Amélie Rives-Chanler has offered a prize of \$100 for the best American essay on child-labor. The money has been placed in the hands of Professor Richard T. Ely of Baltimore, secretary of the American Economic Association. The essay must not exceed 55,000 words, and must be in Professor Ely's hands not later than Dec. 2, 1889.

— The Royal Society of Palermo has decorated Professor P. T. Austen of Rutgers College with a gold order, in recognition of his scientific work.

— The following meetings will be held in Paris in August, 1889. viz., Congress of Geography and Ethnology, from Aug. 5 to Aug. 12; Association Française, Aug. 8 to Aug. 15; Congrès d'Anthropologie, Aug. 19 to Aug. 26.