THE KLONDIKE RELIEF EXPEDITION.

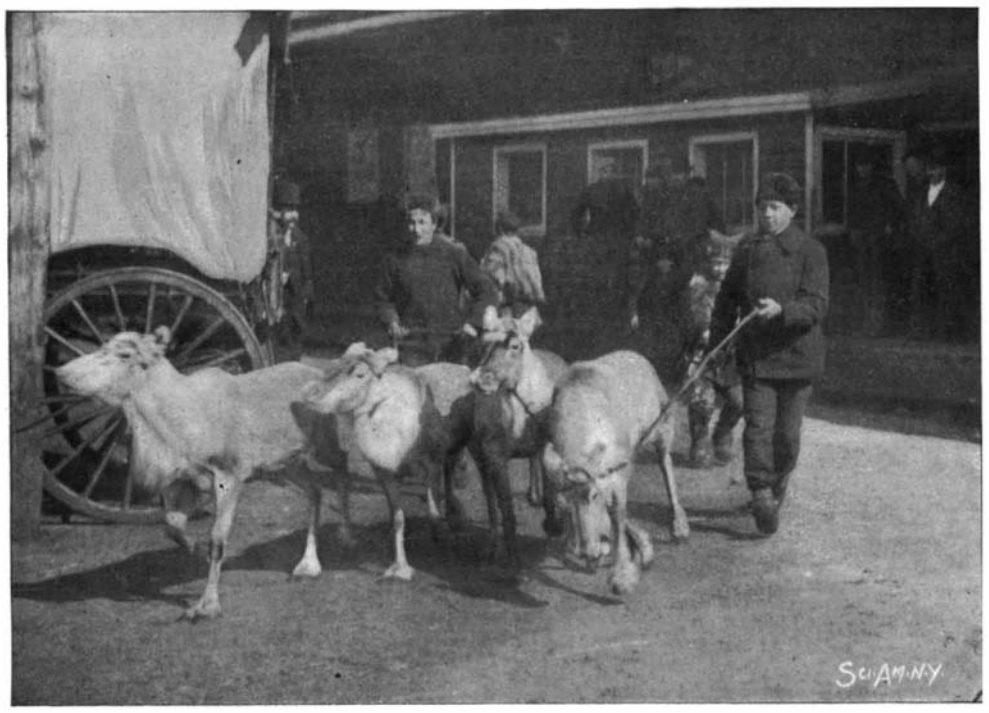
The "Manitoban," of the Allan line, from Bosekop, Arctic Lapland, arrived at New York on Sunday, February 27, the trip occupying twenty-four days. The steamer brought the Lapland Reindeer Yukon Relief Expedition, which is in charge of Dr. Sheldon Jackson, who introduced the first domestic reindeer into Alaska and who, under the auspices of the federal government, is about to place the first colony of Lapp settlers in Alaska. The expedition was planned by the War Department for the relief of the miners in the Klondike country, but since the arrival of the expedition it has been decided to abandon the intended relief, owing to the fact that the conditions on the Yukon have changed so as to render the expedition unnecessary. The result is that the reindeer brought by the steamer will be sold, and it is expected that the amount received will be sufficient to reimburse the department. The decision of the officials does not affect in any way the sending of the northern immigrants to Alaska.

The "Manitoban" brought a unique cargo, the first of its kind ever imported into the United States. It consisted of 113 immigrants, 537 reindeer, 418 reindeer sleds, 511 sets of reindeer harness and between 3,000 and 4,000 bags of moss for feeding the reindeer en route. The immigrants consist of 42 Lapp, 10 Finn and 15 Norwegian herders and drivers and their families, making a party of 68 men, 19 women and 26 children. Each of the three nationalities has a celebrity. Samuel Johannesan Balto is a Lapp who crossed Greenland with Nansen and wears a silver medal conferred on him by King Oscar II., Olaf Paulsen is a Norwegian who boasts of three prizes received from King Oscar for skill in rifle shooting, and Johan Petter Stalogargo is a Finn who has the distinction of having been the northernmost mail carrier in the world, having for eight years carried the mail on his back to North Cape, Norway.

The "Manitoban" had rough weather, but the reindeer stood it well and did not appear to be inconvenienced by the rolling of the ship. They were carried in pens built on the upper and first decks between the amidships superstructure and the poop. Many of the reindeer were in a pitiable plight when they reached New York, owing to the fact that they were dehorned at sea, so that they would not injure each other, themselves or their driver. Some of their heads were still bleeding when they were put in the cattle cars to carry them to their Western home.

The reindeer sleds are built of light, thin wood and are much the form of the forward half of a canoe, only decked over for about two-thirds of their total length of about seven feet; from 300 to 400 pounds make a sled load and ten sleds make a team, nine being loaded with goods and one being occupied by the driver. Each sled is drawn by one reindeer, whose harness consists of a rawhide thong about the neck with a single trace running between the foreleg, so that the animal pulls a bit sidewise and does not step into its tracks twice, as it would if it pulled straight ahead. The driver, who rides in the first sled in a reindeer caravan, drives with reins tied to the steed's horns. The other animals are tethered each to the rear of a sled and in front of another. The reindeer are very useful in countries where summer thaws leave a muddy trail, as their hoofs are large and flat and spread out when the foot is planted, so they scarcely sink in the lightest snow or the softest ooze. The large supply of Arctic moss brought with the reindeer will be more than sufficient to feed them during the entire trip to Dyea, and there is found a day's journey inland from that place a moss which the reindeer can eat. In the SCIENTIFIC AMERICAN for September 4, 1897, is an interesting article entitled "The Alaskan Reindeer — The Camel of the North," to which our readers are referred for interesting particulars regarding this hardy and useful animal.

The emigrants stood the trip far worse than the reindeer and suffered a good deal from seasickness. Notwithstanding the condition of their lives and their nomadic habits, the reindeer herders and drivers are not stupid and are remarkably domestic. They insist upon taking their families with them when they make a permanent move, and generally, when any number move together, they insist upon taking the minister with them, but in this instance they did not do so. They nearly all read and write and as a rule are good Lutherans. Some of the Laplanders dress partly in European dress; these were easily distinguished from the crew and helpers by their heavy leather moccasins and the long ugly looking sheath knives that hung from their belts, no less than by their facial characteristics. The majority were fully dressed in their gay native costume, the outer garment being a great fur coat heavily trimmed about the cuffs and collars with bright red, blue and yellow flannel and fringed about the skirt with the same material. They wore tightly fitting fur trousers and decorated leather moccasins topped with bright wool or flannel bands. Their hats were of various shapes, materials and colors; some wore fur caps with elongated ear laps that hung over their shoulders. Others wore knitted wool or cloth caps, but the popular headdress seemed to be a four cornered cap made of bright colored cloth, with a tassel attached to each corner. These caps were filled with moss. A few of the men were dressed in dark blue cloth clothes cut after the style of the fur blouse, and kilts trimmed with red braid. The women were dressed so nearly like the men that it needed a careful glance to distinguish them. A particular feature of their dress seemed to be the kilt, but some of the men also wore kilts which confused the spectator. The women wore heavy brass and silver finger rings with bangles. The men were generally undersized according to the American standard, the Lapps being larger than the Norwegians and smaller than the Russian Finns, but they were all wiry, close knit fellows, and seemed to be capable of standing a great deal of hardship. The women did not show their age; the blue eyed women fifty years of age do not look more than thirty years old, and there was an absence of wrinkles and gray hair.



TAKING REINDEER TO THE CARS.

Our engravings show the reindeer on their way from the pens at the Pennsylvania Railroad stockyards in Jersey City to the train and a group of Laplanders on the steps of the car just prior to their departure for the West on March 1. The party was shipped by a special train made up of thirty stock cars of approved design, the train moving in two sections. Two tourist cars, a cooking car, three baggage cars, complete the trains. It is the intention of the drivers to stop at Dyea, Alaska, until two or three round trips are made into the Klondike country. It is believed that the reindeer can be sold to good advantage in Alaska and that the drivers can obtain very remunerative wages.

GROUP OF LAPPS BOUND FOR THE KLONDIKE.

Roman Circular Monuments.

The circular form was a favorite one with the Romans for their sepulchral structures of a more pretending class than ordinary. It will be sufficient here merely to mention those in honor of Augustus and Hadrian. The Tomb of Cæcilia Metella is a low cylinder, the height being only 62 feet, while the diameter is 90, and it may be considered as nearly solid, the chamber or cella being no more than 19 feet in diameter. This cylindrical mass is raised upon a square substructure, which combination of the two forms is productive of agreeable contrast, and it was accordingly frequently resorted to. The Tomb of Plautius Sylvanus, near Tivoli, consists also of a short cylindrical substructure on a square basement, but is otherwise of peculiar design, one side of that stereobate being carried up so as to form a sort of low screen or frontispiece, decorated with six half-columns and five upright tablets with inscriptions between them. The Tomb of Munatius Plancus, at Gaeta, is a simple, circular structure of low proportions, the height not exceeding the diameter, and therefore hardly to be called a tower, notwithstanding that it is now popularly called Roland's or Orlando's Tower. Of quite different character and design from any of the preceding ones is the ancient Roman sepulchral monument at St. Remi, which consists of three stages—the first a square stereobate raised on gradini and entirely covered on each side with sculptures in relief; the next is also square, with an attached fluted Corinthian angle and an open arch on each side, and the uppermost is a Corinthian rotunda, forming an open or monopteral temple (i. e., without any cella), the center of which is occupied by two statues. As instances of other combinations we may briefly refer to what is called the Tomb of Virgil, near Naples, consisting of a square substructure surmounted by a conical one; to the Roman monument at Constantine, in Africa, conjectured to have been a cenotaph in honor of Constantine, the lower portion of which is a cylindrical structure surrounded by a peristyle of twenty four Doric columns and carried up as a lofty cone in receding courses or gradini, leaving at its summit a platform for an equestrian statue.—The Architect.

Acetylene Notes.

The Progressive Age of recent date had an interesting collection of notes on acetylene which we reprint.

Interesting tests, says The Gas Engineer's Magazine, Nov. 10, 1897, concerning the combustion of acetylene and air mixtures, have been made by Le Chatelier, of Paris. He has found that a mixture containing less than 7·7 per cent of acetylene burned with a yellow flame, the brightness increasing with increasing acetylene contents. The combustion was perfect. A mixture containing above 7·7 per cent and up to 17·3 per cent of acetylene burned with a blue flame, the product of combustion being, besides water and carbonic acid, carbonic oxide and hydrogen. With contents of 17·3 per cent a part of the mixture already remains uncombusted, and carbon is separated, the separation at 25 per cent taking place in the form of a dense, black vapor. With acetylene contents up to 57 per cent the mixtures remain explosible. Explosibility commences with 2·7 per cent, while a coal-gas and air mixture requires at least a gas content of 8·1 per cent in order to be explosible. Acetylene ignites much easier than other gases, even oxygen, its igniting temperature being about 500° C. The theoretical heat development for acetylene, burning in air, is 2,400° C., that of coal gas 1,900°. The separation of carbon is avoided by combustion under pressure out of small openings, or better by mixing the gas with its own or the double volume of air, without injury to its illuminating effect. The use of from 10 to 20 per cent of oxygen is for this purpose preferable to the admixture of air.

In passing pure cold acetylene saturated with CCl_4 vapors into a flask cooled to 0° C., Messrs. Forcrand and Sully Thomas (Comptes Rendus, vol. 125, p. 109) found among the fragments of ice in the flask which was under a low pressure some crystalline white flakes such as are produced by H_2S under the same conditions. Above 5° Cent. these bodies decompose and give off acetylene freely. The flakes referred to are a mixed hydrate of acetylene and CCl_4. We can obtain the same hydrates by replacing CCl_4 by $CHCl_3$, $C_2H_4Cl_2$, CH_3I, $CHBr_3$, etc. By replacing C_2H_2 by C_2H_4, CO_2 or SO_2 we obtain similar crystals which are stable above 0° C. These also decompose with effervescence and give off the gas which produced them; they are more stable than simply hydrates of these gases.

Moissan and Etard found (Annales de Chimie et de Physique, November, 1897) that when pure thorium oxide was heated with carbon in an electric furnace, a carbide of thorium was easily produced having a formula C_2Th. This compound in presence of cold water produced a mixture of gaseous carbides containing acetylene, methane, ethylene and hydrogen. Liquid and solid carbides were also produced. Five different samples gave the following precentage results:

	1	2	3	4	5
Acetylene.....	14·49	14·90	15·23	47·05	48·44
Ethylene, etc....	3 81	5 70	6·01	5·88	5·64
Methane.....	38 47	34·20	30 32	31·06	27·69
Hydrogen.....	43·34	45 20	48·44	16·01	18·23

The first three samples were from a melted mass of carbide, while the two last were from pure crystallized thorium carbide.

Calcium Carbide Works at Geneva.—The authorities at Geneva, Switzerland, who control the electric light plant situated at Vernier, have decided to utilize the idle hours of their plant for the manufacture of calcium carbide. The dynamos are driven by turbines operated by abundant water power. In order to reduce manual labor charges as much as possible the pulverizing of the coke, mixing the lime and carbon and other operations are performed mechanically. From the time the crude material is received until it comes from the furnace but one man's labor is required, most of the operations being automatic. They pay special attention to the use of good material and to the attaining of a good product which will be sought after for the production of acetylene for car lighting where a pure quality is especially required. The coke used contains but 5 per cent of ash. The lime is very pure, containing 99 to 99·5 per cent of calcium oxide. Each furnace will take 500 horse power (6,000 amperes at 57 volts). They are probably the largest used for the manufacture of calcium carbide. The furnace is a large cylindrical crucible 59 inches in diameter and 32 inches high. The electrode is made of compressed carbon in six pieces, each 60 inches long, 5·2 by 9·2 inches in section. The weight of the six carbons is over 858 pounds, and the total section is 287 square inches. The crucible is fed from above by iron chutes. The daily production will be six tons, but this can easily be increased. The works seem to have been established under the most favorable conditions as regards power and installation, and propose to turn out a first-class product only.

Two Vienna chemists, Dr. Fuchs and Dr. Schiff, find that when acetylene gas is passed over water covered with a layer of olive oil there is at first absorption of the gas by the oil to the extent of 48 per cent by volume, and that the saturated oil then, standing on fresh water, only allows absorption by the water to the extent of from 1·5 to 2 per cent by volume in three hours. They say that for analytical purposes the carbide should not be powdered; the weight goes wrong on account of the absorption of moisture from the air, and for the same reason there is a loss of gas. But when compact lumps are used, the lime formed tends to shelter some of the carbide from the water if the lumps be immersed; whereas, when the water is slowly dropped on the lumps, each drop is partly blown off in steam and cracks the carbide, which thus becomes so porous that the decomposition is complete.

The American Druggist and Pharmaceutical Record, under the head of "Tariff Problems Considered," says the Treasury Department will send out a special agent to make an investigation of the value and market price of calcium carbide. This article is used in the manufacture of acetylene gas, a product which is now being extensively exploited by a large syndicate, which controls the patents under which it is manufactured. The tariff law levies an ad valorem duty on this product, and as it has been brought in at several ports, collectors have varied more than 200 per cent in their valuations; but in all cases have materially exceeded the invoice valuation. The company controlling the patents have an important interest in keeping the apparent cost of the article as low as possible, as they are disposing of royalties in nearly all the States and the economy of production necessarily depends upon the cost of the raw material. In view of the limited supply and circumscribed market, the department sees no way of ascertaining the value of the article without a special investigation.

Some experiments on the use of acetylene in signaling lamps have recently been made by Mr. A. E. Munby. Such good results have been obtained with the primitive apparatus employed that it seems well worth considering whether acetylene could not take the place of the lime light where portability is an object. The apparatus consists of a 5-ounce bottle carrying a two-hole rubber cork. Water drips on the carbide from a wide glass tube holding about 2½ ounces, and furnished with a connection of rubber tube and a screw clamp to act as regulator. The gas escapes from a straight tube to the lamp, being trapped on the way by a wider piece of tube, into which the smaller tubes are corked at each end. The gas tube enters the lamp through the base, and the gas burns from an ordinary 0000 Bray. The generator weighs when charged one pound, and after two minutes will give a steady light for thirty or forty minutes. Of course, for permanent work, the generator would have to be arranged in metal. Even then it would probably be the lightest gas-supplying arrangement for the illumination yet produced.

The Current Supplement.

The current SUPPLEMENT, No. 1158, contains a number of articles of more than usual interest. Perhaps the most remarkable is the one relating to the Crucifixion, which has just been discovered by Prof. Marucchi on the walls of the Palace of Tiberius, on the Palatine Hill, Rome. A fac-simile reproduction is given of the "graffito" which is believed to have been scratched on the wall by a Roman soldier who was present at the Crucifixion.

"How a Ship is Built" is the subject of a long article describing the process of building ships in Germany and is illustrated by eight engravings. Those of our readers who are interested in rotary engines will find two important articles, "Hult's Rotary Engine" and "Reversing Steam Turbines;" the latter describes the latest improvements in the Parsons turbine. They are both fully illustrated with sectional views.

"Black Print Processes" describes in great detail the method of making black print copies of drawings. "Instinct and Intelligence in Animals" is another paper of great interest. "An Electric Curve Tracer," by Prof. Edward B. Rosa, Ph.D., describes an ingenious apparatus for delineating the forms and phases of periodic electric quantities. It is very fully illustrated. For a complete table of contents of this number of the SUPPLEMENT, the reader is referred to page 162.

Electric Working of the Ymuiden Locks.

Ymuiden is the North Sea entrance of the ship canal which joins Amsterdam in a straight line to the sea. The installation was completed this March, 1897, says The Trade Journals Review. A gate, turning in 39 feet of water, can be opened against a wind exercising a pressure of 20 kilogrammes per square meter (4 pounds per square foot) by a motor of 45 horse power. The cables for the electric motors, lamps and signal wires are placed in three conduits made in the bottom of the lock chambers. Each groove contains 15 cables of Felten and Guillaume, all insulated with okonite and rubber, two lead sheaths and a fourfold iron armor. The locks have three heads, each head being fitted with four gates, four sluices and four capstans. Each of these gates, sluices, etc., is worked by its own electric motor, but the motors are grouped together.

The gates are moved by hydraulic rams guided on rollers, and four chains carried over sheaves and a drum; the latter is actuated by means of a worm from the electric motor. The lifting of a sluice against a difference in level of 6·5 feet requires about eight tons; it is done within one minute. The capstans claim more power still. The dimensions of the actual central power station allow of the simultaneous motion of two parts, for instance, two gates or two sluices. The height to which the latter have been raised is indicated on the switch board. The electric motors and switchboard come from the Elektricitäts Gesellschaft, late Schuckert & Company, of Nurnberg. The illumination is effected by means of 12 arc lights and 300 incandescence lamps; groups of the latter are used for flash effects. The primary power is supplied by a temporary plant, comprising two steam engines of 25 and 90 horse power and three dynamos. The permanent plant will be provided with a large battery of accumulators, which will act as a powerful reserve.

Ocean and High Altitude Health Resorts.*

Recent knowledge of microbic life, as related to the purity of the atmosphere, justifies the inference that the benefit to consumptives derived from sea voyages or from resort to high altitudes is independent alike of the extreme density and moisture of the ocean atmosphere in the one case and of the rarefaction and dryness of the air in the other. In both cases the air is inimical to tubercle bacilli, as it is also inimical to other bacilli—indeed, to all microbic life. And, barring the preventable conditions of a foul bilge and inadequate ventilation of staterooms and other sleeping quarters on board ship; close bedrooms, defective house drainage, unhealthful surroundings and dust—barring these conditions respectively, ocean atmosphere and high altitude are alike propitious and commendable to persons afflicted with or predisposed to pulmonary consumption.

Ocean air, however, it should be understood, is not the air of the seacoast, but of the open sea, sufficiently distant from the land to be free from all contamination. It is more equable and, in corresponding latitudes, excepting the tropics, warmer than over the land; and within the tropics, though warm, is never sultry, as it is at the same degree of temperature on the land, nor is the temperature so high. In the tropics the range of the thermometer at sea is from 72° to 84° F., and rarely as high as 86° F. at midday. The mean relative humidity is about 73·5 per cent (100 representing complete saturation). The humidity is usually a little greater in the night than during the day, but commonly is less at all times than that of the air of seacoast places.

Besides the excess of moisture, as compared with that of the land distant from the seacoast, the ocean air always contains some sea salt, although, excepting in the trade winds or in gales, in infinitesimal quantity; never in such excess, even in the trade winds or gales, as to be otherwise than a healthful stimulus to respiration.

It also possesses properties beneficial to certain specific diseases.

The special advantages of an ocean atmosphere are:

1. Its entire freedom from the dust common to domestic conditions—particles of tissue wastes of all sorts, hair, straw, feathers, cobwebs, insects, dried sputa, etc.; from traffic dust—the wear of travel and friction; from all insoluble and irritating grit wafted from paved streets, houses, walls, dusty roads or sandy plains. It is air, in short, that contains a maximum of the elements essential to life and health and a minimum only or none at all of the deleterious substances always floating, in greater or lesser degree, in the lower stratum of the atmosphere over the land.

2. Complete change of scene and rest; relief from all sources of excitement and worry—newspapers, telegrams, messenger boys, letters, expectations, and all sorts of indescribable turmoil. And the passing breeze is not from just over the marsh or stagnant pond, nor is it from the malodorous tenement house district; it bears no foul emanations and no disease germs. Every breath of it is brand new, and when exhaled it never hovers round to taint the next inspiration, but is wafted away and speedily transformed into the purer elements of the atmosphere.

Thus inhaled throughout the day, the pure, soft air soothes the nerves, invigorates the functions, promotes sleepiness and welcomes repose. Sound slumber supervenes, and with no business appointments to be met, abundant time is taken for breakfast, dinner and supper—with an invigorated appetite and improved digestion.

The invalids to whom an ocean atmosphere is most commendable are pointed out by that which is just above stated—consumptives in the incipient stage and persons predisposed to consumption; persons of scrofulous diathesis; persons afflicted with nervous complaints—not organic nervous diseases, but the easily recognized conditions of overwork, though often undefinable, the result of physical or mental nervous strain, anxiety, worry, irritability, debility, nervous break down, insomnia; and persons afflicted with chronic nephritis.—The Sanitarian.

*Abstract from "Winter Health Resorts."—Medical Record, November 27, 1897.