

Nasal, Pharyngeal, and Bronchial Catarrh.

The complaints above named are very prevalent throughout all those regions of this continent where sudden changes in temperature are frequent. Acute attacks are, in popular language, called "cold in the head," "sore throat," and "cold on the lungs." The latter is, however, most generally confined to the bronchial tubes, and consequently the popular name is a misnomer. We find in the "Proceedings of the Medical Society of the County of Kings, N. Y.," for February, 1881, a very extended discussion of the relation of locality to the prevalence of this class of diseases. It is supplied in a report of the Committee on Hygiene of the society, which has made an apparently successful attempt to determine whether catarrhs are more prevalent in Brooklyn than New York, this being a popular notion.

To local readers it will be of interest to know that this notion is not based on facts, catarrhal affections being, in the opinion of the committee, equally common in both cities. This opinion is based upon statements supplied by the oldest and best physicians in both New York and Brooklyn. For the general reader, however, the conclusions of the committee have value beyond the decision of the main point in issue.

We may properly state here that the course pursued to gain the required information was systematic and thorough. It embraced inquiries into the meteorological conditions of both cities for a number of years, an examination of the received authorities in printed works upon the relations of catarrh to climate, locality, and individual constitution and temperament, inquiry into the tendency of repeated catarrhal affections to induce tuberculosis or real pulmonary consumption, and interviews with local physicians of character and large experience.

It was found that the climatic difference between the two cities is very slight indeed.

It was also determined that no real change of climate has occurred along the line of Atlantic coast cities for indefinitely long periods of time, although, apparently, there have been brief cycles of heat and cold, of moisture and of dryness, succeeding each other under the operation of some unknown law.

CAUSES OF PHARYNGEAL CATARRH.

These, as enumerated by various authors, are: "Personal idiosyncrasy, straining the voice as in shouting. As secondary to nasal catarrh, indiscretion in leaving off clothing, or in getting feet wet; rude changes in the temperature of the air; local irritants, as tobacco, spices, and hot drinks; certain atmospheric causes as yet unknown; thus, in spring and autumn catarrhs often prevail *endemically*. The same causes (perhaps, *e. g.*, pollen) sometimes operate to produce the epidemic varieties: *e. g.*, influenza and hay fever are symptomatic of certain exanthemata.

"Generally 'moist and cold climate with frequent and sudden and severe variations of temperature.'

"Biermer draws attention to chilly winds with increased moisture.

"Lebert noticed this before, as also the effect of sudden depressions of temperature. He finds that the 'fair weather' years are *not* the best, but those when the transitions of the seasons and the changes of the temperature are *least marked*. He has also proved that the extremes of temperature and pressure produce less trouble than *sudden* changes. He shows that in Switzerland 50 per cent of all catarrhal bronchitis is in the first *four months of the year*. Heller obtained nearly similar results at the Vienna Hospital."

NASAL CATARRH.

The like causes produce nasal catarrh, except such as in the above enumeration relate to exercise of the voice and sequela of nasal catarrh.

CAUSES OF BRONCHIAL CATARRH.

"The sudden cooling off of the whole body, or a part of it, *i. e.*, the process of 'taking cold.' 'Inhalation of dust,' affections so well shown up by Hirt. Catarrhs from inhalation follow the following order of frequency: 1st. Inhalation of *vegetable* dust, next metallic dust, then that of animal origin, and least noxious is mineral dust. Inhalation of gases and vapors—vapors most often of nitric and sulphuric acids—then of hydrochloric acid. Catarrh from iodine inhalation is very rare. Hirt has noticed *marked tolerance* of these irritants after a few attacks of catarrh. He finds a few vapors that are not only innocuous, but seem to diminish a disposition to catarrhal disease, and even to hasten the favorable termination of an already existing catarrh. In this class belong vapors from oil, from glue, burning tar, and *salt air*.

"The theory that an undue amount of ozone in the atmosphere is a cause of catarrhs has not been established. During the prevalence of the epizootic or influenza among horses a few months since, the daily tests at Central Park showed almost an entire absence of ozone from the atmosphere."

The committee expresses the opinion that "though climatic and city influences have much to do with the creation of catarrhs, yet defective heating, lighting, airing, sunning, and drainage of houses, with improper views as to air, clothing, bathing, and exercise, are the main causes."

The effect of change of location upon catarrhal affections seems very pronounced.

The committee asserts that a mere change of residence "from New York to Brooklyn, or from Brooklyn to New York, or accompanied with better food, more healthy and cheerful surroundings, may relieve a catarrhal patient; and that a change, with or without the above acquirements, from an exposed part of one city to a protected part of the other,

from one house or section in either city to another house or section in the same, may likewise afford relief."

Those parts which are considered "exposed," in contradistinction from "protected" portions of a city, are those in which cold winds have more free access to exert their chilling effects.

Seaboard cities, though not, in general, considered favorable places of resort for catarrhal and consumptive patients, may yet afford benefit, provided the change is attended by increased comforts, enjoyment, better opportunities for treatment, and attention to personal hygiene.

Color Relations of Metals.

In a paper on the color relations of copper, nickel, cobalt, iron, manganese, and chromium, lately read before the Chemical Society, Mr. T. Bayley records some remarkable relations between solutions of these metals. It appears that iron, cobalt, and copper form a natural color group, for if solutions of their sulphates are mixed together in the proportions of 20 parts of copper, 7 of iron, and 6 of cobalt, the resulting liquid is free from color, but is gray and partially opaque. It follows from this that a mixture of any two of these elements is complementary to the third, if the above proportions are maintained. Thus a solution of cobalt (pink) is complementary to a mixture of iron and copper (bluish-green); a solution of iron (yellow) to a mixture of copper and cobalt (violet); and a solution of copper (blue) to a mixture of iron and cobalt (red). But, as Mr. Bayley shows, a solution of copper is exactly complementary to the red reflection from copper, and a polished plate of this metal viewed through a solution of copper salt of a certain thickness is silver white. As a further consequence, it follows that a mixture of iron (7 parts) and cobalt (6 parts) is identical in color with a plate of copper. The resemblance is so striking that a silver or platinum vessel covered to the proper depth with such a solution is indistinguishable from copper.

There is a curious fact regarding nickel also worthy of attention. This metal forms solutions, which can be exactly simulated by a mixture of iron and copper solutions; but this mixture contains more iron than that which is complementary to cobalt. Nickel solutions are almost complementary to cobalt solutions, but they transmit an excess of yellow light. Now the atomic weight of nickel is very nearly the mean of the atomic weight of iron and copper, but it is a little lower, that is, nearer to iron. There is thus a perfect analogy between the atomic weights and the color properties in this case. This analogy is even more general, for Mr. Bayley states that in the case of iron, cobalt, and copper, the mean wave length of the light absorbed is proportional to the atomic weight. The specific chromatic power of the metals varies, being least for copper. The specific chromatic power increases with the affinity of the metal for oxygen. Chromium forms three kinds of salts: Pink salts, identical in color with the cobalt salts; blue salts, identical in color with copper salts; and green salts, complementary to the red salts.

Manganese, in like manner, forms more than one kind of salt. The red salts of manganese are identical in color with the cobalt salts and with the red chromium salts. The salts of chromium and manganese, according to the author, are with difficulty attainable in a state of chromatic purity. He thinks these properties of the metals lead up to some very interesting considerations.—*Chemical Review*.

The Electric Lighting of Mines.

At one of the sessions of the American Institute of Mining Engineers, in Philadelphia, the Edison system of electric lighting, as applied to mining, was described by Mr. A. O. Moses. The method adopted is very simple. Wires run direct from the dynamo-electric machines to the different workings, supplying light to the shaft on their way. Each lamp may, if desired, be immersed in water, or may be protected from fracture by a coarse wire screen; the connections can all be made under water, and thus lamps may be put in or out of circuit without the slightest danger from the electric spark.

Far too much importance, the speaker thought, has been attached to the consequences that may arise from leading wires into mines for conveying electricity, notably by such high authority as Mr. Preece, the English telegraph engineer, but his deductions are not sustained by facts.

One of the most important advantages of the electric light in coal mines is in obviating the necessity of hermetically sealing up old or temporarily abandoned workings. Another is their prompt availability at times when light is of the most vital importance, when many lives may be in jeopardy after explosions, and dangers are multiplied on every hand, when everything depends upon immediate and vigorous action; then the weakness of all lamps that require to be fed with air asserts itself.

Dr. Wendell, Horticulturist.

Dr. Herman Wendell, one of the best known pomologists of this State, and owner of one of the largest orchards in the country, died at Hazlewood-on-the-Hudson, February 23, at the age of 70 years. Dr. Wendell was for several years President of the State Horticultural Society, and Vice-President of the State Agricultural Society. His orchard contained from eight to ten thousand fruit trees, every one planted by his own hand.

MECHANICAL INVENTIONS.

Mr. Albert Bonzon, of Santiago, Cuba, has patented a chronograph watch. The invention consists in a wheel rigidly attached to the second hand arbor and roughened on its upper surface, and in a heart cam with a roughened lower surface, which cam is loosely mounted on the second hand arbor and provided with a sleeve carrying the second hand and acted upon by a spring, whereby it can be raised or lowered, so as to come in and out of contact with the roughened wheel. An adjustment screw on the spring acting upon the cam regulates the distance that the end stud of this spring is removed from the heart cam.

Mr. William L. Miller, of Pittsburg, Pa., has patented a reversing and cut-off mechanism, which dispenses with the ordinary link motion. A disk is fitted and fixed on the shaft, and a movable eccentric having lugs which play in slots formed in the disk slides on the flat face of the disk. A sliding collar on the shaft is by links made to shift the eccentric, the weight of the eccentric being counterbalanced to equalize strain on the collar.

Messrs. Orry M. Shepard and William A. Knight, of Evansville, Indiana, have patented a railway time signal, which consists in a novel construction, arrangement, and combination of devices operated by wheels of a passing train, whereby both night and day signals are displayed, retained for a certain length of time in sight, and then gradually changed to different positions.

Mr. Luther C. Baldwin, of Manchester, N. H., has patented an apparatus for drying bobbins which dispenses with the use of boards for arranging the bobbins so that the ends will not touch after they have been painted. An endless belt is substituted on which the bobbins are placed, and which, running slowly, discharges the bobbins at a distance from the point where they are placed on the belt. The paint used being of a kind which quickly dries, the bobbins are discharged finished. A registering apparatus is employed to record the number of bobbins so discharged.

A Railway Station in the Gothard Tunnel.

The daily journals of Switzerland and Germany contain long articles in regard to an underground station in the great Gothard Tunnel, below the village of Andermatt, which has about 800 inhabitants, is situated about 5,000 feet from the sea, and directly over the tunnel. The Gothard Pass and the well-known Furka Pass, leading into the valley of the Rhone, cross here, and it seemed desirable to connect the railroad with the Furka Pass. The design is to cut a slanting tunnel from Andermatt down to the Gothard Tunnel and convey the passengers up and down by means of a wire cable road. At the connections of the two tunnels, restaurants, depots, etc., are to be cut out of the rock. The inhabitants of Andermatt expect to do a very great business, as all the passengers will prefer to leave the train at this novel station and be carried into the beautiful Urserenthal, in which Andermatt is located, by the rope railway. The freight traffic would certainly be increased, but all this will probably not pay the cost of the additional tunnel, which would have to be about $1\frac{1}{2}$ miles long. The idea is a very novel one, and is no doubt deserving of some consideration, but at present it will probably remain idea only.

L. d. V. D. E.-V.

Long Voyage in a Small Boat.

According to a correspondent of the *London News*, the sailing boat *Il Leone di Caprera*, $3\frac{1}{4}$ tons register, and manned by three Italians, stopped at Las Palmas, Canary Islands, February 9, on the way from Montevideo, S. A., to Naples. The boat had been 95 days on the voyage. She is described as being 27 feet long, $7\frac{1}{2}$ feet wide, 3 feet deep in the center, and 5 feet fore and aft, flush deck, with bulwarks $2\frac{1}{2}$ inches high. In the after part of the boat is a small semicircular space 3 feet deep, in which the helmsman sits. The hold, which is fitted with a number of hermetically sealed zinc tubes, 10 inches in diameter, capable of floating 40 tons, is entered by a hatchway in the after part of the vessel, close up to the semicircular space before mentioned. Here their provisions and water are stored, and there is just enough space to allow one man to lie down at full length. The planks are of cinnamon wood, and the framework is made of algarroba (carob tree.) The two masts are of walnut wood, and fitted in such a manner that in case of a sudden squall they can be lowered almost instantaneously. When in 48° longitude and 30° latitude the boat was struck by a heavy squall, and was thrown on her beam ends, the tops of the masts being forced two or three inches under the water, but she raised herself almost instantly, and suffered no damage. The commander was Capt. V. Fondacaro, an experienced navigator.

An Illustration of Amoeboid Movements.

The curious movements of the lowest forms of life are illustrated by Dr. Haycraft with a simple mechanical contrivance, which will be found useful in the classroom. He takes an India-rubber ball, perforated with a number of small holes, fills it with colored albumen (white of egg), and immerses it in a solution of sugar of about the same density as the albumen. A gentle pressure applied to the ball forces out the albumen in finger-like processes, which are retracted when the pressure is relaxed, thus clearly imitating the extension and retraction of the amoeboid processes of protoplasm familiar to all microscopists.