remedy. It is a popular belief that quinine, in full doses, will check an oncoming cold in the chest, but this is doubtful. It is a common custom when persons feel the approach of a cold to take a Turkish bath, and though the tightness and oppression may be relieved by it, there is in a majority of the cases great risk. Some of the severest cases of bronchitis which I have seen have followed this initial Turkish bath. No doubt, if the person could go to bed directly from the bath, its action would be beneficial, but there is great risk of catching additional "cold" in going home from the bath. Relief is obtained from the unpleasant sense of rawness by keeping the air of the room saturated with moisture, and in this dry stage the old-fashioned mixture of the wines of antimony and ipecacuanha with liquor ammoniæ acetatis and nitrous ether is useful. If the pulse is very rapid, tincture of aconite may be given, particularly in the case of children. For the cough, when dry and irritating, opium should be freely used in the form of Dover's powder. Of course, in the very young and the aged care must be exercised in the use of opium, particularly if the secretions are free; but for the distressing, irritative cough, which keeps the patient awake, no remedy can take its place As the cough loosens and the expectoration is more abundant, the patient becomes more comfortable. In this stage it is customary to ply the patient with expectorants of various sorts. Though useful occasionally, they should not be given as a matter of routine. A mixture of squills, ammonia, and senega is a favorite one with many practitioners at this stage.

In the acute bronchitis of children, if the amount of secretion is large and difficult to expectorate, or if there is dyspnœa and the color begins to get dusky, an emetic (a tablespoonful of ipecac wine) should be given at once and repeated if necessary.

II. CHRONIC BRONCHITIS.

Etiology.—This affection may follow repeated attacks of acute bronchitis, but it is most commonly met with in chronic lung affections, heart-disease, gout, and renal disease. It is frequent in the aged; the young rarely are affected. Climate and season have an important influence. It is the winter cough of the old man, which recurs with regularity as the weather gets cold and changeable.

Morbid Anatomy.—The bronchial mucosa presents a great variety of changes, depending somewhat upon the disease with which chronic bronchitis is associated. In some cases the mucous membrane is very thin, so that the longitudinal bands of elastic tissue stand out prominently. The tubes are dilated and the muscular and glandular tissues are atrophied and the epithelium in great part shed.

In other instances the mucosa is thickened, granular, and infiltrated. There may be ulceration, particularly of the mucous follicles. Bronchial

dilatations are not uncommon and emphysema is a constant accompaniment.

Symptoms.—In the form met with in old men, associated with emphysema, gout, or heart-disease, the chief symptoms are as follows: Shortness of breath, which may not be noticeable except on exertion. The patients "puff and blow" on going up hill or up a flight of stairs. This is due not so much to the chronic bronchitis itself as to associated emphysema or even to cardiac weakness. They complain of no pain. The cough is variable, changing with the weather and with the season. During the summer they may remain free, but each succeeding winter the cough comes on with severity and persists. There may be only a spell in the morning, or the chief distress is at night. The sputum in chronic bronchitis is very variable. In cases of the so-called dry catarrh there is no expectoration. Usually, however, it is abundant, muco-purulent, or distinctly purulent in character. There are instances in which the patient coughs up for years a thin fluid sputum. There is rarely fever. The general health may be good and the disease may present no serious features apart from the liability to induce emphysema and bronchiectasy. In many cases it is an incurable affection. Patients improve and the cough disappears in the summer time only to return during the winter months.

Physical Signs.—The chest is usually distended, the movements are limited, and the condition is often that which we see in emphysema. The percussion note is clear or hyperresonant. On auscultation, expiration is prolonged and wheezy and rhonchi of various sorts are heard—some high-pitched and piping, others deep-toned and snoring. Crepitation is common at the bases.

Clinical Varieties.—The description just given is of the ordinary chronic bronchitis which occurs in connection with emphysema and heart-disease and in many elderly men. There are certain forms which merit special description: (*a*) On several occasions I have met with a form of *chronic bronchitis*, particularly in women, which comes on between the ages of twenty and thirty and may continue indefinitely without serious impairment of the health. In one case, a lady of fifty, with a phthisical family history, began to cough when she was twenty-five, and since then has had more or less cough every day without intermission. It has not seriously impaired her health, though she has never been strong. Once or twice she has had attacks of eczema. The cough is chiefly in the morning, is apt to be brought on by too much conversation, and is quite independent of the weather. The daily amount of expectoration is not great, rarely more than from four to six ounces. It is muco-purulent in character. The examination of the chest is negative—no emphysema, no râles. I have met several such instances which seem to form a type of chronic bronchitis, though it is difficult to say upon what the condition depends.

(*b*) *Bronchorrhœa.*—Excessive bronchial secretion is met with under several conditions. It must not be mistaken for the profuse expectoration

of bronchiectasy. The secretion may be very liquid and watery—*bronchorrhœa serosa*. More commonly, it is purulent though thin, and with greenish or yellow-green masses. It may be thick and uniform. This profuse bronchial secretion is usually a manifestation of chronic bronchitis and may lead to dilatation of the tubes and ultimately to fetid bronchitis. In the young the condition may persist for years without impairment of health and without apparently damaging the lungs.

(*c*) *Putrid Bronchitis.*—Fetid expectoration is met with in connection with bronchiectasis, gangrene, abscess, or with decomposition of secretions within phthisical cavities and in an empyema which has perforated the lung. There are instances in which, apart from any of these states, the expectoration has a fetid character. The sputa are abundant, usually thin, grayish white in color, and they separate into an upper fluid layer capped with frothy mucus and a thick sediment in which may sometimes be found dirty yellow masses the size of peas or beans—the so-called Dittrich's plugs. The affection is very rare apart from the above-mentioned conditions. In severe cases it leads to changes in the bronchial walls, pneumonia, and often to abscess or gangrene. Metastatic brain abscess has followed putrid bronchitis in a certain number of cases.

(*d*) *Dry Catarrh.—Catarrhe sec* of Laennec is a not uncommon form, characterized by paroxysms of coughing of great intensity, with little or no expectoration. It is usually met with in elderly persons with emphysema, and is one of the most chronic and obstinate of all varieties of bronchitis.

Treatment.—By far the most satisfactory method of treating the recurring winter bronchitis is change of climate. Removal to a southern latitude may prevent the onset. Southern France, southern California, and Florida furnish winter climates in which the subjects of chronic bronchitis live with the greatest comfort. All cases of prolonged bronchial irritation are benefited by change of air.

The first endeavor in treating a case of chronic bronchitis is to ascertain if possible whether there are constitutional or local affections with which it is associated. In many instances the urine is found to be highly acid, perhaps slightly albuminous, and the arteries are stiff. In the form associated with this condition, sometimes called gouty bronchitis, the attacks seem related to the defective renal elimination, and to this condition the treatment should be first directed. In other instances there are heart-disease and emphysema. In the form occurring in old men much may be done in the way of prophylaxis. Septuagenarians should read Oliver Wendell Holmes's* "De Senectute" with reference to the care of the health and the avoidance of catching cold. He lays stress upon the importance of the daily study of the thermometer and barometer. There is no doubt that with prudence even in our changeable winter weather much may be done to prevent the onset of chronic bronchitis. Woolen undergarments should be used and especial care should be taken in the spring months not to change them for lighter ones before the warm weather is established.

* Over the Tea-cups, Boston, 1890.

Cure is seldom effected by medicinal remedies. There are instances in which iodide of potassium acts with remarkable benefit, and it should always be given a trial in cases of paroxysmal bronchitis of obscure origin. When the secretion is excessive the muriate of ammonia is perhaps the most useful. Stimulating expectorants are contra-indicated. When the heart is feeble, the combination of digitalis and strychnia is very beneficial. Turpentine, the old-fashioned remedy so warmly recommended by the Dublin physicians, has in many quarters fallen undeservedly into disuse. Terebene in capsules is a useful substitute because it is more easily taken. Of other balsamic remedies, sandalwood, the compound tincture of benzoin, copaiba, balsam of Peru or tolu may be used. Inhalations are often very useful. If fetor be present, carbolic acid in the form of spray (twenty to thirty per cent solution) will lessen the odor, or thymol (1 to 1,000). In full-blooded men, when venous engorgement exists and shortness of breath, the abstraction of twenty to thirty ounces of blood will afford prompt relief.

III. BRONCHIECTASIS.

Etiology.—Dilatation of the bronchi occurs under the following conditions: (1) As a congenital defect or anomaly. Such cases are extremely rare, commonly unilateral. Grawitz has described the condition as *bronchiectasis universalis*. Welch has met an instance in a young girl. (2) In connection with inflammation of the bronchi, particularly when this leads to weakness of the walls with the accumulation of secretion. Under this category come the dilatation met with in chronic bronchitis and emphysema, the dilated bronchi in chronic phthisis, in the catarrhal pneumonias of children, and particularly the dilitation which results from the presence of foreign bodies in the air-tubes or from pressure, as of an aneurism on one bronchus. (3) In extreme contraction of the lung tissue, whether due to interstitial pneumonia or to compression by pleural adhesions, bronchial dilatation is a common though not a constant accompaniment.

Unquestionably the weakening of the bronchial wall is the most important, probably the essential, factor in inducing bronchiectasy, since the wall is then not able to resist the pressure of air in severe spells of coughing and in straining. In some instances the mere weight of the accumulated secretion may be sufficient to distend the terminal tubules, as is seen in compression of a bronchus by aneurism.

Morbid Anatomy.—Two chief forms are recognized—the *cylindrical* and the *saccular*—which may exist together in the same lung. The