made we shall be able to judge of the actual changes in the features of this part of the globe which have been wrought by this great outburst. It appears to have been the first belief of the naval authorities upon the spot that these changes were of such magnitude as to render it unsafe for vessels to attempt to pass the Straits of Sunda until new surveys had been made. Later accounts, however, prove that the principal channel by which vessels traverse the straits has remained unaffected by the eruptions.

We may confidently hope that a comparison of the times at which the great sea-wave, produced by the earthquake, reached various ports will enable us to correct and extend our knowledge concerning the depth of certain portions of the Pacific and Indian Oceans. For this, as for many other details of great importance to science, we must await the careful collection and sifting of evidence which will doubtless be undertaken by a Commission appointed by the Dutch Government.

The portion of the Island of Java visited by this terrible calamity is exceedingly fertile, rich, and populous, and if the present estimate of the loss of life be not excessive, this catastrophe must probably rank as the greatest which has occurred in modern times, so far as the destruction of human life is concerned.

The repeated eruptions of Vesuvius and Etna have failed to drive away the vine-dressers from the fertile slopes of those mountains, and in the same way the forces of destruction which evidently lie dormant beneath Java only produce temporary interruptions in its story of plenty and prosperity. As it is now, so was it in past geological times. The districts of Hungary, Auvergne, and the Inner Hebrides, which in former geological periods were subjected to subterranean disturbances similar in character and violence to those which now affect Java, were, in the intervals between the volcanic outbursts, rich and fertile, a fact which is testified to by the remains of forests and of the wild animals which roamed through them, found in the deposits lying between successive lava-flows. Volcanic eruptions are frequently very destructive; earthquake shocks are often still more fatal to man and his works; but fortunately successive catastrophes of both kinds are usually separated by long intervals of time, and it is the recognition of this fact which leads men to brave alike both kinds of danger.

AUTUMN SANITATION

IT is not only the steady decline of cholera in Egypt that gives substantial assurance that we shall now escape any epidemic in this country, but it is also the advancing season. There are, however, few subjects concerning which less is known than the influence of climate and season on the progress of the infectious diseases. But, as regards cholera, we know from experience that it is not very likely to make its appearance in this country when once the colder weather has set in. It has generally first shown itself with us during the hot summer months, and it is probable that a foul, damp air, together with a certain degree of warmth, are most favourable to its prevalence. It is not that we have never suffered from it during the colder months, for it was somewhat widely prevalent in October and November of 1853, the year which preceded the great epidemic of 1854, when so many cities, both in the Old and New World, were devastated. And even though actual winter has, even on such an occasion as that referred to, for a time completely checked the further progress of cholera, yet there is no reason to believe that any cold which the human frame can bear has the power of destroying the infection. At Moscow and at Orenburg in 1830 cholera prevailed in spite of a temperature of $-4°$ F. And judging from analogy it would appear that much lower degrees of temperature than these fail to destroy infections such as that of cholera. Thus, tubes containing the characteristic spores of the bacillus anthracis have been exposed to a temperature of $-32°$ F.; and yet on being thawed they have remained potent for harm as before. Indeed, we may infer that, provided other conditions necessary for the life of the contagion are present, warmth is not essential, and that no amount of cold is absolutely incompatible with the development either of the cholera poison or of the infection of many other contagia. Still, cholera has been with us essentially a summer epidemic, and as each week of the present month passes away without its being imported into the country we may feel more and more assured that we have succeeded in escaping the danger of an outbreak.

There is also another disease that with the commencement of autumn rapidly subsides. We refer to that form of diarrhœa known as infantile, a specific disease that causes year by year a large fatality, especially in certain of our manufacturing towns. This disease, too, is, to a certain extent, one of season. At Leicester, Preston, and Nottingham, the death-rate from this cause is always exceptionally high during the third quarter of the year, its main incidence being on the first two months of the quarter. Thus, taking the year 1881, it appears that, whereas the mortality from this cause in the twenty large towns and cities of England was 409 and 593 respectively, it rose to 4390 in the third quarter. But temperature alone does not account for this large mortality. Oldham, Rochdale, and Halifax resemble the three towns above-named in many important social and other respects; they do not materially differ from them as regards climate, and yet the infantile diarrhœa death-rate is with them always exceptionally low. Indeed the difficult problems connected with the etiology of this disease are such that the Government have commissioned Dr. Ed. Ballard to make a comprehensive inquiry into its causes, and it is hoped that his investigations, which have now been in progress for more than two years, will throw important light on the whole subject.

But as the diseases of one season subside those of another make their appearance. Many of the public are under the vague impression that cold weather and a good sharp frost have some effect in "clearing the air" and in getting rid of infection. But, as regards some diseases, this is altogether a mistake. Thus, typhus fever and small-pox, which are at their lowest ebb, or altogether disappear, during the hot summer months, tend to reappear as the autumn sets in, and they assume their greatest force at the depth of winter. But this again is probably not all due to seasonal causes. The cold with which these diseases are so specially related forces those who are poor and ill-clad to remain huddled together

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indoors; the greater the cold, the worse the overcrowding in the densely-peopled portions of our cities, and hence opportunities for personal infection, which are at their minimum in the hot summer months when doors and windows are open, reach their maximum in the coldest months.

Some diseases find the autumn months especially congenial to their development and spread, and of these the one that merits most attention as the present season advances is enteric fever, or typhoid fever as it is more commonly, but less appropriately, named. So peculiarly is this affection identified with the autumn months that amongst its best-known synonyms the terms autumnal fever or fall fever are well known; and under ordinary circumstances the largest number of attacks occurs in the month of October; November follows next, and then come September and August. Fortunately, as regards enteric fever also, something more than season is needed to favour its appearance and spread. The infection of enteric fever is of all others the one that in our climate can most easily be rendered harmless. For its development it needs that special form of filth which is associated with human excreta, and whether these foul the air of our dwellings by reason of defective means of drainage, or whether they pollute the soil on which we live or from whence we derive our water supplies, it matters little. Wherever the contamination is there is a soil adapted to the reception and cultivation of the infection. In this respect enteric fever resembles cholera, and, if the warnings which have been so widely circulated throughout the country during the past few months with regard to the measures that should be taken with a view to the prevention of the latter disease have not been unheeded by the public and by our sanitary authorities, we should this autumn feel more satisfied than we ever have done that the conditions necessary to the spread of this autumnal fever do not prevail amongst us as they have done heretofore. Scarlet fever, again, often reaches its widest prevalence towards the commencement of the fourth quarter of the year; and respiratory diseases, including pneumonia, which has now come to be regarded as much more frequently a specific pulmonary affection associated with defective local sanitary circumstances than a mere result of cold, as a rule rise steadily in prevalence until about the middle of November, when they again tend to subside.

Seasons and their predisposing influences must necessarily go and come, but they alone do not suffice for the production of the specific infections. As the science of preventive medicine progresses, we may hope that other conditions, as necessary to the development of infection as are the climatic ones, will steadily be removed, and that our sense of security against preventable disease may not be troubled by mere considerations of season. For the moment the indications are to secure that the air in our dwellings, as also our water, milk, and other food supplies, shall be as far as practicable free from the risk of all contaminating influences; to maintain, as regards our homes and our bodies, the utmost procurable cleanliness; and so to clothe ourselves that we shall be able to resist the depressing effects of the damp and cold which are sure to alternate with the finest weather an autumn season can produce.

TROPICAL AGRICULTURE

The Tropical Agriculturist: a Monthly Record of Information for Planters of Coffee, Tea, Cocoa, Cinchona, Indiarubber, Sugar, Tobacco, Cardamoms, Palms, Rice, and other Products suited for Cultivation in the Tropics. Compiled by A. M. and J. Ferguson, of the *Ceylon Observer.* (London: J. Haddon and Co., 3, Bouverie Street, 1882.)

A BULKY volume containing thirteen monthly numbers and occupying more than a thousand pages can hardly fail to contain a large amount of varied and useful information, especially when it deals with such a subject as tropical agriculture. Not only tropical but subtropical regions are laid under tribute, the latter being represented chiefly by Southern Australia, New Zealand, and China, while Ceylon and the various provinces of India receive, as might be expected, the greatest share of attention. There are, moreover, abundant references to several oceanic islands which have within recent years been invested with more or less political interest. Thus of Fiji it is stated that the planters are chiefly concerned in growing sugar-cane, coffee, and cotton, and though it is claimed that the first-named is indigenous, the best kinds of cane grown in the plantations have been introduced. The Sea Island cotton is easily cultivated, but the production has lately fallen off, the quotations being too low to tempt the planter. Tobacco answers well, and it is believed that cocoa, tapioca, ginger, pepper, and all sorts of spices, camphor, and vanilla, might also be profitably grown. Madagascar appears to have bright agricultural prospects before it, as it is admirably adapted to the cultivation of sugar and coffee, and indeed as a sugar-growing country it seems likely that it will before many years leave Mauritius in the background. The small islands between Madagascar and the mainland are enthusiastically spoken of as a new planting region: "situated in a most salubrious climate, between the southern tropic and the line, they are admirably adapted for the cultivation of sugar, coffee, vanilla, cocoa, spices, cloves, and other products, many of which are pure articles of luxury, and will always command a high price in the European market."

Judging from the space allotted to them and the amount of interest that appears to centre round them, the staple crops of tropical agriculture are tea, coffee, cocoa, and sugar; cinchona and tobacco; indiarubber, cotton, and gums, to say nothing of rice. Of the first group, tropical countries may rest fairly securely in the cultivation of tea, coffee, and cocoa, and although the sugar-cane is largely planted in the southern United States and the sugar-beet is so extensively grown in Europe, yet we gather that sugar cultivation is a thriving industry in India, Java, Mauritius, the Malay peninsula, Queensland, Fiji, Brazil, Jamaica, and Trinidad. Cinchona is of course a highly popular subject, and from this volume alone a very large amount of useful information may be gleaned. On account of the rapid development of the electrical industries and of the increasing use of elastic tires for wheels, the demand for indiarubber and guttapercha is continually increasing, and this will no doubt be met by the extended cultivation of these products. The official papers relating to the introduction of the Para and Ceara rubber plants into

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