caution given me by the builder of my boat against keeping her in the water when not in use. Brisbane is about twenty-five miles from the full influence of the Pacific, and, to the best of my recollection, the salt water is carried (on the flood) at least thirty miles up the river above the town, when there is no fresh coming down. So far does the salt water indeed extend, that at a time of severe drought (1865–66, I think) it was proposed to bring fresh water for the supply of the town from the principal affluent, the Bremmer, which joins the Brisbane about forty-two miles above the town, as it could not be obtained nearer on account of the high range of the salt flood. It was to have been brought in huge floating tanks towed by a steamer.

ARTHUR NICOLS

PROF. TYNDALL ON THE SPREAD OF DISEASE

PROF. TYNDALL occupied the chair on Saturday night at the concluding lecture of Dr. Corfield's course on the laws of health. The subject of the lecture was "Infectious Diseases." In proposing a vote of thanks, Prof. Tyndall paid a high compliment to the lecturer for the thoroughly sound instruction which he had so clearly conveyed. He had made it plain that contagion consisted, not of gas or vapour, but of definite particles sometimes floating in gas, in the air we breathed, or in the water we drank; and that, like organic seeds in the soil, they multiplied themselves indefinitely in suitable media, the great probability being that these disease-producing particles were living things. A close study of the subject, extending now over several years, enabled him to agree entirely with the lecturer in the parallelism which he had declared to exist between the phenomena of contagious disease and the phenomena of ordinary putrefaction. The case of flies, for example, to which the lecturer ascribed the power of communicating disease from one person to another, was exactly paralleled by phenomena in putrefaction. Chop up a beefsteak, steep it in water, raise the temperature a little above the temperature of the blood, pour off the water, and filter it; you get a perfectly clear liquid; but that liquid placed in a bottle and exposed to the air soon begins to get turbid, and that turbid liquid, under the microscope, is found to be swarming with living organisms. By suitably heating this perfectly clear beef tea, it can be sterilised, everything being killed which is capable of generating those little organisms which produce the turbidity; and by keeping it from coming in contact with the floating particles of the air, it might be preserved transparent for years. He had now some sterilised beef-tea of this sort, which had been preserved for eighteen months in a state of perfect transparency. But if a fly dipped its foot into an adjacent vessel containing some of the turbid fluid, and then into the transparent fluid, that contact would be sufficient to infect the sterilised infusion. In forty-eight hours the clear liquid would be swarming with these living organisms. The quantity of the turbid liquid which attaches itself to the finest needle-point suffices to infect any amount of the infusion just as the vaccine lymph taken up on the point of a surgeon's lancet spreads disease through the whole body. Here, also, as in the case of contagious disease, there was a period of incubation. In proof of what the lecturer had stated that the contagion of these communicable diseases was not gaseous or liquid, but solid particles, he would describe an experiment he had made only a few weeks since. Eighteen months ago he had a chamber prepared from which all floating particles of dust were removed, and in it he placed a number of vessels containing animal and vegetable refuse which soon fell into putrefaction, and also two or three vessels containing perfectly clear beef-tea and mutton broth, as transparent as water, in which the infective particles had been killed by heat. Although all these vessels had stood for eighteen months side by side there had been no communication of contagion from one to the other. The beef tea and mutton-broth remained as transparent as when put in, though the other vessels emitted a most noisome stench. But if a bubble were produced in one of the putrefying masses by blowing into it, and if on rising to the surface and bursting the spray of the bubble was allowed to fall into the transparent beef-tea or mutton-broth, in forty-eight hours it became as bad as its neighbours. It was not therefore sewer gas which did the mischief, but the particles which were carried and scattered by the sewer gas. Referring to another point on which the lecturer had insisted—viz., that there was no power of spontaneous generation of the germs or contagion of diseases, Prof. Tyndall said that, though at present great names were opposed to that view, he would venture to predict that ten years hence there would be very few great names opposed to the lecturer on that matter. With regard to the power of specific contagia to be generated in decomposing animal matter, he would say that for the last twenty-one years he had been in the habit of visiting the upper Alpine valleys, where, amongst the Swiss châlets, there was the most abominable decomposition going on from day to day, and exceedingly bad smells, but there these contagious diseases were entirely unknown. If, however, a person suffering from typhoid fever were transported there, the disease would spread like wildfire from this infected focus, and probably take possession of the entire population. It might be taken, therefore, that any of these special diseases required its special germ or seed for its production, just as you required a grape seed to produce a vine. He entirely agreed with all that the lecturer had stated as to these diseases "breeding true." He never found the virus of small-pox producing typhoid, or *vice versâ*. The subject was one of the most important which could engage the attention of the scientific physician—indeed, Prof. Tyndall doubted whether, in the whole range of medical art and science there was a subject of equal importance. But in dealing practically with this question of infectious disease, the scientific physician must not stand alone—he ought to be aided by the sympathy of an enlightened public. Here, in England, we did not like to be pressed into good behaviour by external influence; and if anything was to come in the way of really great sanitary improvement, it would be from the people themselves. Hence, in a people who were jealous of government interference, it was of primary importance that they should be properly instructed; and he did not exaggerate in the slightest degree in declaring that sound and healthy instruction had been imparted to them in the lecture which they had just heard.

SUSPECTED RELATIONS BETWEEN THE SUN AND THE EARTH

I.

WHEN the telescope first enabled us to scrutinise the solar surface, the spots thereby revealed formed a stumbling-block to some of the early observers, who were unwilling to attribute the smallest taint of imperfection to our luminary. And although the spots came speedily to be recognised as true solar appendages, yet until comparatively recent times they were looked upon as mere scientific curiosities, having no perceptible reference to ourselves, or indeed to anything else.

In the eyes of the last century astronomers the sun shone upon the earth and kept us in leading-strings, and this was an end of the whole matter. But we have now advanced one step beyond the position of those men, inasmuch as we have accumulated evidence tending to show that the physical state of the solar surface affects us in a variety of ways. With regard to some of these we are nearly certain, while with regard to others we are less so; in all we are profoundly interested, but we are not