welcome shelter is extending over the remaining sand-hills toward the ocean. The pine is preceded, first by the sand reed-grass (Ammophila), then by the wild lupines, especially by the two shrubby species of the place, — the yellow-flowered Lupinus arboreus, and the silvery-leaved and blue-flowered L. Chamissonis, — which in spring-time are as ornamental as they are useful.

These grounds were most wisely as well as beautifully laid out, the favorable natural configuration of the ground preserved and accentuated, the ample driveways led along easy curves around tree-plantations so placed as to afford very needful shelter from the sea-wind which gives an inclement character to a San Francisco summer. I was sorry to see, that, under a new administration of this park, these good points were not appreciated as they had been, perhaps because they are not apprehended. For changes by no means the better were in progress: the avenues were being widened and straightened to a certain extent, and shelter cut away, seemingly with the object of letting in the harsh west wind, or of facilitating fast driving. Neither of these results could be really desirable.

Although these two handsome trees, the Monterey pine and the Monterey cypress, are wholly unadaptable to the Atlantic United States, as may be said of almost every Californian conifer, it is pleasant to know that they grow fairly well in the warmer parts of England, where they are highly prized. Still the main hope of their perpetuity has respect to their native soil.

There is still another coniferous tree on the Californian coast of equally limited range and precarious destiny; namely, Pinus Torreyana of Parry. According to Dr. Parry (*West-American scientist*, i. 37), this tree "is confined to a coast-line of not more than four miles, and extending scarcely a mile inland," just below San Diego. Dr. Parry makes the timely suggestion that this precious bit of ground should be preserved by the town of San Diego, within the corporate limits of which it lies.

A. Gray.

LETTERS TO THE EDITOR.

A novel snow-slide.

On April 22 and 23 occurred the heaviest snow-fall known at this place. There was but little wind. The temperature was so mild that the flakes were slightly moist as they fell, and hence adhered firmly together. The snow was quite porous at first, but rapidly settled, and became somewhat compact. On tinned roofs and on steep shingled roofs, snow-slides of the common sort were frequent; but, on shingled roofs of moderate slope, I noticed that the snow was slowly moving downwards somewhat like a glacier. The thickness of the snow after settling was about ten inches; and its rate of motion downward varied from one inch to two feet per hour, according to situation. At the eaves it bent downward like a plastic mass, and hung in broad sheets in the air until breaking by its own weight. I have often seen the same thing, but never on so large a scale. In one case, on the north side of a building, the snow-sheet retained the curve which it took as it passed the edge of the roof. It thus bent inward so as to nearly touch the building four feet below the cornice. Measured along the curve, the suspended portion was about five and a half feet long, which certainly shows considerable tenacity of the snow-sheet, considering that it had fallen within thirty-six hours, and that the temperature was such that there was a constant drip of water from the edge of the snow. It should be noted, that, at the last, the whole mass — both the suspended portion and that on the roof — went down in a body, with no breaks anywhere. G. H. Stone.

Colorado Springs, April 25.

A parasitic leech.

In the summer of 1877, at Fort Bridger, Wyoming, while partaking of the hospitality of my friend Dr. J. Van A. Carter, a Shoshone Indian brought to the house a fish to be served for the table. It was caught in the neighboring stream, Black's Fork of Green River, and was known in the locality as the 'Hela' (Gila?), or whitefish. I made it out to be the so-called Colorado pike, Ptychochilus lucius. It was upwards of two feet in length. My attention was directed to it by Dr. Carter, who informed me that the fish was liable to be infested with leeches in the mouth. On examining the specimen, I detected a dozen leeches suspended to the sides of the tongue by their terminal sucker. On disturbance, they became very lively, clinging tightly to their position, alternately elongating and shortening, and projecting and retracting, the head extremity in the usual manner of their allies. They appeared of a translucent blackish hue, with eight longitudinal, equidistant, raw-sienna colored stripes. In the contracted state they were from an inch to an inch and a quarter long by less than half an inch broad, elliptical, and with the head extremity rather abruptly narrowed and more or less prolonged. Elongated, they were up to two and a half inches by about one-third of an inch at the broadest part, and, as represented in the accompanying figure, which is of the natural size, were variably cylindro-clavate, thickest behind, and tapering forward, and more or less constricted at different points. The caudal sucker, by which the leech tightly adhered to its position, was of the usual circular form and proportions. After removing the tongue of the fish, and laying it in a dish of water, in the course of an hour the leeches voluntarily detached themselves, and moved about, or clung to the bottom of the dish. The integument is smooth,

thin, and transparent, so that the chief organs within were visible through it. There were no eye-spots. The mouth, when expanded, appeared as an ovoid sucker, with the orifice somewhat diamond-shaped; and it was neither armed with teeth, nor provided with a proboscis. The oesophagus is narrow, and opens into a capacious stomach, which forms ten or eleven horizontal discoid saccules, which were filled with a blackish-brown liquid, apparently blood. The stomach is surrounded by eight tortuous, gland-like organs, which extend the entire length of the body, and give rise to the colored stripes seen through the skin. These organs are composed of numerous pyriform acini, and appear like racemose glands, but their nature I did not determine. The specimens were preserved in alchohol with the view of further investigation, but they have softened to such a degree that the examination has proved unsatisfactory. From the conspicuous gland-like organs and the habit of the leech, I propose to name it Adenobdella oricola.

In the stomach of the same fish there were some little tape-worms, which I suppose to be the Taenia torulosa, originally described from European species of Leuciscus and other species of the same family. The worms were white, filiform, compressed cylindrical, and from three to six inches long. The head is oval, without rostrum or hooks, and with four equidistant, spherical, immersed bothria. The neck is narrowed and moderately long. The body widens to the posterior fourth, and then gradually narrows. The segments are wider than long, and not prominent. The generative apertures are marginal, with the penes projecting; diameter of the head, one-third of a line; greatest breadth of the body, three-fourths of a line.

JOSEPH LEIDY.

Mortality experience of life-insurance companies.

That figures have a great capacity for lying, and that nothing needs closer watching than an argument based on statistics, are facts which ought to be well impressed on everybody's mind. On almost every subject of public importance, — politics, finance, economic policy, social science, — one is continually solicited to believe in this or that doctrine because statistics 'prove' it to be true. And a large part of the error that prevails on many of these subjects — notably, on the question of free trade and protection — is due, on the one hand, to the reckless way in which statistics are handled by writers, and, on the other, to the absence among their readers of a wholesome suspicion of statistical arguments, and of the abiding consciousness that statistics do not always mean what they seem at first sight to say.

Such being the case, it is a pity that Professor Newcomb — than whom surely no one is more free from the mental defects to which these errors are usually due — should have made so many slips in a recent article in *Science* on mortality statistics. One cannot help asking whether Homer's nods come, like misfortunes, many at a time.

A curious logical slip occurs in the passage relating to the influence of occupation upon mortality. "How little mere occupation has to do with viability, is shown by the fact, that, while bankers and capitalists suffer one-fourth less, brokers, speculators, and operators suffer twelve per cent more, than the tabular mortality." In other words, from the fact that in two occupations seemingly very similar the rates of mortality are widely different, the inference is drawn that occupation has little or nothing to do with the matter. Obviously, the true inference is, that either the statistics are inadequate to the making of the comparison in question, or that the occupations which seemed to be similar are really widely different. If we are sure the occupations are practically alike, we must conclude that the statistics are insufficient, or subject to a bias: if we are sure that the statistics are sufficient and impartial, we must conclude that some important difference is to be found in the occupations; and, in point of fact, there is a very striking difference between the calling of an operator in stocks and that of a legitimate banker or sound capitalist.

In the same paragraph we are told that travelling-agents have the greatest viability of all. This is somewhat surprising; but the fact is deprived of all significance when one finds, on turning to the tables, that the total number of deaths in this class was only eight. So with regard to the excessive mortality of the younger class. The whole number of deaths between the ages of seven and twenty is forty-seven, as Professor Newcomb mentions, while the American table would make it thirty-three. An aggregate excess of fourteen deaths is too slender a basis to rest any inference upon, and is not so surprising as to render an explanation absolutely necessary. It happens, however, that it is in a great measure explained by the fact that (as pointed out in the text accompanying the tables) almost the entire excess occurs among the lives insured under term-policies; i.e., policies issued to extend over a particular period only, and taken for the purpose of covering special risks.

As to the most important point discussed by Professor Newcomb, — whether Herbert Spencer, and those who share his 'superstition,' are right in believing that the most active and enterprising Americans injure their health, and shorten their lives, by too great devotion to business, — I cannot think that these mortality statistics are any thing like a 'sure test' of the question. The class referred to is mixed up with other classes; and, unless we can compare the mortality in this class with the mortality in the same class in England, our inferences must be very guarded indeed. Moreover, there are many things affecting selection — strictness of examination, privilege of surrender, popularity of life insurance — which may greatly differ in the two countries, and largely influence the result. The great excess of mortality in the case of term-policies, and the considerable deficiency in the case of paid-up policies, shown by the Connecticut mutual tables, are instances of this sort of phenomenon. And, even if we were in possession of a perfectly fair comparison with Englishmen, it would still remain to consider whether Americans would not, in the absence of habits complained of, compare still more favorably with Englishmen. On the question of the effect of overwork, and worry, and ambition to become rich, a little bold *a priori* reasoning is likely to lead to a sounder result than can be derived from statistics not specially designed to test the question. It may be remarked, as throwing some light on the matter, that the actuary of the Connecticut company, after observing that between the ages of fifty-six and seventy-five an undue proportion of the deaths occur among those insured for large amounts, adds, "These results suggest the question whether those who insure for large amounts — often, perhaps generally, men of good incomes,