

by which the small crystals of lard and other fats might be absorbed and thereby escape detection. In the case of a true oleomargarine, which consists almost wholly of 'oleo,' the process of boiling would develop beef-fat crystals without cross, which would not be modified in form by the small quantity of butter in the compound.

Science further says: "Under these conditions, he now finds, in accordance with Professor Weber, that butter, lard, and beef-fat all give globular crystalline bodies which (apparently with the exception of lard) show the St. Andrew's cross." Answer: *Science* is misinformed in this case. The above statement is not in accordance with the facts. Professor Weber's language, in bulletin 13, is: "The butter revealed a well marked black cross;" "the lard, small irregular stellate bodies;" "beef-fat, only small stellate crystals." The last is an erroneous description of beef-fat, however, which has a branched and foliated crystal. It must be confessed that Professor Weber has an odd way of 'corroborating' the correctness of my experiments, — employing 'oleo oil' instead of rendered beef kidney fat, according to the statement in my 'abstract.' 'Oleo,' a substance not mentioned in my experiments, is no more beef-fat than phenic alcohol is coal-tar, although the one is a product of the other. *Science* says: "The above account of Dr. Taylor's method, as at present described by him, is drawn mainly from his last annual report to the commissioner of agriculture." Answer: *Science* is in error on this point. The points referred to by *Science* are taken mostly from my open letter to Professor Sturtevant, and from Professor Weber's bulletins 13 and 15, of the Ohio experiment station. My method of detecting oleomargarine has nowhere appeared in the columns of *Science*, nor in the reports of Professor Weber. My official report for 1885 was not issued when Professor Weber published the paper of March 1, 1886, nor does he seem to have been aware of my other publications mentioned in this paper. In point of fact, Professor Weber, unfortunately, undertook to discuss my method of detecting oleomargarine, by reviewing an abstract that did not so much as mention the subject. In conclusion, *Science* says: "We shall endeavor to keep our readers informed of the changes which the method undergoes in the future." This last is to me the most gratifying sentence in the whole article.

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Anemometer exposure.

I have been allowed space in recent issues of *Science* to call attention to errors which may arise from the position of thermometers and barometers relative to surrounding objects: may I now call attention to similar errors which may arise from badly placed anemometers? The subject is not a new one, but I wish to urge the necessity of a more uniform exposure than that now used by our signal service. According to the Associated press reports of the storm of Oct. 14 and 15 in the lake region, the wind tore through the trees of the Chicago public parks, on the morning of the 14th, with the fury of a hurricane, twisting saplings off and hurling them over the tops of large trees, littering the streets with broken trees and shattered sign-boards, and demolishing at least two buildings; and all this, according to the same despatch, while the wind was "blowing

with a velocity of 20 miles an hour." Similar reports came from surrounding towns. The production of all this damage by a 20-mile wind seemed so absurd that I wrote to the signal officer at Chicago for the observed wind velocities on Oct. 14, and received the following: "Oct. 14, 1886, max. vel. of wind, S.W., 27 at 12.58 P.M.; vel. at 7 A.M., S.E., 11; at 3 P.M., S.W., 28; at 11 P.M., S.W., 11." Wind velocities of 40 miles per hour are not unfrequently recorded in Boston. On Oct. 31 the anemograph at the Boston signal office showed a maximum velocity of 40 miles, and on April 6 a maximum velocity of 51 miles; yet in neither case was there any record of broken or overturned trees and injured or wrecked buildings. This seems to show that wind velocities reported from Boston cannot be compared with wind velocities reported from Chicago. Not only can we not compare two stations of the signal office together, but we cannot compare wind velocities obtained during different years at the same station. During recent years high wind velocities have been much more frequently recorded at the Boston signal office than previously, and we find that while the average monthly wind movement at Boston from 1870 to 1881 was 6,630 miles (see Report chief signal office, 1883), the mean monthly movement during the last two years has been 8,120. Are we hence to conclude that Boston is becoming a windier place? I think not. The signal office at Boston was moved from one building to another building in 1884, and since then the velocities have been higher than previously, and are no doubt due to the changed position of the anemometer. But even with a continuous exposure of an anemometer at the same place, it is doubtful, as anemometers are now exposed, whether wind velocities from different directions can be compared with one another. There are two anemometers — a Draper and a Hahl — on the tower of the observatory at Blue Hill. These rise about eleven feet above the roof of the tower and about eight feet above the parapet. The Hahl anemometer is situated on the south side of the tower, and the Draper on the east side of the tower, which is sixteen feet in diameter. During the last three months there have been seventeen days on which the prevailing wind was from the west; and on all of these except four the total daily movement shown by the Hahl was larger than that shown by the Draper. On these seventeen days the average daily movement shown by the Hahl was 438 miles, and by the Draper 426. During the last six months there has been ten days on which the prevailing wind was from the north, and on all but three the Draper recorded more than the Hahl. On these ten days the average daily movement shown by the Draper was 353 miles, and by the Hahl, 346. This seems to show that wind velocities from different directions recorded by either instrument cannot be compared with each other, though the differences in this case are not large. Yet I think the Blue Hill anemometers are better exposed than many of those of the signal service which are near the edge of tall buildings, and have an abrupt descent on one side of them, and a long roof or series of roofs on the other.

As a sequel to this, I might call attention to the large errors which may arise from the bad exposure of the signal service rain-gauges on roofs, but I think this is generally recognized.

H. HELM CLAYTON.

Blue Hill meteor. observ., Nov. 10.