SCIENCE.

FRIDAY, FEBRUARY 20, 1885.

COMMENT AND CRITICISM.

We are glad to learn that the Bureau of scientific information of the Philadelphia academy of natural sciences, the organization of which was briefly noticed in these columns last autumn, is already in successful operation. It is no small sacrifice upon their part when a score or more of busy specialists volunteer to receive and answer, without charge, reasonable inquiries in their several departments. It should be remembered, that while many persons are well enough informed to know to whom to write, and are courageous enough to do it, others, from the want of such information, from modesty, from fear of trespassing upon the time of those to whom they would gladly write, or from anxiety lest their request might meet with inhospitality and rebuff, are led, in fact, to refrain from questioning, and become eventually contented with ignorance, or, worse yet, half-knowledge. To mention but a single one of the many excellent features of this scheme, viz., bibliography, we need not say what a boon it will certainly be to some one, far removed from monographs, to feel free to consult Dr. Nolan, librarian of the academy, assured beforehand of his cordial co-operation.

We are pleased to note that the views regarding the proper functions of agricultural experiment-stations, which have been advanced in recent numbers of *Science*, have found independent expression in a report to the regents of the University of Nebraska by Prof. C. E. Bessey, dean of the industrial college. His report includes a plan for experimental work in agriculture, horticulture, and entomology; which plan, we are informed, has been adopted by the regents. It provides for two classes of experiments, designated as 'popular' and 'scientific;' the first designed to reach immediate results, and the second to establish general principles. Professor Bessey does not fail to attach due value to 'popular' experiments, but he points out two facts which seem to be frequently forgotten by those who make such experiments.

The first is, that while such experiments may often be of great immediate value, they are usually so only within narrow limits of both space and time, while a scientific principle, if once actually established, is true at all times and under all conditions. The second fact is, that many experiments of this character are constantly being made by private enterprise in all parts of the country. This is particularly the case with tests of new varieties of plants and new patterns of machines. Scientific experiments, on the other hand, demand special training and apparatus, such as private enterprise does not usually command; and it is therefore especially important that experiment-stations and colleges which have the facilities for such experiments should be encouraged and supported in undertaking them to as great an extent as may appear practicable in each particular case.

The knowledge of thunder-storms is advancing at a good pace. France has made special study of them for a number of years; Bavaria and Belgium have more recently taken them up; and last summer they were made the subject of special investigation by our signal-service, with the aid of a large corps of voluntary observers, that is to be continued during the coming season. A recent report by Lancaster, on the storms of 1879 in Belgium, confirms the conclusions previously announced there, and discovered to obtain so clearly in this country, that thunder-storms occur only in the south-east quadrant of the barometric depressions, or great cyclonic storms that frequently sweep across temperate latitudes.

But there still remains to be found the actual mechanism of thunder-storms, concerning which various more or less theoretical opinions have been published. The matter will probably remain in doubt until settled by the same kind of investigation that demonstrated the inward spiral path of cyclonic winds. Synoptic charts for a stormy afternoon, with hourly or even half-hourly intervals, and stations only a mile or two apart, would probably settle the question beyond dispute; and the first local weather service that succeeds in preparing a set of such charts will gain a prize worth working for.

LETTERS TO THE EDITOR.

**** *Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

The incandescent light on steamers.

THE instance cited in No. 104 of *Science*, of early electric lighting of steamboats by the incandescent system, though earlier than that given by Professor Trowbridge, is not the earliest.

I crossed the Atlantic in May, 1882, in the steamer City of Richmond, of the Inman line, which was beautifully lighted by the incandescent system. It is my impression that the lamps were of an English make, the form of the carbon filament being somewhat different from that then used by Edison and other Americans. C. H. AMES.

Chopping-stones.

It is not improbable that the implement figured in a recent article by Miss Babbitt (iv. 529, fig. 3) could have been used as a fuel-breaker, when fastened in a wooden and hide handle; but a more evident use for such notched pebbles, namely, as net-weights, is seen in an industry of the present day among the gill-net fishers, both Indian and white, of the Great Lakes. Net-weights of this character are produced in large quantities at all points on the lakes where gill-netting is in vogue, forming frequently a part of the ballast in the bottoms of the 'Mackinaw' fishing-boats, and lying conspicuously scattered over the sand and beach in the neighborhood of fishing-stations. A less primitive appliance for sinking the nets is coming into use; so that the notched discoidal pebbles, attached to the net with short pieces of twine, are now regarded as old-fashioned by the more thrifty fishermen. The unnotched pebble net-weights, bound with bark, of the Red-Lakers, are interesting as a still more primitive form; but more extended observation in gill-net appliances would have shown Miss Babbitt that the notched form is of far more usual occurrence than she leads us to suppose, and that it possesses tons of examples on the shores of the Great Lakes.

I have found such implements associated with the remains of recent Indians (chert chippings, broken pottery, etc.) in the sand-dunes at Evanston. The modern net-weights are distinguishable from those of the chert deposits in only one particular, that while the surfaces of the former are smooth, and their notches rough and angular, those of the latter show on their surfaces the effects of disintegration from long exposure on the sand to atmospheric agencies, their notches, too, having assumed the same crumbling character as the rest of the pebble. A large number of them (over twelve) which came to my notice at one place indicates their use as net-weights rather than as 'chopping-stones.' W. A. PHILLIPS.

Evanston, Ill.

The use of slips in scientific correspondence.

I have been interested in Mr. Mann's and other articles on filing scientific notes.

Any one wishing to file such notes will find that a very convenient method of doing so is by the use of the Shannon file, which may be found at any large stationery store. The punch for punching the holes through the paper is the most convenient I have seen, as the holes are always the same distance apart, and at the same distance from the edge.

S. P. SHARPLES.

The decadence of science about Boston.

In a late issue (No. 104), *Science* comments upon the decadence of science about Boston. Is it not an explanation of this decadence that more and more in late years the mental atmosphere of Boston has become one of intellectual finish, rather than of intellectual earnestness? Of course, each of these traits has its excellences, as each may be exaggerated; but the latter of the two certainly is far more favorable to the active growth of science in a community. Moreover, the effect of an intellectual atmosphere becomes most evident when it has begun to influence the lives of young men grown up in its midst, and who take their cue in life from it. Is not this effect to be noticed in the present case? X. C.

Koch's 'comma bacillus.'

In the reproduction of the drawing of the 'comma bacillus,' made to illustrate my paper in *Science* for Feb. 6, some defects are noticeable, to which it seems necessary to call attention, inasmuch as the design was to represent as accurately as possible the morphology of this much-talked-of micro-organism. The ends of some of the commas in the figure seem to be cut off square, whereas in the slide and in the drawing they are all rounded. Since writing the paper referred to, I have been favored by Dr. Koch with a slide of the 'comma bacillus,' in which the long spiral forms are far more numerous than in the slide sent to the Army medical museum, from which the drawing was made. Several of these spiral filaments are often seen in a single field, and many of them are longer than that seen in the centre of fig. 1.

GEO. M. STERNBERG, *surgeon U.S.A.*

Johns Hopkins university, Baltimore,
Feb. 11.

Carnivorous habits of the muskrat.

My observations of these animals were conducted principally along the banks of the Alleghany River in the vicinity of Warren, Penn., where these enemies of fresh-water bivalves are very numerous.

1°. The muskrat opens the shell by first severing the posterior adductor muscle. This can readily be accomplished, as the animal seldom immediately empties the branchial chamber after capture, but remains with the valves slightly gaping, with the siphons open, until it receives quite severe handling, upon which the water in the branchial chamber is violently ejected. The valves will also partially open if the