

belonged. They do not seem to have been acquainted with the potter's art, nor to have ornamented their implements with any sculpture.

Evidently, the station of Schussenried was posterior to the glacial epoch, properly so called—that is to say, to the time when the glacier of the Rhine formed moraines and accumulated gravels. But we may conclude from the presence of northern mosses, and from the character of the fauna, that the country had not been long cleared of ice when the people, who left these traces, established themselves in it. It is probable that fresh researches at other points may lead to the discovery of new stations, and fresh means of comparison, which may enable the age of that of Schussenried to be fixed.—*Intellectual Observer.*

### Near-Sightedness.

[The following paper, on a subject of the greatest importance to all students and teachers, was read at a recent meeting of the American Academy of Arts and Sciences, by that eminent oculist, Dr. Henry W. Williams, of Boston. The subject was afterwards discussed by the President of the Academy, Prof. Gray, by Prof. Lovering, President Rogers and others, all of whom agreed as to its importance. We are happy in being able to state that Dr. Williams has consented to read a paper on the care of the eyes at the meeting of the State Teachers' Association, in October.]

To many it will doubtless be a matter of no little surprise that a condition of vision in which they had rejoiced as giving them advantages above other men, and of which, from long habituation, they have scarcely felt the inconveniences, is a state fraught with danger to the most important of the senses. Never having known perfect vision at a distance unless aided by glasses, they had believed themselves compensated, in their almost microscopic powers as regarded minute details of near objects, and in the hope that they could continue to read without spectacles long after the period of life when their friends would be compelled to assume them. To be told that they have laid but a flattering unction to their souls, that they are subjects of a serious infirmity, and that their children may probably inherit such a predisposition as to require careful management of their eyes to avert danger: of ultimate blindness is to them, a far from welcome announcement.

Were this state of things inevitable, were the condition to affect merely the individuals who had acquired it, or were the inherited tendency such as could only be obviated or alleviated by the resources of professional art, there would be no propriety in calling the attention of this Academy to the subject. But as the evil is increasing in rapid progression, as it threatens to entail a vast amount of disappointment and misery on those educated classes whose eyes are, or ought to be, of most personal and public value, and as our system of education is in a measure responsible for the mischief it creates and perpetuates, it becomes a serious question what should be done to arrest the downward tendency; for, if the condition in prospect is to be one of the necessary concomitants of a high civilization, the latter would be purchased at almost too high a price.

It has been well known that in all countries near-sight is met with most frequently among the studious classes, while it is comparatively rare among the peasantries, as also among sailors and savages. But it is only of late years that this fact and the causes on which it depends have been satisfactorily explained. That they may be fully understood, and their important bearing properly estimated, it will be necessary to say a word as to the conditions of the eye-ball which produce near-sightedness, favor its increase, and involve subsequent secondary affection of vision.

Instead of being a round globe, like the normal eye, a myopic eye has more or less of an ovoid shape, having a long antero-posterior diameter. Parallel rays of light, coming from distant objects are therefore brought to a focus before they reach the surface of the retina, and a distinct image can be formed only by the aid of a concave glass placed before the eye to modify the direction of the rays which enter it.

The larger part of this elongation takes place at the expense of

the posterior half of the eyeball, and when the globe is pressed upon by its motor muscles, as occurs during the action of convergence associated with the accommodation of the eyes in looking at small objects, there is a constant tendency to a yet further increase of the backward projection. There is special aptitude to give way at the parts adjoining the entrance of the optic nerve.

As the outer tunics of the globe become thinned and weakened by distention, they are less and less able to resist further change, and yield more and more rapidly to the continued action of the same causes. The retina being thus spread over a larger area, its perceptive power in a given space is diminished, and images are less clearly defined, requiring greater visual efforts for their perception. Concave glasses now no longer give an almost normal acuteness to vision at a distance, although objects held very near the eyes may still, perhaps, be very clearly seen. There is a tendency to divergent squinting, accompanied with loss of binocular vision, arising from the difficulty of converging the misshapen eyeballs so as to use both at the same time,—and, at last, the retina may be separated from the contiguous parts by an effusion of fluid beneath it, and vision is in a short time almost wholly extinguished.

Within a few years, the invention of the ophthalmoscope, by means of which the whole interior of the eye may be minutely scrutinized, has allowed these changes to be detected in their incipient stage, and followed step by step in their insidious advance.

The stealthy march of near-sightedness constitutes its greatest danger. Were apprehension roused by alarming symptoms, measures might be taken in time to prevent further progress of the affection, and, though the myopia could not be remedied, it might be kept within moderate bounds, and rendered, by the aid of glasses, a very endurable infirmity. But the victim is scarcely warned, by his sensations, except by hints so slight that they are disregarded, until the disease has, in many instances, acquired such proportions as to be beyond control.

Unfortunately, myopia tends to perpetuate itself by hereditary transmission; not always, however, affecting all the members of a family, and often passing over one generation to reappear in the next. This predisposition may be developed by improper training to the sad results we have described; or it may be nearly nullified by careful management. It is during the period of closest application to study, that a progressive tendency manifests itself in the myopic child, and the position of the eyes when the head is bent forward, as in writing, and in many studies, causes congestion of their blood-vessels, and favors these abnormal changes.

If a child reaches adult age without the establishment of any considerable alterations in the posterior parts of the eye, he is thenceforth comparatively safe, provided he exercises reasonable care but if, previous to this period, his eyes have already become the seat of morbid changes in the posterior hemispheres, he is liable to a slow but steady deterioration of vision, which no care on his part, or skill on the part of his medical adviser, may be able to avert.

Let us examine, in this connection, some of the errors of our educational system.

There can be no question that, in our efforts for general instruction, the future destiny of the large majority of pupils is almost wholly unthought of, and the masses are compelled to acquire, in a shallow and imperfect manner, an infinity of details of no possible importance to them; whereas a simplification of their training, with a reference to their probable career in life would give them far more of what would be practically useful. In some schools, a vast amount of visual effort is wasted in absurd map-drawing, which might better be employed in acquiring some available knowledge; or it is expended on useless written exercises. Thus even in the lower grades of schools much mischief is needlessly done by the stooping position of the head and the continued accommodation of the eyes for small objects.

In the higher schools we have the same excess of the applica-