

cloud was selected with the idea of noting its changes of shape and something of its rate of movement. The cloud selected advanced to a point almost exactly overhead, then began to melt away. In a space of less than five minutes it had entirely disappeared. Another and yet another did the same. Finally, an unusually large cloud was selected; but this, too, disappeared on reaching approximately the same point. All advanced in orderly procession from the west till, overhead, they reached a lane of clear sky, then melted away.

This lane of clear sky, several miles wide, stretched away northeastward to the horizon, following very closely the course of the valley of the Illinois River, and southwestward over the river valley for 4 or 5 miles, after which it gave place to the usual cumulus clouds. To the east of the valley the cumulus clouds appeared once more and continued to the horizon. These relations were observed to persist throughout the greater part of the afternoon.

A possible explanation of the phenomenon which suggested itself at the time is here recorded as a working hypothesis to be considered in connection with similar occurrences which may from time to time be described. To make this explanation clear, a brief description of the geography of the region is necessary.

The valley of the Illinois River here is a flat-bottomed trough from 4 to 10 miles wide, bordered by relatively sharp bluffs, and is sunk some 200 feet below the general upland level of this part of the state. The upland is mainly cultivated farmland, much of it at this time of year bare after the wheat, hay and oats harvest. The river bottom, on the other hand, east of the point of observation and to the northeast as far as could be seen, is largely either swampy, with several lakes, or forest-covered. Four or five miles to the southwest, however, in the neighborhood of Beardstown, a considerable portion of the river bottom has been reclaimed and is given over to agriculture.

The explanation suggested is that over the upland farms numerous convection currents gave rise to cumulus clouds, while over the

swamp and forest lands of the river bottom convection currents were subordinate or, perhaps, absent; that consequently, this cooler belt over the bottomlands not only failed to produce new cumulus clouds but also tended to become the channel of descent for some of the air which had been rising by convection from the surrounding hotter lands. On reaching such a belt of descending air, the clouds should be expected to melt away as they were drawn downward and to leave a zone of clear sky over the area of descending air. The width of the valley—4 to 10 miles—as compared with the height of the clouds—probably about one mile—should give ample opportunity for differences in heating to become effective in modifying the air currents and therefore the behavior of the clouds.

The presence of the cumulus clouds over the reclaimed parts of the bottomlands near Beardstown is thought to be significant in connection with the above explanation, since these would doubtless be heated nearly as effectively as the upland.

Other possible explanations of the phenomenon might be suggested, but it seems idle to speculate further until more observations of a similar nature have been made.

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CYANIDE OF POTASSIUM IN TREES

TO THE EDITOR OF SCIENCE: I note an interesting contribution to SCIENCE in the issue of October 9, on the subject of cyanide of potassium taken up by trees when put into holes in the same. I wish to report that this chemical is the chief basis of treatment by a firm in Allentown, Pa., doing an extensive business in some of the Eastern States, claiming to render trees immune from attacks by all insects and diseases, and also to fertilize them. The process was originated by a man named Kleckner, and is now continued by a company called the Fertilizing Scale Company, of Allentown, Pa. Their theory is that a tree can be given medicine, as well as food, by placing the same in capsules and fastening these in incisions under the bark. While the chief insect

poison is cyanide of potassium, yet they use chlorate of potash and sulfate of iron "to give the trees chlorine, sulfur, iron and potash." They make wonderful claims for the destruction of the scale and invigoration of trees, and commenced by charging fifty cents per tree for the so-called "vaccination." The price is now reduced to fifteen cents, but they are taking thousands of dollars from the confiding public.

The important scientific point is that I have examined hundreds of trees treated by them, and have in some instances found no evidences that scale insects were ever present, while in others I have found the San José scale alive on the trees some time after treatment. What is much worse is that I have found it is true that some one or more of these chemicals is evidently taken up in the sap of the tree, and that to a considerable extent. While the material was placed under the bark about three feet from the ground, it blackened the cambium layer as high as I could reach and remove the bark, and started blight or death of tissue at the place where inserted. I have the names of scores of persons whose trees or orchards were finally killed by this treatment. One man, whose name and address I can give, thought that it benefited his trees, and had it applied the second year, and the trees then died quickly. He is now disgusted with the treatment.

In company with Professor I. C. Williams, Deputy Forestry Commissioner of Pennsylvania, I visited an orchard in Lebanon County that had been treated a few weeks previously. The San José scale was found alive on the trees, but blight or death of tissue had commenced at the place of treatment and had worked downward slightly and upward considerably, and in fact, as high as one could reach. During the present week I have learned of another orchard, in Cumberland County, Pennsylvania, that was blighted and destroyed by the cyanide treatment. Therefore, while it is evident that some chemicals may be taken up in the trees and may even destroy some insects, it is further evident that they may be

injurious to the trees, and should be applied with great care and only after considerable experimentation, and should be recommended by scientists only after great deliberation. I shall send to interested persons printed articles on this subject from the office of the State Zoologist, Harrisburg, giving names and addresses of persons whose trees have been killed by the cyanide "vaccination," as the fakirs call it. These may be published.

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QUOTATIONS

RESEARCH AND TEACHING

THERE are at least three different conceptions of a university. To some men it means a group of technical schools which prepare for many distinct vocations; a place of universal study, as contrasted with one that pursues a single line only. To some men it means a place which is widely known for its teachers of science and literature and the discoveries that they are making; a school of universal reputation, as distinct from one whose fame is merely local. Still others think of it as a place where students can get wide range of knowledge and fit themselves for their duties as citizens of a self-governing community; a school with ideals of universal culture, rather than of narrow specialization.

The German university emphasizes the first and second of these conceptions; the French, the first and third; the English, the second and third. The American college in its early days devoted itself almost exclusively to the third. In attempting to become universities instead of colleges, our schools of higher learning in America have in recent years tried to combine all three aims; but often under such adverse conditions or with such inadequate resources that they have failed of actually attaining any one of them.

Under these circumstances a widespread belief has arisen that the three things should be separated rather than combined; that we