thought that by placing them in different positions the orientation would be altered if indeed vision is an important factor.

Large goldfish (*Carassius auratus*) were chosen for the work because of their ready availability and unusual vigor. These animals were in excellent condition throughout the experiments.

An artificial orbit was made for the left eye in the top of the cranium just to the left of the midline by the use of a large dental drill. A narrow canal was cut through the bone connecting it with the natural orbit through which the nervous and vascular connections passed when the eye was slipped into its new orbit. In this way the eye may be readily dislocated within a few minutes without obvious injury to it or its connections.

No detectable abnormalities in the animal's behavior could be noticed. Its orientation and locomotion were unchanged. The right eye was removed a week later. We were thus able to produce a real experimental cyclops. For the first week its behavior was quite as before. After about the tenth day, however, the animal was observed to orient itself tilted a little toward the left side whether swimming or at rest. The tilting increased constantly during the next four weeks after which time it assumed a position with its dorsoventral axis 45° to the left of the vertical. The vision of the animal was regularly tested during this period and found to be very good. If a small rod was slowly moved toward the eye the animal quickly turned aside and avoided it constantly.

A photograph was taken of the animal at this time and the eye replaced in its own orbit. The following day the fish was swimming quite vertical without any observable tendency to tilt toward either side. Its vision and orientation were observed the following two weeks and no abnormalities observed. At no time during the experiment did the animal show any abnormalities other than the tilting; circus movements, etc. being entirely absent.

We feel justified, therefore, in concluding that the visual function is an important element in the normal orientation of this species, visual impulses being apparently able to counteract the controlling influence of the labyrinth.

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THE DECOMPOSITION OF SALICYLIC ALDEHYDE BY SOIL ORGANISMS[1]

THIS aldehyde was obtained from several plants, *e.g.*, *Spirea ulmaria* and other species of Spirea by Pagenstecher[2] in 1835. It was reported in *Crepis foetida* by Wieke in 1856. It is formed by the oxidation of salicon which occurs in willow (Salix) and bridal-wreath (Spirea).

Salicylic aldehyde was first isolated by Shorey[3] from the garden soils of the Mount Vernon estate, and later found in widely separated soils by Schreiner and Skinner.[4] They found that this aldehyde is injurious to wheat plants. Ten parts per million in solution cultures caused a reduction of growth of 31 per cent. in the first six days. The plants were killed in solutions containing 50 parts per million. Other crops were affected similarly, though in some instances higher concentrations were necessary to cause injury. In soil cultures 25 parts per million of salicylic aldehyde was injurious to wheat seedlings.

In order to determine the ability of soil organisms to decompose salicylic aldehyde 27 pairs of cultures were prepared with the usual precautions. After incubating at room temperature for two weeks observations and tests were made. These showed a slight growth of bacteria in five different cultures, but decomposition of salicylic aldehyde in none of them.

Sub-cultures were made from each soil culture to make sure that there had been no mistake in observation. None of these yielded growth of bacteria, and none showed decomposition of salicylic aldehyde. In the growth of the bacteria in the few soil cultures mentioned above the bacteria doubtless used organic matter contained in the soils instead of salicylic aldehyde as the source of carbon.

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THE AMERICAN CHEMICAL SOCIETY

SECTION OF HISTORY OF CHEMISTRY

F. B. Dains, *chairman*

Lyman C. Newell, *secretary*

The one hundred and fiftieth anniversary of the discovery of oxygen: EDGAR F. SMITH. (Note: Dr. Smith was unavoidably absent. The secretary read Priestley's account of the discovery of oxygen from an original copy of "Experiments and Observations on Air," Vol. II, pages 33–35, and emphasized the importance of this discovery to American chemistry by reading an ex-

[1] Published with the permission of the director of the Alabama Experiment Station.

[2] Pagenstecher, Report, *Pharm.*, 49, 337, 51, 364.

[3] Shorey, E. C., "Some organic soil constituents," Bulletin 88, 13 pp., *Bureau of Soils*, 1913.

[4] Schreiner, O., and J. J. Skinner, "Occurrences of aldehydes in garden and field soils," *Journal Franklin Institute*, 329–343, September, 1914.

tract from a paper on "The founders of chemistry in America." There were on exhibition an autograph letter of Priestley written in 1775 about this discovery and sending his "respects to M. Lavoisier," pictures of Priestley's house and church in England, and his home in Northumberland, Pa., apparatus shown there when American chemists visited his home in 1874 and rare books and pamphlets written by Priestley.)

Chemistry in the early days of Rensselaer Polytechnic Institute: W. P. MASON. The institute was established in 1824, and Amos Eaton was the principal and the first teacher of chemistry. He established the system of "student lectures." Among his students who became noted as teachers and chemists were John Torrey, Chester Dewey, Mary Lyon (who founded Mount Holyoke College), Douglas Houghton, John L. Riddell, Ebenezer Emmons, Michael Tuomey, Ezra Carr, Eben N. Horsford (who started the Lawrence Scientific School at Harvard) and James C. Booth (who was president of the American Chemical Society in 1883–84).

Some famous chemists at Union College: EDWARD ELLERY. The men who established and developed chemistry at Union were Rev. Thomas C. Brownell and Jonathan Pearson in the earliest days (1814–1850), Charles A. Joy and Charles F. Chandler in the middle days (1850–1865) and Professor Perkins in the later days (1865–1902). Joy and Chandler gave the department a great impetus through their studies in Germany.

Early history of chemistry in Buffalo: A. P. SY. Among the names connected with the early chemical industries are Schoellkopf, Cornell, Giesecke, Hamlin and Rumsey. Teachers of chemistry date back to the establishment of the Medical School of the University of Buffalo in the early forties, and the names to be remembered are Hadley, Doremus and Witthaus. At their Central High School William H. Pitt not only taught chemistry, but also applied it by working out a method for removing sulphur from Ohio crude petroleum.

Egyptian chemistry as pictured on the walls of tombs. (Lantern): ARTHUR W. TAYLOR. Wall pictures from the tombs at Thebes and Beni Hassan were shown. The chemical operations included dyeing, metallurgy of gold, weighing gold, making jewelry, blowpipe working with furnace, pottery, brickmaking, glass blowing and baking (the royal bakery of Rameses III). The dates ranged from 3500 to 1450 B. C. The paper contained all known references to pictures so far found.

Some old chemists. (Lantern): EDGAR F. SMITH. (Not presented.)

Sylvius de la Boë: LYMAN C. NEWELL. A Frenchman by descent, a Dutchman by adoption. Born in 1614, died in 1672. Graduated at Basel in 1637, and soon after went to Amsterdam where he practiced medicine and studied chemistry. He was a professor in the University of Leyden from 1658 till his death. He founded a chemical laboratory at Leyden. He taught that chemistry is the foundation of physiological processes. Like his contemporaries he used powerful medicines. He believed in the transmutation of metals.

Benjamin Hale, chemist and college president: LYMAN C. NEWELL. Benjamin Hale was professor of chemistry at Dartmouth College from 1827 to 1835. He was asked to resign because he changed from a Congregationalist to an Episcopalian. In a letter to the trustees he pointed out that the shortcomings of the department were due to their limited knowledge of the place of chemistry in a liberal education. He was elected president of Hobart College, Geneva, N. Y., in 1837, and remained there till his death in 1863.

Paul Ehrlich: ARTHUR S. WOOD. This paper covers briefly the life work and important contributions of Ehrlich to chemistry, bacteriology and medicine and discusses incidentally some of the personal qualities of this remarkable man.

A. von Baeyer: JOHN F. CONN. An exhaustive paper on the life and work of Baeyer, especially his contributions which led to fundamental progress in industrial organic chemistry.

Alexander von Humboldt in some of his relations to chemistry: C. A. BROWNE. Alexander von Humboldt, the naturalist and explorer, was an intimate friend of nearly all the leading European chemists of his time. His assistance to various young chemists, as shown by the personal testimony of Liebig and Dumas, helped them on the way to fame and success. Humboldt's great interest in chemistry is shown not only in the pages of his most famous work, "Cosmos," but in the account of his travels to equinoctial America and his "Essay upon the kingdom of New Spain." His statistical and metallurgical study of gold and silver production in Spanish America is one of the best chemical economic surveys ever made. The state of chemical knowledge in Spanish America at the time of Humboldt's visit was good and he calls particular attention to the fine equipment of the Mexican School of Mines and the excellent work of its director, Andres del Rio, the discoverer of vanadium. Humboldt's scientific studies of the sugar, cochineal, cocoa, indigo, drug, starch, dyewood and other industries of New Spain are invaluable contributions to the history of chemical technology. In the field of sanitary chemistry Humboldt held that malaria and the various contagious tropical fevers were produced by atmospheric miasmata emanating from decaying vegetable matter and consisting of gaseous "ternary or quaternary combinations of nitrogen, phosphorus, hydrogen, carbon and sulphur." He criticized in facetious style the septous gas theory of contagion held by Dr. S. L. Mitchell, of New York. Humboldt's attitude toward the chemical arts of the aboriginal American Indians was always sympathetic and we owe to him the preservation of many facts of scientific interest which otherwise would have been lost.