able. The depth of the fissure is unknown, but the drop in the stream bed showed a downward extent of six feet in which there was no perceptible decrease in width. The dike is parallel to the jointing in the porphyry and can be traced for over fifty feet before it pinches out. It is marked by a number of pinches and swells, giving the formation the appearance of several long, thin, connected lenses of conglomerate standing vertically in the porphyry.

The obvious explanation is that a fissure in the igneous rock has been filled by stream wash, afterwards cemented by calcareous waters, but the origin of the fissure is by no means as clear. Many of the clastic dikes hitherto described have been attributed to the squeezing up from below of fragmental material, while in those filled from above there usually has been evidence of considerable local disturbances to account for the formation of the open fissure.[1] For reasons that can not be given here, but which will be given in a forthcoming paper on the district, it is fairly well established that there has been at Silverbell no recent rock movement sufficient to form open cracks in any of the rocks. It seems more probable that the dike in question represents the result of a joint plane enlarged by weathering, and filled in part by the products of this weathering and in part by sediment washed in by the stream. It is therefore a local feature, and bears no relation to the dynamics of the district, although superficially resembling clastic dykes that have been the result of distinct orogenic movements.

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NOTE REGARDING MAIZE FLOWERS

IT may be well to make here the preliminary announcement of some results obtained in the continuation of my studies of the evolution of the "ear" of Indian corn (maize) begun some years ago. It will be recalled that I published in the *Popular Science Monthly* for January, 1906, a paper entitled "What is an Ear of Corn?" in which I homologized the "ear" with the central spike of the ordinary "tassel," of staminate spikelets. Continuing my studies I have now found perfect flowered (hermaphrodite) spikelets in well-developed "ears" occupying the usual lateral position upon the plants. These are fully figured in a paper which is nearly ready for publication under the title of "Perfect Flowers in Maize." It is found that these are produced upon plants that differ markedly from the ordinary type of Indian corn (maize). They are short-jointed, with broad, leathery leaves, and I venture the suggestion that these plants may resemble in some degree the original form from which our common maize was derived. One of the photographs shows the remnants of an abortive second flower in the pistillate spikelet near the well-developed kernel taken from one of these perfect-flowered ears, indicating that these spikelets were once two-flowered.

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[1] J. F. Newsom, *Bull. Geol. Soc. Amer.*, Vol. 14, pp. 227–268, and M. R. Campbell, *Amer. Geol.*, Vol. 33, pp. 135–137.

THE INDIANA ACADEMY OF SCIENCE

THE twenty-sixth annual meeting of the Indiana Academy of Science was held in Indianapolis, Friday, November 25, 1910. The president of the academy, Professor P. N. Evans, chose as his subject for his annual address, "The Place of Research in the Undergraduate Schools." Forty-two regular papers were presented. Those of most general interest were as follows:

"Plants and Man—Weeds and Disease," Robert Hessler, of Logansport.

"Indiana Municipal Water Supplies," Charles Brossman, Indianapolis.

"Subterranean Drainage in the Bloomington Quadrangle," J. W. Beede, of Bloomington.

"Conservation Problems," Frederick J. Breeze, of Lafayette.

"The Properties and Reactions of Thrombin," L. J. Rettger, of Terre Haute.

"The Nature and Origin of the Fish Fauna of the Plateau of British Guiana," C. H. Eigenmann, of Bloomington.

"A Physiographic Survey of the Terre Haute Area," Charles R. Dryer, of Terre Haute.

"Paleolithic, Neolithic, Copper and Iron Ages

in Shelby County," F. W. Gottlieb, of Morristown.

"The Temperature Coefficient of the Surface Tension of Water," Arthur L. Foley, of Bloomington.

"Gaseous Fermentation in Sweetened Condensed Milk," O. F. Hunziker, of West Lafayette.

"Weed Problem in Indiana," Stanley Coulter, of Lafayette.

"The Water Balance of Desert Plants," D. T. MacDougal, of Tucson, Arizona.

"Indiana Fungi," J. M. Van Hook, of Bloomington.

"An Ecological Survey of the Lower Whitewater Gorge," M. S. Markle, of Richmond, and L. C. Petry.

"Timothy Rusts," A. G. Johnson, of Lafayette.

In the evening Dr. D. T. MacDougal, of the Desert Laboratory, at Tucson, Arizona, gave a very interesting and instructive illustrated lecture on "Desert Days and Desert Ways."

Professor Charles R. Dryer, of Terre Haute, was elected president of the academy and A. J. Bigney, of Moores Hill, secretary.

A. J. Bigney,
Secretary

SOCIETIES AND ACADEMIES

The Washington Academy of Sciences

The 67th meeting of the Washington Academy of Sciences was held, under the direction of the president, Dr. F. W. Clarke, at the Cosmos Club on the evening of January 19, 1911.

Dr. F. M. Jaeger, professor of inorganic and physical chemistry in the University of Groningen, Holland, gave an address on "Anisotropic Liquids and so-called Fluid Crystals."

Numerous experimental researches have established the fact that in certain liquids, and under certain conditions, there are forces that act upon the molecules differently in different directions. Hence the conception of the liquid state as one characterized by irregular molecular motion is no longer tenable—a fact that fills the subject with interest and has led to many an ardent discussion.

Dr. Jaeger pointed out the similarity of solid crystals with easy gliding-planes, to liquid ones, and the analogy of their changes to those of polymorphic substances. He also described their phase transitions and in particular showed the properties of substances that melt successively to three or more stable liquid states.

By means of projections he showed such properties of liquid crystals as their form, dichroism and strong birefringence, and made clear his argument that the emulsion theories advanced by some to explain the observed phenomena, are only based upon the misunderstood turbidity due to birefringent liquid phases. He also illustrated the strange phenomena of "enforced" and "spontaneous" pseudo-isotropy, and showed the axial images of clear, uniaxial liquids and their strong rotating power.

Proceeding to the real anisotropic liquids, which he illustrated by the different properties of *p*-azoxypenetol, he discussed the principal differences between the spheres of such liquids and real crystals, their heat motion and their diffraction phenomena when mixed with other substances, and concluded with an elucidation of their magnetic induction.

The formal presentation of the paper and its discussion were followed, after adjournment, by experimental demonstrations to many of the more interested of the audience.

The 68th meeting of the Washington Academy of Sciences was held at the Cosmos Club on the evening of February 1, 1911, with President F. W. Clarke in the chair.

Dr. W. D. Bancroft, professor of physical chemistry in Cornell University, gave his lecture entitled "A Universal Law."[1]

The many chemists of the audience roundly applauded the claim that all branches of human knowledge are but portions of chemistry—mostly subordinate. They seemed highly to approve the idea of spelling "alchemy" with a double "l," and indeed the speaker's familiarity with things not generally called chemical went far to justify this notion.

The illustrations of the universal law were drawn mainly from that branch of chemistry commonly called biology, and those who still persist in calling themselves biologists instead of chemists accepted in good grace many a humorous and telling side remark.

When the lecture was over and the time for talking back came it seemed that most every one had something to say; but whether biologist or some other sort of chemist, each declared the meeting a great success, and since then has done much to make the "universal law" the universal topic.

W. J. Humphreys,
Recording Secretary

[1] See Science, February 3, 1911.