by rearings of the insects in separate lots, fed upon green and red foliage respectively.

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CONE IN CONE

SIMILAR limestones of same geological age are seen high in the Missouri bluffs from the Platte and Buchanan County line to the Andrew County line. Beyond the Nodaway River we find these beds lower in the hills and within two miles are seen near the railroad grade.

These limestones are No. 150 and 152 of my section of the Upper Coal Measures, published in the Missouri Geological Report entitled "Iron Ores and Coal Fields," 1872, in part 2, page 92.

No. 150 occurs in strata of irregular thickness. Near Amazonia certain beds of it have been reported to make a good quality of hydraulic cement. Twenty feet is the total thickness of No. 150.

No. 152 lies above and is separated from 150 by two feet of clay shales. No. 152 is sometimes oolitic and also shows cross lamination. It furnishes an excellent building stone. Lander's quarry, a few miles north of Savannah, Andrew County, is of this rock. Overlying No. 152 we sometimes find a two-inch bed of cone in cone.

At only one other horizon in Missouri has cone in cone been obtained. It is found at Henry Kunkel's, on Nichols Creek, in Holt County, occupying a position approximately 175 feet above the other I have mentioned. Very fine specimens have been obtained from Nichols Creek, where it is about three inches thick.

The finest specimens of cone in cone I obtained from a branch of Dry Fork, in the northwest part of Bond County, Illinois, near James Valentine's and probably in Sec. 19 T. C. N. R. 4 W. Pocahontas is probably the nearest town. We found here twenty feet of argillaceous shale beds with flattened ironstone concretions resting on three feet of gray fossil-bearing limestones. The cone in cone occurs twenty feet above the limestone and is about two and a half inches thick. In composition it is an argillaceous limestone and shows perfect cones interlocking from each surface. It was traced along the branch for several hundred yards. [See Vol. VI., Ill. Geol. Surv., p. 133.]

In Geological Survey of Wisconsin, Iowa and Minnesota D. D. Owen, Phila., 1852, p. 112, mention is made of "Tutenmergel" being found in Iowa near certain briny springs. He states that in Germany its origin is thought to be from shrinkage of strata. But Owen speaks of it in Iowa and refers it to the imperfect crystallization produced by mineral matter filtering through marly beds. Dr. B. F. Shumard, who was much with Owen, informed me that Owen's tutenmergel was cone in cone. I think the former probably due to imperfect crystallization under pressure. Its origin and that of arragonite may be the same. Von Cotta speaks of it as "Tuten-nagel."

Stylolite structure, so common in many of our Lower Carboniferous limestones, may have a similar origin, but the cone is wanting.

G. C. BROADHEAD

COLUMBIA, MO.,
July, 1907

QUOTATIONS

EXTERNALISM IN AMERICAN UNIVERSITIES

IT is but natural, where organization is so important and the office of administration is magnified, that the presidency should fast lose its connection with active and advancing scholarship. There is so much governing to be done—because in our universities we trust so much to government—that in but few places can a president continue a scholar's life. So the old type of leader, learned and temperate, fast yields to the new type,—self-confident, incisive, Rooseveltian. And with the coming of the new type, there seems to be an increasing stress upon rapid accomplishment, upon "doing things," with grave risk that our places of learning will preserve a less clear vision of what is catholic and enduring.

The constitution of our universities is an

appearance of their indwelling mind, and therefore is of moment for their future. It is difficult to foretell whether the American will continue forever the government that was well enough for a boys' academy in colonial times. The desire is unquestionably awakened in us to have universities that can stand with the greatest of the world; and the desire will in the end, I believe, lead us more and more to distrust external rule. Our present forms have served our nonage; the days of our ignorance have been winked at, but now we are commanded everywhere to repent. We shall hardly reproduce in haste the European models, with all their clear advertisement that they are scholars' commonwealths, are municipalities of science; and yet it can not be thought that we shall continue forever and without regret upon our present course. We shall in the end place less reliance upon commercial methods in discovering and bringing into harmony the choicest minds; the university will perceive that it must become for them a hospitable place, showing in its very laws and customs that it is a union of gifted persons sanely working together to increase the store of intelligence among men. It will feel that it must bestow on all who come within its walls the keys and freedom of a great city.—Professor George M. Stratton in the *Atlantic Monthly* for October.

CURRENT NOTES ON METEOROLOGY AND CLIMATOLOGY

BRITISH RAINFALL

The forty-sixth annual volume of that unique publication, *British Rainfall* (1906), is at hand. Dr. H. R. Mill informs us, much to our regret, in his preface, that "the stationary condition of the available funds" has made it necessary for the editor to "divert a considerable part of his time from editorial duties to remunerative work." It is a great pity that the British Rainfall Organization, which is of such immense importance to the people of the British Isles, should suffer for lack of support. In this connection we note that His Majesty the King heads the subscription list. Dr. Mill points out that by means of an automobile, kindly placed at his disposal by one of his regular observers, he was able to make inspections of several rainfall stations in a very much shorter time than would have been taken up had he traveled in any other way. The present volume of *British Rainfall* contains a discussion, by L. C. W. Bonacina, of "The Effects of Exposure to Wind upon the Amount of Rain caught by Rain Gauges, and the Methods of Protecting Rain Gauges from them," with a bibliography. We desire once more to call attention to Dr. Mill's study of "Heavy Falls on Rainfall Days in 1906," in which the cyclonic control of special rainfalls is discussed and illustrated. It would be well if for every state in the American union we had such studies each year.

LIGHT AND BACTERIA

Dr. John Weinzirl has recently investigated anew "The Action of Sunlight upon Bacteria, with Special Reference to Bacillus Tuberculosis" (*Bull. Univ. New Mex., biol. ser.*, III., No. 12, 1907). The results obtained by previous investigators were, in the opinion of the writer of this paper, markedly and unfavorably affected by reason of the investigators' methods of exposing the organisms to sunlight, exposure under glass necessitating reflection and absorption of a large proportion of the sun's rays. By improved methods Dr. Weinzirl believes that he has come much nearer the truth. He finds the effect of sunlight much more powerful than previous results indicated. From two to ten minutes of direct exposure to sunlight is sufficient to kill the bacteria. This gives added emphasis to the advantage of a dry climate, like that of the western United States, where dryness and sunshine quickly destroy most bacteria. The importance of well lighted and ventilated houses is also emphasized. "The results by direct exposure of the bacteria indicate that sunlight is a much more powerful germicidal agent, and consequently a more important hygienic factor, than it has heretofore been considered; that the bacteria, when freely exposed, are killed in one fifth to one twentieth of the time formerly considered necessary."