in the Johns Hopkins Hospital at Baltimore, has been appointed rector of the University of Liége for the period 1927–1930.

PROFESSOR H. VILLAT, of the University of Strasbourg, has been appointed to the newly established chair of the mechanics of fluids at the Sorbonne.

DISCUSSION AND CORRESPONDENCE

THE TILDEN METEOR, AN ILLINOIS DAYLIGHT FALL

ON the afternoon of July 13, 1927, at about 1:00 P. M. central standard time, a stony meteor, hereafter referred to as the Tilden meteor, fell near Tilden, Illinois, about forty-five miles southeast of St. Louis, Missouri. The meteor fell in an area roughly two by seven miles, and four stones have been recovered, three of which weigh, respectively, one hundred and ten, forty-six, and nine pounds. The fourth is a small piece weighing a fraction of a pound.

The meteor came from the southeast, its path being inclined at an angle of perhaps fifty degrees to the horizontal, and with a velocity equal to, or slightly in excess of, the parabolic. Its brilliancy was such that at a distance of more than a hundred miles it appeared as "a piece falling off the sun." At a height of fifteen or twenty miles it burst, showing green and then purple, and after a second bursting was invisible to persons at a distance. A cloud of smoke was visible near the point of fall, but the falling pieces quickly had their velocity reduced so that they were no longer luminous by daylight, and only one piece was actually seen while falling. It was seen as "a dark streak, like smoke, for an instant."

The sky was partly cloudy in the vicinity of the fall, so few there saw anything, although nearly every one was looking, after the house-shaking blasts of the detonations. Following the detonations a roar like a tornado, or an earthquake, rolled to the southeast and died away in the distance. The meteor travelled with a velocity greater than that of sound, so the roar from the more distant portions of the path was heard after the detonations of the bursting in the nearer portion. This helped in evaluating the stories of the few who saw anything, for every one heard the sound rolling toward the southeast and assumed the meteor was travelling in that direction. The stones were actually seen to fall, and the smoke to roll, in the opposite direction.

The falling stones made a hum like an airplane flying high. The two larger stones could both be heard over considerable territory and at one place five men were out in a group straining their eyes to see an aviator who "flew over and passed out of hearing in the northwest, then came back flying much lower and landed a little to the north of the group."

The three larger pieces were heard to strike, the largest a few seconds after the blasts, the forty-six-pound piece "perhaps three minutes after," and for the nine-pound piece we have two careful estimates, "three to five minutes" and "five to eight minutes." The fact that for even the largest stone the thud of striking the earth was heard after the detonations of the bursting meteor shows that the average velocity of the fall from the point of bursting to the earth must have been less than the velocity of sound. Since the velocity of this meteor was twenty-five to thirty miles per second in the upper atmosphere, and sound travels at the comparatively leisurely rate of a mile in some five seconds, we have a striking illustration of the tremendous resistance of the lower atmosphere to bodies travelling at high velocities.

The soil of the territory is rather a stiff clay, and it was very hard because of no rain for weeks. The largest piece struck on the edge of a field of cow-peas, and went down three feet ten inches. The forty-six-pound piece went down fifteen inches in a clover pasture. The nine-pound piece went down five inches in grass in a back yard, and the small piece was found lying on a lawn. The fall was nearly vertical at the last, the largest stone departing about six inches from the vertical in penetrating three feet ten inches. The impact in no case noticeably scattered the soil; the holes were simply driven into the ground. The nine-pound stone was easily lifted out of the hole. For the forty-six-pound piece a little digging with a pocket knife was necessary; and the removal of the one hundred and ten-pound stone required two hours' hard work for two men with spade, pick and crowbar. It was wedged "as if it were set in concrete."

The meteorites are composed of a light gray stone, and show small silvery globular aggregates, presumably of nickel-iron. The surfaces show typical pittings and a typical black crust, being blackened and pitted in fairly uniform fashion. From a preliminary study of the literature available, this fall appears to be the first recorded from the state of Illinois, and the one hundred and ten-pound stone ranks among the largest seen to fall and preserved reasonably intact. Plaster casts will be made of the larger stones of this fall.

It should be said that the information in this note was obtained by personal interview, the writer visiting people, not only in the vicinity of the fall, but more than a hundred miles from that point.

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ETIOLOGY OF EUROPEAN FOUL-BROOD OF BEES

SINCE Cheshire and Cheyne investigated the cause of foul-brood of bees in England and attributed the

etiology of the disease to *B. alvei,* which is almost invariably found in large numbers in infected larvae, much work has been done to corroborate their results. In no case, however, has an isolated culture of *B. alvei* been known to produce the disease. On the other hand, G. F. White and others have refuted the claim of Cheshire and Cheyne and ascribed infection in this disease to *B. pluton.* Owing to their inability to cultivate and isolate the organism, however, their claim has remained hypothetical; for it could not be determined whether this organism was itself merely a secondary invader—as they said was *B. alvei*—or whether the infection was mixed, or whether, indeed, these organisms played any pathological rôle in the disease.

It has been the writer's fortune, however, to develop a medium admirably suitable for the growth of *B. pluton* (White). An 0.15 per cent. concentration of agar, together with certain nutrients, is employed as an enrichment medium; and a concentration of 1.5 per cent. agar for the isolation of the organism at 37° C. By this method pure cultures of *B. pluton* can be readily obtained, provided the larvae used contain a preponderance of this organism.

The writer has obtained infection in a healthy colony of black bees in four days, using as inoculum cultures of the organism derived from isolated colonies. The symptoms of the diseased larvae accorded with those observed in naturally infected larvae, and the microscopical picture was typical—*B. alvei* forms being also present, though only in small numbers. The organism has been reisolated successfully.

Morphological studies thus far suggest the identity of the two organisms. While the results in this are not yet complete, cultures of *B. pluton* have been observed to change to *B. alvei* form, resembling biologically the *B. alvei* isolated from infected larvae. This further corresponds very closely with the changes observed in brood naturally infected, where the ratio of *B. alvei* to *B. pluton* generally increases as the putrefaction of the larvae progresses, so that *B. pluton* is almost eliminated. The more conclusive substantiation of this is anticipated, and its accomplishment should lead to the demonstration of important relations between the pathogenicity of microorganisms and their life stages.

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NOTE ON A SECOND OCCURRENCE OF THE MOSASAURIAN REPTILE, GLOBIDENS

IN 1912 (Proc. U. S. Nat. Mus., vol. 41, p. 479) the new genus and species, *Globidens alabamaensis* Gilmore, was established on a rather meager specimen from the Upper Cretaceous of Alabama. The unusual globular form of the teeth as contrasted with the pointed, sharp-cutting teeth of other Mosasaurians made this an outstanding genus on which Dollo has subsequently founded a distinct family, the Globidensidae.

Recently I have received for examination the crowns of two teeth collected from the Selma Chalk, in the vicinity of Saltillo, Lee County, Mississippi, by a student of Prof. J. M. Sullivan, of Millsaps College, Jackson, Mississippi.

The crowns of these teeth show no evidence of wear and this fact, in conjunction with their relatively small size, would indicate that they were probably germ teeth which had not yet come into use. The globular form of their crowns, with wrinkled enameled surfaces, however, are in perfect accord with the teeth of the type specimen.

The fragmentary character of the specimen contributes nothing new to our knowledge of this little known Mosasaurian, but it is of interest as recording a new occurrence, and especially in definitely locating its geological occurrence as being in the Selma Chalk.

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MORE AND BETTER ETHICS FOR SCIENTIFIC MEN

THAT the code of ethics[1] adopted at the Santa Fé meeting of the Southwestern Division, American Association for the Advancement of Science, has been found by Dr. Kempton[2] a subject for genial mirth, seems to call for comment from some other quarter than that immediately involved, the members of the Southwestern Division having, one might say, cramped their style in controversy by the adoption of Rule 4. Thus, as so often, a new law works hardship first upon the law-abiding.

Dr. Kempton, as a resident of the Atlantic coastal plain, can hardly be expected to understand the distressing conditions prevailing in scientific and educational circles in outlying provinces west of the Appalachian Highland. It is a source of deep gratification to us in the West to learn that the conditions deprecated in the resolutions mentioned are nonexistent in the East, which we have so long been taught to look to as the home of culture, truth and grace. The writer is glad to be corrected in his evidently erroneous assumption that Rule 10, for example, might, in the awkward gambols of its play-

[1] "A Code of Ethics for Scientific Men," SCIENCE, Vol. LXVI, No. 1700, pp. 103–104, July 29, 1927.

[2] Kempton, J. H., "Scientors appear in the Southwest." *Ibid.,* Vol. LXVI, No. 1711, pp. 354–355, Oct. 14, 1927.