discussion of general subjects affecting the welfare and interests of the scientific body.

With the growth of the scientific body the experts eventually found their discussions hampered by various conditions growing out of non-expert membership, and special societies were organized. These societies have to a great extent assumed the first of the functions enumerated above, but they ignore the second. Their tendency is toward solidarity of special groups of scientists (3*a*) but against solidarity of the general body (3*b*). They can not perform the fourth function without federation. In the reorganization now in progress the association is becoming the means of federation, the integrating factor; and this relation may be called its fifth function.

The special societies have found, and in the main may be expected to find, the winter more convenient than the summer for their principal meetings. They tend to monopolize convocation week, and by holding the attention of the body of experts interfere, at that time, with the success of the sectional sessions of the association. In view of these and other considerations, it seems to me desirable that the association hold two annual meetings. At a winter meeting, held in conjunction with the affiliated societies, it should function chiefly as the bond of union and the conservator of common interests; its proceedings should include general business, a presidential address and a popular lecture, a few selected papers, or a prearranged discussion on a topic of general interest; and there should be no division into sections. A summer meeting, having for a leading purpose the diffusion of scientific interest, should include the work of sections, popular lectures and excursions.

Under such an arrangement it is not to be supposed that the attendance at the two meetings would be constituted in the same way. The differentiation of work, being an adjustment to the diversity of tastes and needs in the membership, would naturally result in a partial differentiation of personnel. Such a separation is not on all accounts desirable, but it seems to me better than the relinquishment of either of those important functions of the association for which the encroaching special societies fail to make provision.

G. K. Gilbert.

Washington, D. C.,
December 7, 1904.

THE TERM 'GEOLOGY.'

To the Editor of Science: May I trespass once more upon your valuable space to reply to Dr. C. R. Eastman's note in your last number (Science, No. 517), in which he claims to have finally proved me inaccurate in giving credit to De Saussure as the first geologist who used the term 'geology' in the modern acceptation of the word.

While Dr. Eastman and I are quite agreed as to the importance of more care among scientific writers in the citation of ancient authorities, there seems to be this essential difference in our methods. That he is a strict constructionist and clings to the very letter of the law, while I consider it more important to get at the true spirit of the citations, thinking thus to trace more correctly the progress of human thought—a difference which the present case seems to me to well illustrate.

It will be noted that I said De Saussure *appears* to have been the first to use the term geology in writing on his science.

In his 'Lettres Physiques et Morales sur les Montagnes,' published in 1778–9, De Luc, to whom Von Zittel gives priority over De Saussure, uses the term cosmology for the science that treats of the knowledge of the earth, although he says in his preface (page viii) that the proper word would have been geology, but that he 'could not venture to adopt it because it was not a word in use.' De Saussure, on the other hand, writing on the Alps in 1779, employs the term geology without any explanation or apology and alludes to the geologist as if he were a very well-known species of natural philosopher.

In the extremely condensed form in which I was obliged to treat my subject to bring it within the limits of a presidential address, it seemed inadvisable to introduce such explanations as this, hence my use of the word *appears*, implying the possibility of another construction of the statement.

As to the earlier uses of the word given in Murray's 'New English Dictionary,' which, in Dr. Eastman's opinion, furnish a further proof of my want of accuracy, I regard them as proving quite the contrary, as is shown in the following brief analysis of the references under geology.

Richard de Bury's use of the word is defined as 'applied to the study of the law as distinguished from the arts and sciences, which are concerned with the works of God.'

'Geologia' is also the title of an Italian work by F. Sessa, which is intended to prove that the influences ascribed by astrologers to the stars really proceeded from the earth itself. As Murray evidently recognizes, neither of these usages has any relation to modern geology.

He subdivides the later usages of the word geology as (1) 'The science which treats of the earth in general.'

Of those referred to as having used it in this sense, Erasmus Warren (1690) was a Suffolk rector, defending the literal correctness of the Mosaic account of the deluge; B. Martin (1735), a learned optician, who classified rather elaborately the science of his day; and Nathan Bailey (1736) and Dr. Samuel Johnson (1755), lexicographers, who defined it as 'the doctrine of the earth.'

None of these, it is evident, could be considered to be geologists.

It is only Murray's second division—namely, 'the science which has for its object the investigation of the earth's crust, etc.,' which corresponds to the modern acceptation of the word considered in my address, and under this head his first reference is to J. Hutton (1795), who published sixteen years after De Saussure.

Hence, in spite of Dr. Eastman's specious representation of the facts, only a moment's consideration of which he thinks necessary to prove my historical inaccuracy, I still maintain the correctness of my statement, in which I have followed so excellent an authority as Sir Archibald Geikie, who says, in his chapter on De Saussure ('Founders of Geology,' page 88), 'the earliest writer who dignified it [geology] with the name it now bears, was the first great explorer of the Alps.'

S. F. EMMONS.

WASHINGTON,
November 28, 1904.

THE KELEP AND THE COTTON PLANT.

TO THE EDITOR OF SCIENCE: Professor Wheeler's criticism of Dr. Cook's theory regarding the association of the kelep or Gautemalan ant, with the cotton for its nectar (SCIENCE, December 2, page 768) is quite timely. Dr. Cook's theory and the facts upon which it is founded are decidedly unique. In bulletin 49, Division of Entomology, U. S. Dept. of Agriculture, page 64, Professor Cook states that in Texas 'More ants will be necessary, however, for their protection, and the nectar-producing qualities of the different varieties may become a question of practical importance if the kelep should become established.' "At present the nectar secreted on the leaves and squares of the cotton goes to waste, or even serves to attract injurious insects, among them the boll worm moths."

"The discovery of the ant supplies a practical reason for the existence of the nectaries hitherto quite unsuspected, and it suggests the further possibility that the weevil and the ant may have been factors in the evolution of the cotton plant, for the weevil is not known to feed on any plant except cotton." Was the kelep then first attracted to the cotton on account of the nectar or by its appetite for the weevil? That the nectar of the cotton otherwise goes to waste is a surprising statement, inasmuch as a very large proportion of the honey stored by honey bees throughout the southern states is secured from cotton, as is well known to all practical bee keepers. Furthermore, the writer was under the impression that American cotton was originally of oriental origin. If so, how could the kelep and boll weevil have been a factor in the evolution of the cotton plant in the orient where they are not known to occur?

It would seem to the writer that considerably more evidence is necessary to establish such a theory, and that a more intimate knowledge of the cotton plant and the insects