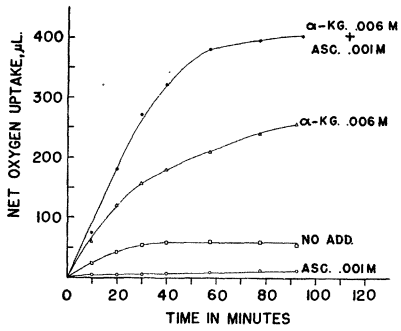

FIG. 1. The stimulation of L-tyrosine oxidation by ascorbic acid (ASC) in the presence of α-ketoglutarate (*α-KG*). Flask contents: 2.0 ml rabbit liver powder extract; 1.0 ml pyrophosphate buffer; 0.3 ml α-ketoglutarate (20 μM) or 0.3 ml of H_2O. The side arms contained 10 μM L-tyrosine in 0.5 ml phosphate buffer (buffer alone was used in the control flasks), and 0.2 ml ascorbic acid (4.0 μM). Total volume, 4.0 ml. Both α-ketoglutarate and ascorbic acid were omitted in the no-addition flasks (*No ADD.*).

powder extract greatly reduces the ability to oxidize *p*-hydroxyphenylpyruvic acid, but this activity is nearly completely restored by the addition of ascorbic acid to the dialyzed extract system.

Considerably less than stoichiometric amounts of ascorbic acid are needed for the oxidation of tyrosine. Titration with 2,6-dichlorophenolindophenol at the end of the incubation period has shown that nearly half the added ascorbic acid remains in the reduced form. Since the titration values are the same for the control flasks and the ones in which tyrosine was oxidized, it appears that no net consumption of ascorbic acid is required for the oxidation of tyrosine.

Although these results are in agreement with the theory that ascorbic acid acts as a cofactor for the enzyme system catalyzing the oxidation of *p*-hydroxyphenylpyruvic acid, the data presented below suggest that ascorbic acid may act in a less specific manner.

Knox (*1*) observed in experiments with the rat liver homogenate preparation, that D-isoascorbic acid also increases the oxidation of tyrosine. We have tested several compounds using the acetone powder extract preparation and have found that D-isoascorbic acid, D-ascorbic acid, and hydroquinone are just as effective as L-ascorbic acid on a molar basis. Homogentisic acid, *p*-aminophenol, *p*-phenylenediamine, and 2,6-dichlorophenolindophenol also increase tyrosine oxidation but are less effective than ascorbic acid. On the other hand, catechol, resorcinol, 3,4-dihydroxybenzoic acid, 3,4-dihydroxyphenylalanine, dihydroxymaleic acid, cysteine, and glutathione are unable to replace ascorbic acid or to supplement a suboptimal concentration of ascorbic acid. The oxidized forms of ascorbic acid or hydroquinone (dehydroascorbic acid or quinone) are nearly as effective as the reduced forms. This would be expected if these compounds undergo cyclic oxidation and reduction during the oxidation of tyrosine.

The observation that several compounds are able to stimulate the oxidation of *p*-hydroxyphenylpyruvic acid suggests that the requirement is one for a compound having the proper oxidation-reduction potential. Whether these compounds found to be active in place of ascorbic acid function by protecting the small amount of ascorbic acid present in the powder extract or completely replace ascorbic acid in this system cannot be determined without further purification of the enzyme system involved.

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Comments and Communications

Zoological Nomenclature

NOTICE is hereby given that, as from June 29, 1953, the International Commission on Zoological Nomenclature will start to vote on the following cases involving the possible use of its plenary powers for the purposes specified against each entry. Full particulars of these cases were published on Dec. 29, 1952, in the *Bulletin of Zoological Nomenclature* in Double-Part 4/5 of Vol. 9. (1) *Astacus Fabricius,* 1775 (Class Crustacea, Order Decapoda), validation of (correction of an error in Opinion 104); (2) *Favus* Lanchester, 1900 (Cl. Crustacea, Ord. Decapoda), validation of (correction of an error in Opinion 73); (3) *flavipes* Olivier, 1795, *Dytiscus* (Cl. Insecta, Ord. Coleoptera), validation of, by the suppression of *flavipes* Fabricius, 1792, *Dytiscus.*

Comments on the above cases should be sent as soon as possible to the undersigned.

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Scientific Conferences and Papers

IT SEEMS worth while at this time, when so many conferences on such a variety of subjects are scheduled, to review the fundamental purposes of a scientific conference and the methods of best achieving these ends.

The principal objective of a scientific conference

should be, of course, the advancement of the science. We firmly believe that this aim can best be implemented by providing sufficient time for adequate discussion of the controversial points and, subsequently, by publishing the papers *and* discussions as a unit. The feasibility and utility of allowing ample time for discussion and of reporting the entire proceedings in one volume depend on the type of conference. The type best suited to these arrangements is a meeting of specialists primarily interested in a particular field and mentally equipped to explore a given area of research more intensively than in the case of a conference covering many phases of a major discipline.

Each conference should be designed to stimulate further thought and activity on the subject, but a secondary objective is the provision of a suitable outlet for completed investigations. The critical factor upon which the success of a scientific meeting depends seems to be related to an adequate opportunity for informal discussion, if one may judge from the afterhours "bull sessions" in which individuals having similar professional interests congregate and talk shop.

This natural inclination to informal discourse must be exploited. Informal colloquia may be extremely helpful when convened subsequent to, or in connection with, the formal presentation of papers. An uncrowded program of prepared papers (perhaps as few as five or six per day) permits sufficient time for a full discussion of each paper immediately after its presentation, when interest in comment and criticism is at its peak. In the discussions legitimate differences of opinion and serious attempts at poignant speculation should be encouraged.

Ordinarily it is difficult to assess the merits of a liberal policy of conference administration, because the benefits may not appear until months or years later, often disguised beyond recognition. Occasionally, however, the inspiration for a significant piece of research can be traced directly to a particular scientific meeting.

The reporting phase, too, should continue the objective of the conference—the encouragement of further research. Published abstracts of invited papers, short summaries of the meeting in scientific journals, and private communications all aid in the rapid dissemination of noteworthy items. In the case of a conference dealing intensively with a particular subject, however, a carefully edited report may have great value as a reference volume. It should be made available not only to the participants, but also to the large group of interested researchers who could not attend the meeting, and to the even larger number of junior scientists and students who may thereby be motivated to enter the field. The impromptu discussions are usually rich in new ideas and in promising suggestions for further study; hence these, as well as the formal papers, should be included in the report. The editing of conference proceedings should entail a check of all statements for accuracy and an integration of the discussion into a coherent and logically connected unit. Commonly, supplementary explanatory material must be included for the benefit of scientists who are not as highly specialized in the field under discussion as the participants at the conference. In this way a scientific conference, designed to inspire maximum creative effort, will possess lasting values for all workers specializing or interested in the subject considered.

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THE time of year is upon us when we in the sciences eagerly scan the advance programs of meetings to be held by our societies. With a red pencil, we check this paper and that as being of interest. We check the times when they are to be presented so that a smooth working schedule will result in a maximum number of papers being covered. Some of us may even be paying our own expenses to the meetings so that we may, in a short time, catch up with progress in our own and related fields.

Unfortunately, attendance at the meetings often dulls the edge of anticipation. Many of the papers thought to be of importance turn out to be "duds"—not because the work covered is of little importance, but simply because the persons giving them fail to observe a few simple but important details.

This communication is, therefore, addressed to colleagues who intend to present papers at future meetings. It not only applies to the neophyte but to veterans of many a meeting, for the beginner is sometimes more likely to be careful in his presentation than the veteran. The work you are reporting is important to you; otherwise you would not be presenting it. In nine out of ten cases, however, the listener would not suspect it. The manner in which a paper is given is as important as its content. You must convey the importance of the work to your listeners; if not, you are wasting your time and theirs, too.

Here are some criticisms usually heard about speakers at scientific meetings:

1. The speaker lacked enthusiasm. The listener thinks, "This fellow doesn't seem too interested in his work. He reads the paper as if it were the first time he had seen it. The slides are strange to him, too!" (More about slides later.)

2. The speaker drones on and on in a monotone. Talk with normal inflection as you would when describing a baseball game. Also talk about twice as loud as you normally do. After all, the room is large and crowded, and some of us can tune up our hearing aids just so far. Also, we may have to contend with the two gentlemen on our right who are still discussing the previous paper.

3. In describing his slides the speaker turns his back to the audience. The listeners' only hope of hearing him is that perhaps his words will be reflected as is the picture.

4. The speaker is afraid the listener will forget what organism or compound he is talking about, so every time a reference is made to it, the exact name is used. One recent speaker mentioned "*Micrococcus pyogenes* var. *aureus*" at least 25 times in a paper he was presenting.

He could have saved himself and his audience at least two minutes had he referred simply to "the organism."

5. Most speakers try to squeeze too much into one slide. The print is usually too small. Large freehand printing is at least readable, if not as neat as ordinary typewriting, which can't be read anyhow. Give your audience time to read your important data. One frequently hears a speaker allude to a slide when it comes on the screen, "This slide isn't too important." So flip! . . . we go on to the next. If it isn't too important, why include it? Almost every institution, whether it be educational, governmental, or industrial, has someone who is more or less expert on visual aids. It will pay to consult him before having slides prepared. Your slides, if they are readable and clear, will help tell your story more easily.

If speakers would keep these points in mind, our meetings would certainly be a greater success. Remember that some of your listeners may have come especially to hear your paper. How often one hears the remark, "The title sounded so good, but what a waste of time!"

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University of Michigan Geological Field Work in Mexico

A PROGRAM of studies of sections across the Mexican geosyncline at right angles to the marginal land masses has been designed to determine lateral variations in structure, lithology, and faunal relationships of successive geologic formations. Although purely scientific, these regional studies have economic implications. Their bearing on ore deposition is threefold: (1) to provide the regional setting for detailed studies of structure in the mines and mining districts along the eastern edge of the Sierra Madre Occidental; (2) to place the age of the prelava sedimentary rocks on a sound regional and paleontologic basis; (3) to locate intrusive bodies with respect to mineralization. Petroleum exploration may be guided by the interpretation of geologic history resulting from the series of stratigraphic sections measured in mountain ranges of the Plateau Central. The sequence of faunas and faunal zones recognized in each formation provides useful markers, which should be found in wells penetrating the subsurface. Structural features mapped in the mountain ranges can be projected into the basins, where geologic conditions may be obscure.

Field work in northern Mexico in the area of the early Mesozoic "Coahuila Peninsula" was resumed during July and August 1952 by a party from the Museum of Paleontology of the University of Michigan. Lewis B. Kellum, in charge of the program, was accompanied by two graduate students, Bob F. Perkins, of Dallas, Tex., and Cecil C. Kersting, of Muskegon, Mich. The primary purpose of the investigation was to study the fauna of the Lower Cretaceous Aurora limestone and the geologic relationships of the Aurora limestone to the Cuchillo evaporites.

The area mapped is along the Durango-Coahuila state line in the central part of the Sierra de Tlahualilo, about 250 miles south of the international border at the Big Bend of the Rio Grande. The general structure of the Sierra de Tlahualilo in Cretaceous strata is a broad, northward-trending anticline. On this major structure is superimposed a variety of well-defined local deformations. A small area of volcanic rocks encroaches on the western side of the range.

Three stratigraphic sections were measured. Small patches of fossiliferous platy limestones and yellow marls of the Indidura formation were found beneath the volcanics resting on the Aurora limestone. Fossils were collected at four horizons in the Aurora, the lowest of which occurs in a silicified zone that may mark the top of the Cuchillo formation. The limestones below this zone weather darker gray, are interbedded with gypsum, and grade downward into the highly gypsiferous beds of the Cuchillo formation. Rudistids occur at the top of the Aurora limestone but are not the dominant element in the molluscan fauna. A faunal zone about 600 ft below the top is characterized by a large assemblage of pelecypods, gastropods, brachiopods, and echinoids, of which *Gryphaea marcoui* Hill is the most abundant form. This zone, present throughout the area mapped, proved to be a most reliable datum plane in a thick limestone section. A few feet above this zone nautiloid cephalopods were found at several localities. The faunas from the Aurora will be studied in the Museum of Paleontology during the coming year.

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A New Medium for Modeling Microscopic Structures in Three Dimensions

A FREQUENTLY annoying problem in research is the difficulty encountered in reconstructing a microscopical structure in a three-dimensional model large enough to allow effective study and yet not requiring too much time in preparation. This difficulty was experienced by the author while studying the embryonic development of the oriental fruit moth *Grapholitha molesta* Busck, the egg of which measures 0.7×0.4 mm. The embryo is coiled within the egg in such a fashion that the usual methods of orienting the block for sectioning yielded cross, longitudinal, and oblique sections of the same embryo, and an understanding of its orientation within the egg was important.

After blotting paper, cardboard, balsa, and wax sheets proved unsatisfactory, self-hardening sculptor's clay was found to be excellent for modeling, in that it reduced construction time, made greater detail possible, and resulted in a nearly indestructible product.

Modeling consists of three distinct steps: preparation of the clay, cutting the clay section, and building the model. A ball of clay of appropriate size is placed between two sheets of waxed paper. This sandwich is laid on a sheet of glass, rolling guides are put into place, and the ball is rolled into a slab of proper