DISCUSSION AND CORRESPONDENCE.

THE ARRANGEMENT OF MEETING ROOMS.

As the season of winter meetings approaches it may be permissible to make a few suggestions regarding the transformation of college lecture rooms into meeting rooms for scientific societies.

The ordinary college lecture room is arranged, properly enough, in a two-party fashion. The lecturer is on one side of the desk and the students are on the other. But a society meeting room should be arranged in a three-party or triangular fashion, so that the president and the secretary can see and can be seen by the two other parties, namely, the speaker and the members. If this principle is neglected, as is too often the case, and the president and the secretary are placed at the same desk with the speaker, various awkward results are likely to follow. The speaker is very apt to turn his back on the officers and to talk only to the members—if indeed he does not also turn his back on the members and talk only to the blackboard. The president, sitting with his back to the diagrams that are referred to by the speaker, is tempted to perform various twists in trying to see what is behind him. The members, finding two persons in line with the diagrams, do not always see clearly what it is intended that they should see.

These various difficulties disappear if the three-party arrangement is adopted. The speaker is then given sole possession of the lecture platform and desk, with the blackboard and racks behind them. The president and the secretary are given a table (with a platform also, if necessary) on the floor at one end and somewhat in front of the lecture desk, far enough forward for them to see the speaker and the blackboard when they look a little to one side, and high enough for them to see the members when they look to the other side. The members, from the ordinary seats, can then see both the speaker and the officers; the officers can see both the speaker and the members; and the speaker can observe the proprieties all through his remarks by looking at the officers and the members in turn. The only chance of awkwardness comes if the speaker takes his place at the end of the desk near the officers' table, for he may then turn his back on them, while pointing to his diagrams. To prevent this involuntary discourtesy the space behind the desk at the end near the officers' table should be blocked up, so that it can not be entered or occupied. The speaker will then necessarily enter from the other end and stand with his face turned toward the other two parties in the triangle; unless, as said before, he insists on facing only the blackboard. Inasmuch as speakers ordinarily use their right hand for chalk work it seems most generally satisfactory to place the officers near the left end of the lecture desk, as seen from the audience, and to keep the speaker near the right end.

Several other items may be briefly indicated. Some form of racks for diagrams should be provided beforehand, with simple means of attaching the diagrams and of raising the racks; spring clothes pins are of quieter action than tacks that have to be hammered: if the racks are hoisted by a cord over pulleys, the pulleys should have all squeaks reduced by oiling. The duty of darkening the room when the lantern is used should be assigned beforehand to a responsible and well-practised person of regular habits. Attention should be given to the windows, especially to the upper sashes, to see if they can be opened easily for ventilation, without over-much squeaking or slamming, and without conspicuous gymnastics on the part of the secretary; examples might be cited in which the antics performed in favor of ventilation have completely distracted the attention of the members from the matter presented by the speaker, which after all is usually the more important of the two forms of entertainment. If there are windows near the lecture desk, they should be darkened, so that the speaker and the officers shall not be recalled chiefly as blackened characters silhouetted against the light of outdoors in the eyes of the audience. If the entrance is at the back of the room an usher will be of value in urging members into the forward seats 'at the request of the presi-

dent'; for an audience on the back benches, leaving the front benches empty, can not be regarded as encouraging to the speaker. A young page at the service of the president and secretary is an appropriate luxury; he can be waked when messages have to be sent. A lobby into which members can retire for conversation is indispensable for a comfortable meeting; it should not be so near the meeting room that laughing in one drowns speaking in the other. As to the manner of presentation of scientific communications by the speakers, that is too sacred a question for us to enter upon. Individuality must be preserved at all hazards. But if a distinction *could* be drawn between the form in which a problem is prepared for publication and the form in which it is presented orally to a listening audience, and if the effect to be produced upon the audience *could* be duly considered by the speaker, scientific meetings would be even more successful than they are now.

One other practical suggestion may be allowed. It would be an assistance if the local committees would write down the more important results of their experience in a *transmittendum,* to be passed on to their successors. Thus, even if new mistakes were occasionally invented, old mistakes might be more generally avoided, and a greater enjoyment and profit might be secured for all concerned by the gradual removal of various trifling inconveniences and distractions which have no place in well-conducted meetings.

A Fellow of the Association.

SPECIAL ARTICLES.

NOTE ON THE FALLING-TO-PIECES OF THE IONS.

1. The data summarized in the following graphs were obtained by acting in the manner stated, on the dust-free moist air contained within a glass fog chamber, with a sample of weak radium (10,000 $\times$, 10 mg.), sealed in an aluminum tube. This was placed on the outside of the chamber in contact with its walls (.2 to .3 cm. thick), and was then removed suddenly at given intervals before exhaustion. Only very penetrating primary rays (β and γ) are, therefore, in question. The curves show the number of efficient nuclei in thousands per cubic centimeter, observed after the lapses of time shown by the abscissas, and it is supposed that the nuclei are reproduced faster than they can be removed by the exhaustion. In the upper curve the pressure differences applied ($\delta p = 31$) are much above the fog limit of dust-free air, which is below $\delta p_0 = 24$ for the given apparatus. In the lower curve the pressure differences are nearly at the fog limit of dust-free air, while the other curve ($\delta p = 28$) applies for intermediate conditions. The effect of the radiation is, therefore, virtually at least, a coagulation (to use a figurative expression) of the colloidal nuclei of dust-free air, into the aggregates much larger in size representing the ions. Hence in the presence of radium under the given conditions, the number of *efficient nuclei* decreases either because the ions from their size capture all the available moisture more and more fully, or because the colloidal nuclei have actually been aggregated into fewer but larger systems, which will in turn fall apart in the absence of radium. Professor Barus[1] has recently pointed out that inasmuch as the radiation within the fog chamber is largely secondary, and must, therefore, at a given point come from all directions, a corpuscular pressure must exist within, having a tendency to produce agglomeration; and the same results should occur for an easily scattered undulatory radiation. This would explain why the X-rays and ultra-violet light produce fleeting and persistent nuclei alike in kind, except that only the former are ionized.

2. It follows from what has been stated that above the fog limit of dust-free air, the number of efficient nuclei must increase with the removal of radium at a rate which corresponds to the falling to pieces of the ions. The peculiar feature of the results here in question is the manner in which the efficient nucleation decays from the coarser ionized to the finer non-ionized colloidal stages, when the pressure difference is decidedly above the fog limit of air, so that the latter may be recognized. The curves invariably pass through a minimum

[1] *Am. Jour. Sci.*, (4), XX., p. 298, 1905.