Etiquette in the laboratory

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Etiquette in the laboratory

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The author offers, for those newly entering laboratory society, a simple guide to the proprieties and niceties of conduct therein. Customs dealt with include: making an entry to the laboratory; its arrangement and the nature of the tasks it provides; the proper manner of discovering the nature of those tasks; the fashion after which it is appropriate to regard the manuscript provided; correct behavior in the conduct of the experiment, and the necessities to be observed in recording its outcome; all this, together with more general advice about comportment in the laboratory and the benefits which may be obtained from it. [*Editor's note:* The editors have already drafted a letter of response for correspondents who will take this article seriously—and another for those who do not!]

"The gentleman who takes you into the dining room will sit at your right hand. Take off your gloves, and put them on your lap. Before you, on your plate, will be a table napkin, with a dinner roll in it; take the bread out and put it at the side of your plate. Lay the opened table napkin on your lap, on your gloves, and then listen gracefully, and with attention, to your companion, who will do his best to amuse you until the soup is handed round. . . .

"Now I must just say (as this book is written for those who do not profess to know much of society) that you should eat your soup from the *side* of your spoon, not take it from the point; that you should make no noise in eating it; that you should beware of tasting it while too hot, or of swallowing it fast enough to make you cough. You must begin, or appear to begin, to eat as soon as it is put before you; not wait for other people."[1]

I. ARRIVAL IN THE LABORATORY

Enter the laboratory without undue haste. The presence of others, including staff, may be acknowledged by a nod of the head, but not by any more effusive salutation. In a word, avoid any appearance of excessive enthusiasm.

Some latitude in the time of arrival is permitted, and should you be somewhat late, the teacher will not remark upon the fact, and neither should you. Should you arrive after too considerable a delay, offer not an excuse, but a general remark from which, should the teacher wish, he may infer an acceptable reason. Excuses clothed in excessive circumstantial detail are neither welcome nor appropriate, and should be avoided.

Should you by chance arrive a trifle before the appointed hour, you may indicate the fortuitous nature of the event by some small remark, and should seat yourself inconspicuously and wait quietly, perhaps inspecting an illustrated journal.

II. ARRANGEMENT OF THE LABORATORY

The laboratory will be laid out with a number of prepared tasks, called experiments, each having its proper place. Each task or experiment has a name, by which it is always to be called. Discover which is the name of your experiment for the day, from the plan or chart which will be somewhere upon the wall, and endeavour to find the place of that experiment. The experiments always have the same names and places, which are never changed, so it soon becomes a simple matter to find where you must go on each day.

Seat yourself on a stool at the appointed place. Before you will be set out all the items of apparatus which are to be utilised, neatly arranged and in some cases bolted to the table. At each place there is a script or manual, so that all may discover what is required of them, and obtain advice about the conduct of the task, without need to enquire anything of the teacher. The apparatus, in a well conducted laboratory, will be substantial; well fashioned from metal or timber, even when it is only to be used for simple purposes.

III. DISCOVERING THE NATURE OF THE TASK

Each experiment will require the performance of a number of definite and predetermined operations, which it must be your first business to discover. You must begin, or appear to begin, with a perusal of the script. Should you find yourself uncertain of what is required, it is polite in making enquiries to presume that the fault lies in you, not in lack of clarity or completeness of the script. Assistance in determining what must be done can often be obtained from a close inspection of the apparatus, which will be especially fitted for what is intended. Indeed, should the arrangement of apparatus at which you arrive not use all that is provided, you can be sure that something is amiss.

Use, therefore, such information as is at your disposal, remembering that much must necessarily remain hidden; certain fruits of experience can accrue to you only in the conduct of the experiment.

IV. SCRIPT

As we have intimated, the script or manual stands in lieu of the teacher, and specifies closely what must be done. The teacher, when judging the merit of your work, will frequently have recourse to the script to decide questions of whether what you have done was intended or not.

The first part of the script serves you with the theory, briefly set out with all due formality and correctness of expression. Make a polite pretence of inspecting it, but leave it mainly on one side, returning to it later when you have need of it to determine what equation ought to be employed in making calculations.

The script, in a laboratory of quality, will not tell you precisely what to do, as it might in a lower stratum of

laboratory society. You may not, however, yield to unbridled desire, putting apparatus to uses which merely seem to you to answer to some purpose of your own. You must expect neither to be fed with a spoon, as the expression has it, nor to follow a wayward path of your own. It is your place to determine, without being directly told, what it is that you must do.

Those who do not profess to know much of laboratory society may be misled by the name "experiment" which is given to laboratory tasks. The name is a polite convention, deriving from the character of the labors of that small and select class of society, to which some of your teachers will belong. In the laboratory, an experiment is a serious occasion for well-regulated endeavor, not a trial of some novel plan or conception.

V. CONDUCT OF THE EXPERIMENT

Having seated yourself, and perused the script, lay out your notebook and writing instruments, and ensure that you have provided yourself with a sufficiency of graph paper. Then, when you conduct the task, proceed slowly and with deliberation. Keep it constantly in mind that there is a correct way in which to perform every stage, and fix your attention on discovering what are the correct and incorrect ways of proceeding.

Reserve a number of small and untaxing tasks, as for example the drawing of diagrams, so appearing at all times to be occupied. Nothing gives more offence than the appearance of lethargy or indolence. Should you have occasion at any time to take thought, avoid sitting still and silent, and never place your head in your hands; the taking of thought being readily mistaken for inaction. Nor, however, should you work at such a pace that it might seem that your actions were ill-considered and hasty; excessive speed in the conduct of an experiment is one of the surest signs of inattention to a proper correctness and exactness of proceeding.

Only the impatient expect an experiment to function in a perfect fashion, either speedily or at the first trial. Here you must conceal your natural disappointment, and affect a determination to detect and cure the fault, which you should assume to be due to some previous mistaken action on your part. With patience and determination the experiment will surely work; others, it is useful to reflect, have made it work on countless earlier occasions.

The newcomer to laboratory society always finds it difficult to determine correctly those few occasions on which it is proper, or occasionally required, for him to select for himself a course of action without reference to authority. On the one hand, to do so may show a mature appreciation of the necessities of the task, and so meet with approval; but on the other hand, it may demonstrate a much to be deprecated ignorance of, or lack of concern for, the proprieties of the situation. Rarely then, is it wise so to act without the fullest confidence that one's choice will satisfy the highest standards the teacher may apply. To assert oneself after this fashion is to invite the invocation of the severest critical standards.

VI. LABORATORY NOTEBOOK

Concerning your notebook, let it contain only that which the teacher may view with approval, and let its form be such that he can quickly come to a decision as to its merit. It is not the place for erroneous thoughts or unsupported speculations, but for a tidy record which demonstrates that you have done what you ought to have done. Above all, eschew the merely private or personal; feelings most especially. Such expressions would at best embarrass the staff, and at worst scandalise them.

Whatever else lack of time or pressures of other duties may lead you to omit from the report, there must always be a portion of it devoted to the analysis of errors. Here you must display knowledge of the exact arrangement and ways of combining numbers, employing those that come to hand in the experiment. To omit this formality, even on the grounds that the numbers to hand do not warrant so formidable a degree of attention, is one of the surest signs of lack of quality and breeding in a student. Avoid also any vulgar, overweening criticism of the apparatus provided, or suggestions for its improvement.

Each experiment has an answer, obtained by previous generations, which is preserved in a volume so as to aid the teacher in judging the worth of your report. Advantage lies in having arrived at an answer close to, but not identical with, that kept in the records.

VII. SOCIAL INTERCOURSE IN THE LABORATORY

The laboratory is not a place for intimate, or even merely general, conversation. Eschew all such discourse as might be appropriate between persons who knew each other sufficiently well to recall their names upon the instant (which is not, in the laboratory, to be expected), and confine any approaches to the teacher to requests for practical or technical advice or assistance.

Teachers, however, may approach students for the purpose of testing the adequacy of their response to the demands of the present task, although this requires some tact and delicacy. Should the student feel any sense of unease if such an approach seems probable, he may without impoliteness indicate this by bending more closely over his apparatus, and by busying himself with some task, such as a calculation, which it would be unreasonable to interrupt. The teacher, if he understands the conventions of laboratory society, will quietly withdraw.

At all times, both teachers and students should avoid any strong expression of feelings. Criticism on the part of the teacher, expressed mildly, must be accepted without argument. Praise is given only on rare occasions, and then only in moderation and with diffidence.

Indeed, privacy is the essence of good laboratory etiquette. An experiment is a private task, not to be discussed or shared with others, especially those assigned to the same task in a different part of the laboratory. The experiment, with carefully designed apparatus and carefully written script, should provide all that is required, either when it is wanted, or if not, in the fullness of time. One's thoughts, being likely to be premature or ill-considered, are better kept to oneself.

VIII. IMPORTANCE OF THE LABORATORY

Not to attend the laboratory is a fault, but not a grave one, with a correspondingly light penalty. The laboratory, while universally acknowledged to be essential, is but a part of a wider social scheme. Seen from that vantage point, one may take comfort in the fact that to fail to rise to its demands pales into insignificance besides more important matters, notably the need to be able ultimately, on

one or two special days, to set down on paper some 20 or 30 versions of the thoughts of others, in the generally approved form.

ACKNOWLEDGMENT

The writing of this piece was conceived as a result of reading Mary Douglas' enchanting and serious collection *Rules and Meanings* (Penguin, Harmondsworth, 1973). There the reader will find the practices of strange cultures set alongside the practices of familiar ones, and thereby much illumination of what is otherwise taken for granted in the familiar.

[1]Anonymous, *Modern Etiquette in Private and in Public* (Frederick Warne, 1872).

COURSE ORIENTATION

This two-year course is presented with the point of view that you, the reader, are going to be a physicist. This is not necessarily the case of course, but that is what every professor in every subject assumes!

–R. Feynman, *The Feynman Lectures on Physics, Vol. I* (Addison-Wesley, Reading, MA, 1963), p. 1-1.