# HOW TO LIVE WITH THE PHILISTINES

The physicist is surrounded by outsiders, be they relatives, other scientists, humanities professors or officials. He must increase his interaction with them to survive.

HENRY E. DUCKWORTH

TO CLARIFY MY TOPIC I quote the Concise Oxford Dictionary definition of the word "Philistine": "one of an alien warlike people in South Palestine who harassed the Israelites; (facetiously) an enemy into whose hands one may fall, e.g. bailiff, critic, et cetera; (in German universities) a nonstudent; an outsider; (or, in general) an uncultured person, one whose interests are material and commonplace." I shall use the word in the sense of an outsider or, I might say, a nonphysicist. Thus, a rewording of the subject for purposes of clarification would be "How to live with nonphysicists." There are, of course, many classes of nonphysicist, but I shall



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have space to refer to only a few of the principal types.

# The wife

One of the most frequently encountered cases is that of the non-physicist wife. This case is nontrivial and its crucial interaction is during the premarital or courtship period.

If a satisfactory marriage is to ensue, it is imperative at this time that the customary frivolities such as dances and movies be avoided. Instead the lucky girl should be taken to the laboratory, where she may pass many a pleasant evening watching her friend with admiration as he repairs apparatus or makes readings. A union based on such a courtship is bound to be agreeable to the physicist, provided he takes the additional precaution of including in his marriage proposal the immortal lines of Richard Lovelace (1618–1658):

Tell me not, Sweet, I am unkind That from the nunnery Of thy chaste breast, and quiet mind,

To pump and 'scope I fly.

True, a new mistress now I chase, My own on-line computer; And with a stronger faith embrace My solid-state transducer.

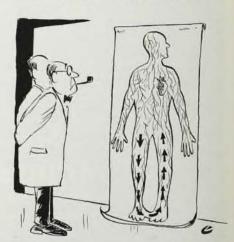
Yet this inconstancy is such, As you too shall adore; I could not love thee Dear so much, Lov'd I not physics more.



I feel that there is no basic difficulty in living with this type of nonphysicist, provided one starts out on the right foot.

### Other scientists

A second type of nonphysicist with whom arrangements for coexistence should be fostered is the professor or research worker in a field other than physics. As sciences such as biology, chemistry, metallurgy and geology become more sophisticated and approach their problems in a increasingly fundamental way, they draw increasingly on the concepts, techniques and instrumentation of physics. Many of the problems faced by nonphysicists could benefit from the active participation of physicists themselves. Thus it was a physicist who had specialized in the study of electric currents and a biologist who had specialized in the study of the heart who combined to discover the law for the circulation of the blood, namely that it flows down



one leg and up the other. Many other significant problems are only accessible if the approach is interdisciplinary. I have the impression that physicists are not as anxious to participate in joint projects of this sort as are the

practitioners of the other disciplines. Perhaps it is because the work in physics is itself so engrossing. Perhaps there is a reluctance to become involved in work that is less precise and less definite. Perhaps there is a failure to appreciate fully the unique contributions that other disciplines can make. I have been impressed, for example, by the relevancy of the problems that biologists have been tackling and by their resolute approach to them. Thus at the University of Toronto biologists are attempting to solve directly the problems arising from the population explosion by investigating methods of making birth control retroactive. In the interest of science another intrepid investigator lived for 28 days on dehydrated food. Unfortunately at the end of the period he was caught in a rainstorm and gained 108 pounds in ten minutes. I do not think that we as a group, for whatever reason, have taken an initiative in interdisciplinary research programs commensurate with our potential contribution to them. In other words, we have not fully utilized this important device for living with the Philistines.

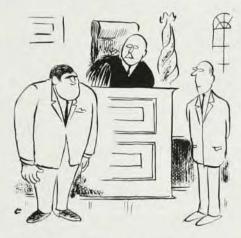
### Humanists

There are, of course, other scholarly Philistines with whom we come in contact, particularly in university communities, such as professors of English, philosophy, history and so on. In the eyes of many of these we appear as barbarians; powerful barbarians it is true, but the more barbaric on that account. An intellectual chasm is growing between physicists and these humane or semihumane nonphysicists. We were told a decade ago that the cure was a simple 50-50 arrangement: Humanize the scientists and simonize the humanists. I feel that now we must go much more than half way. There is a resentful suspicion that science is taking over, that it receives the lion's share of the pie and that the others are being forced to the wall. I do not have space here to suggest methods by which we might stem this tide, but the whole concept of a university is at issue. A group of specialized institutes placed together in order to share common toilet facilities does not constitute a university. I urge each of you to combat this divisive trend by reëstablishing diplomatic relations with this particular

tribe of Philistines and then by searching assiduously for some common ground.

## Officialdom

Next, I wish to refer to the Philistines who are in civil service or in politics. A defense counsel in a local police court once asked that his client be excused from attendance because, "in the first place, he is a man of not very bright intellect. Secondly, he is employed on important government work." In a somewhat exaggerated



way, that remark expresses the view that many scientists have of many government officials. What is the other side of the coin? It may be typified by a description recently given by a government supervisor of one of his staff: "This man is keenly analytic, and his highly developed mentality could best be utilized in the research and development field. lacks common sense." This estrangement exists between the specialist who is absorbed in his own subject and the generalist who must reconcile the interests of many different constituencies, including political ones. In financial matters it is usually the generalist who has the upper hand. For that reason if for no other, it is important that we effect a reconciliation (or perhaps a conciliation, because I do not think we have had one before). In seeking such a rapprochement, it is not enough for Canadian physicists, for example, to reiterate that we are doing vital work (unfortunately too complicated to explain) and that the support for it must be doubled or we will move to the US! I am pleased to note that in the Rose Report on Physics in Canada-Survey and Outlook the second chapter is dedicated to the topic "The Role of Physics

in Society." This is obviously written for the benefit of the generalist, and those who may be called upon to make a case to the generalist. For our scientific aspirations cannot be implemented in any general sense unless nonphysicists are convinced on the basis of their own knowledge and understanding that the means should be provided for their realization. To this end, we must study closely for our own edification and for the edification of government officials the role that physics does and should play in society. Then we must use whatever means we can devise (including petitions, cocktail parties, official delegations, fishing trips, newspaper interviews, seduction) to provide the generalist with an understandable picture of the contribution that physics actually makes. I realize that this is very easy to say and very hard to do, but its importance cannot be exaggerated. We must learn to live with these Philistines in order to survive, and we must do so by using their own idiom to transmit views that are conspicuous for common sense and complete defensibility.

You will realize that I have omitted many Philistines, including deans and presidents of universities. I have also omitted the US immigration officer on



duty at Buffalo some years ago who questioned Martin Johns and me as to our purpose for entering the US. We replied that we were going to attend a meeting of the American Physical Society, to which he commented, "You don't look very strong."

This article is based on a speech delivered at a meeting of the Sociedad Mexicana de Fisica, the American Physical Society and the Canadian Association of Physicists in Toronto last year.