The Times, February 4, 1969

Qualification gap that has to be filled

by Brian Ford, scientific consultant

Naturally, industry does want scientists—the problem is to know whether the industrialist realizes the fact. Modern industry is very much a scientific discipline. The collation of data, interpretation of their significance, and the adoption of the best course of action are all part of the basic industrial process—and this is, in essence, what science is about.

Yet there are problems, and it would be foolish to minimize them. To begin with, we cannot necessarily be sure that good science graduates are good scientists. This is widely held to be true, but it is easily shown to be a fallacy. The way in which science students are educated is still inept and misorientated in several important respects, and there is little to justify the assumption that they have been fitted for a professional career.

In short, there is a qualification gap, as I have called it: a dichotomy between the qualities selected by education and the criteria that are really useful in practice. Thus the science graduate has learnt to work to a routine, to respond to pressure (when cramming for examinations), to assimilate many facts in a short time—all qualities he would need in an industrial environment.

But on the other hand he has been taught nothing of the way of the world, nothing of industrial organization, or economic theory, or even social behaviour; he does not know how to apply for a post, more often than not has no concept of what to do at an interview, or how to conduct himself as an employee. Those are all qualities which are important if he is to succeed in industry.

Yet, by contrast, he has acquired many attributes which are totally irrelevant. Much of the learning he has acquired is forgotten within weeks, or even days, of the examination. It is wasted effort, a sterile and pointless exercise in parrotlike repetition, without any real place in a business environment—or any other, come to that.

In some areas there are now constructive moves towards an improvement. At the University of Aston, Birmingham, for example, attention has been given to the problems of education and selection of students in the department of industrial administration, with the result that continuous assessment procedures are the subject of active staff-student discussions.

In other progressive departments, too—such as the department of applied physical sciences in the University of Reading—a more flexible and soundly based system of education has been introduced which is better adapted to the needs of a useful science graduate in modern society. So there are grounds for the supposition that at last some pragmatic revision of the educational curriculum in science is going to take place.

This is naturally important to the prospective employer of a science graduate. But what of the complementary point of view? Looking from the employee's position, there certainly are valid reasons for considering an industrial career after the acquisition of a degree. Recently I have been making a study of graduates' salaries for a report commissioned by the Graduate Appointments Register, and the effect of non-scientific responsibilities on the science graduate is clear.

Graduates who work in neither managerial nor administrative posts tend to be poorly paid compared with those who carry on this kind of work. Indeed it is more remunerative in some disciplines to work as an administrator or manager in an entirely non-scientific capacity as a graduate than to carry scientific responsibilities in a non-executive role.

Figures produced by the Physics Bulletin last November, for example, showed middle salaries of £2,900 at 54 for physicists working as such, compared with those in non-scientific administrative or managerial capacities who, at the same age, average just under £3,500.

In conclusion one can state that scientists are clearly of value to industry, though whether we have yet begun to produce graduates of the right kind is questionable. Certainly the salaries, always a useful indication of demand, confirm the feasibility of industrial employment for the science graduate.