

# COMMENTARY

## THE MEN WITH DIRTY HANDS



The American Nuclear Society (ANS) has recently embarked on an ambitious promotional program to encourage young people towards graduate careers in nuclear fields. One can hardly derogate the merits of such a program, nor is it our intent to do so. The growth potential of the nuclear industry could hardly be more promising. With such growth, the need for graduate scientists and engineers will undoubtedly continue to expand. Certainly the current work of the Society in the production of a series of motivational films for high school and junior college students is proper and desirable. In addition, the efforts of some of the local sections of the Society along these lines have been exemplary.

We submit, however, that there is a much broader field to be covered than that encompassed by the present effort. We refer to the need for qualified non-graduate technicians to support the work of these future engineers and scientists.

A recent survey of the membership of the ANS disclosed that a significant number of our members are involved in the supervision of large numbers of technical people. This implies that the impact of the ANS on the nuclear industry far exceeds that which might be inferred by the size of our membership. More and more, as programs and experiments increase in complexity, the professional scientist or engineer is becoming a manager. It is simple fact that the higher one's achievement in the research or engineering fields, the more he must rely on the labor of others.

As responsible managers individually, and corporately as a professional society, we should be concerned about the maintenance of an adequate labor pool of mechanical, electronics, and laboratory technicians, plant operators, and other skilled and semiskilled workers. Without these non-graduate people, our productivity would be seriously impaired, if not stifled completely.

The early history of nuclear energy has been characterized by a sort of bootstrap operation with regard to the training of this technical work force. Literally thousands of mechanics and electricians, some with less than high school educations, have been converted to good technicians and operators by extensive and intensive in-house training programs. It has been only in recent years that a few of the leading technical schools have instituted programs leading to associate degrees in nuclear engineering technology, or the like. These programs do not eliminate the need for industrial on-the-job training. Regardless of the educational opportunities offered the technician, such training will always be required. No classroom instruction can replace the experience of doing the job in the field.

The technical school graduate poses a unique problem to the facility manager who hires him. It might be called the problem of "overmotivation" of these young people. Experience has shown that a substantial portion of technical school graduates find after all-too-short experience in industry that they are not satisfied with the role into which they have been cast. Many elect to return to school for further academic work. This is not objectionable per se; in fact, it is probably desirable, since it responds to the need for graduate engineers and scientists; but it wrecks havoc with the stability of the work force at the manipulative working level.

This effect is not to be dismissed lightly. The cost of training a reactor operator, for example, is not insignificant. The facility manager can hardly be blamed for being upset when he sees the turnover rate climb. Continuity of operational or research programs is essential to effective results, and the continuing requirement for training technicians is a serious concern.

No responsible technical manager would downgrade the importance of in-house training nor would he consider abdicating that function. Indeed, there are those who maintain that one can better convert a self-trained television repairman into an instrument technician, or a refrigerator repairman into a mechanical technician, than he can hold a technical school graduate on a job that is inherently somewhat less than intellectually stimulating. Nevertheless, many of the skills presently taught as part of on-the-job training programs are sufficiently general in application that they need not be deferred to on-the-job training after the individual has entered industry.

On the other hand, few technical schools have the financial independence to be able to install the equipment required to implement such programs. Such expensive items as hot-cell manipulators, elaborate test loops, and reactor simulators are, however, available at industrial laboratories and facilities, which are now fairly widespread geographically. It would appear plausible to investigate "shared-time" programs for training potential technicians in certain aspects of their future vocations. The idea is not new, having been in effect in a number of other industries for several years. The concept we propose is new only on the level at which it is applied within the nuclear industry.

It seems to us that the logical instruments for implementation of such programs are the local sections of the ANS, working through industrial installations in their areas in conjunction with local educational institutions—technical schools at the junior college level and vocational high schools. We are aware of the fact that excellent work has been done by some ANS local sections in this area, but the efforts have been too few, and, we suspect, somewhat limited in scope.

If the graduate engineer or scientist is the brain, then the technician is the backbone and sinew of the nuclear industry. We cannot afford to ignore the problem of his training, simply because he is not a true "professional" person; nor can we rely on formal educational institutions to do the job alone.

In addition to programs calculated to instill an interest in pursuing further academic work in the nuclear field, let us institute independent programs candidly designed to train and to hold workers at the technician level.

By its very nature, nuclear research and engineering attract the bright inquiring minds of our youth—and may it ever be thus. But let us not forget the men with dirty hands, nor fail to recognize our dependence on them.

A handwritten signature in cursive script, reading "Dudley Thompson". The signature is written in dark ink and is positioned in the lower right quadrant of the page.