

THE BLACK MAN'S PLACE IN THE TECHNOLOGY EXPLOSION

Ladies and Gentlemen, Academicians are often accused of being too theoretical and ideological, and so if I were to live up to the popular conception, or misconception, of my calling I could dispose of my topic in a few brief and moralising words: The Black Man's (or Woman's) place in the technology explosion is simply man's place in that arena. In this respect I take it as axiomatic that I am preaching to the converted, and that we all accept that Blacks should of right, and not by permit, be taking their place at the cutting edge of the high technology, and more particularly computers, that increasingly characterises the last quarter of our Century.

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So much for the theory. The plain fact of the matter, as is patently obvious to every one of us, is that the Black man is conspicuous by his absence, and is likely to remain so, except in disproportionately small numbers, in the near future, in spite of the virtual disappearance of statutory impediments to the contrary.

What are the reasons for this obvious and increasingly serious hiatus, and how are the remedies to be applied? The answers, and the relative importance attached to the various factors, are almost as numerous as the commentators. Let us consider some of them. First of all there is the genetic argument, most forcibly propagated by the notorious and much calumniated Jensen, and enthusiastically supported by Shockley, one of the "fathers" of the transistor, that most of the observed fifteen point difference in average I.Q. between the Blacks and "Caucasians" in the U.S.A. is due to hereditary factors.

This is an extremely controversial subject, with the antagonists arguing that the I.Q. tests are culturally skewed and that any objectively established differences are in effect due to cultural and educational deprivation. Let us not enter into the polemics of this situation except to observe that the controversy is of little relevance to our circumstances. Even if the theory could be established beyond argument there would still be more than sufficient numbers of Blacks in the upper tail of the I.Q. distribution to make an enormous contribution to the technology manpower pool in South Africa.

Next come the arguments based on cultural differences, and here we are on much firmer and objective ground. With no long history of intellectual scientific and technological accomplishment the Black man is clearly at a great disadvantage because of his lack of exposure to a tradition of abstract thought,

a disadvantage that will not lightly be overcome. There is strong evidence for example to support the thesis that Africans have great difficulty in conceptualising three dimensional drawings, one of the basic requirements in the mastery of many areas of technology. Furthermore, a good deal of technological exposition relies far more heavily on visual rather than aural presentation. Africans again, it would appear, rely more heavily on aural input than do Westerners.

These differences are far more likely to have cultural than physiological explanations. Without doubt other cultural behaviour patterns, such as according respect to age and length of experience rather than technological ability, have an enormously inhibiting effect on recruitment into a field where knowledge and proven ability are the chief yardsticks for acceptance and preferment.

In my view the cultural and genetic differences, if the latter can truly be shown to exist, important and inhibiting factors though they undoubtedly are, pale into insignificance in comparison with the political and educational background. Although the legal barriers to advancement are in the process of being dismantled, or at least ameliorated, the legacy will still be felt for a long time to come. In particular, the whole free enterprise economy, of which technology is one of the most important driving parts, is perceived as part and parcel of the "system" of oppression. The connection between effort and application on the one hand and personal recognition and reward on the other, is understandably not readily apparent, because until very recently it has not worked at all for the Black man.

The greatest impediment is without question the abysmal educational background Blacks experience. In recent years we have progressed somewhat from the Verwoerdian doctrine of educating the Black man solely for his station in life. Nonetheless the figures still speak eloquently for themselves. The statistics relating to Black education, financial, human and academic, are too well known and depressing for me to reiterate them at a congenial lunchtime gathering. Let me rather illustrate the point by describing the circumstances of one by no means atypical high school. Grahamstown is a well known and highly respected educational and cultural centre - for Whites. It is the seat of Rhodes University and the home of six well-known and excellently appointed white high schools, both private and provincially controlled. Let us for a moment cross the Kowie ditch and take a look at the Nathaniel Nyaluza high school in the Fingo Village. A depressing strictly functional building houses 900 pupils in standards 6 - 10, serviced by 19 teachers, only three of whom have university degrees. We have thus a senior high school with a pupil teacher ratio of 49:1.

Overcrowding is illustrated by Matric classes of 56 pupils and standard 9 classes of over 80. It is the only high school in a school circuit of 205 schools. Pupils are fortunate enough to see a teacher perform experiments in the laboratory, but they never have the opportunity to do any themselves. At one stage certain classes were without an English teacher for a month. The market for teachers is strictly limited for would-be teachers from outside Grahamstown cannot find accommodation. There is no vocational guidance and virtually no sporting facilities, a totally out of date library housing mostly obsolete donated books. Concrete floors and many broken windows which never seem to attract any maintenance do not contribute to concentration on studies in the winter months. It is from such infertile soil that we have to attract recruits into the scientific and technological fields. Those few who do survive the obstacles frequently find that it is far easier to make one's way in the administrative and personnel fields where limitations of background in the "difficult" subjects like mathematics and science are not such an impediment.

In the face of such a catalog of difficulties the prognosis is indeed a daunting one. Nonetheless we have no choice in the matter : if the South African economy is to sustain its forward thrust black recruitment into technological fields in more than token numbers is not just desirable - it is absolutely essential. Looked at constructively the obverse side of every difficulty is a challenge and an opportunity.

Short term strategies offering potentially limited success on a not very favourable cost-benefit basis seem to me to be fairly obvious. Intensive training programmes following on a very rigid selection process are already being put into effect with reasonably encouraging results, although the selection ratio is disconcertingly low. I have read of figures as low as one in forty. Another obvious strategy is job fragmentation, which has been applied

for years in a number of fields. This can make a substantial contribution, particularly in the case of large enterprises. Although this approach does yield a fairly inflexible product, this is a considerable advance on no product at all, and it can work very well, provided a leavening of more highly skilled personnel is available. In the computer field the chief programmer team approach provides a pointer, and was originally motivated through an analogy with the surgical team. In any programming project there are always a number of less demanding tasks to be performed, and a properly constituted team is well suited to the task. A chief programmer assisted by a number of less experienced programmers and supported by program librarians, testers, low level coders and the like can make a very effective contribution to the optimum deployment of available manpower, and furthermore provides an excellent supportive environment for the new recruit.

The limited successes one can expect from short-term strategies, although not particularly cost-effective, are of vital importance, not only as an immediate contribution to the manpower situation, but also because they provide role models for future recruitment. In this respect, suitable early recruits, as soon as they have gained a modicum of experience, should immediately be drafted as instructors in training projects, in order to emphasise the point that the black man is welcome in, and can make a success of technological pursuits. Clearly the initial efforts will bear greater fruit in some racial groups rather than others (the Asian groups spring immediately to mind), but this should not tempt us to abandon broadband recruitment right across the spectrum. Let us also not forget the very considerable successes that have already been achieved in the less demanding areas such as keypunching, operating and in some areas of customer engineering. People with this type of exposure to the computing environment may well prove to be one of the most promising sources of material for future training.

In the longer term, however, there is clearly no substitute for quality education, and for the foreseeable future the greatest chances of success will be found in nonracial educational institutions. Under this approach it will be up to ten years before the effect will be apparent in the market place. Education, however, is essentially a process that cannot be unreasonably hurried, and no one has as yet found a viable alternative. I put before you, therefore as a serious proposition, that the finest longterm contribution that can be made to the skilled manpower bottleneck would be to sponsor selected black students at such quality schools as St Barnabas, Woodmead and the new school about to be launched in Johannesburg by the American business community. Furthermore, do not forget the excellent institutions on our doorstep, such as Woodridge, Marist Brothers, St Dominic's Priory and just up the road, D.S.G. and St Andrew's College. Even if tax concessions are not available in this area and in these

days of rampant inflation it takes a courageous executive to take a ten-year view, I cannot imagine a finer long term investment and a firmer vote of confidence in our future. At the same time let us not forget the plight of such schools as Nathaniel Nyaluza and comparable institutions. Bringing them up to the mark requires an even longer term perspective, and tougher battles with officialdom, but it must also be accomplished if South Africa is ever going to enjoy the prospect of making proper use of its rich and varied human potential.

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23 May 1980