

ally work the world, when he comes, as he should, to swiping at them.

However, Mr Ford is witty and enjoys playing with words. I liked, for example, his transformation of "integrity" into "considered circumspection". He makes his own contribution to the language of Nonscience (which only the expert can understand, of course): for being concerned with what gets you into the public eye he coins the word "fashionism" — in true Nonscience language, "quasi-notional fashionistic normativity". (No prize for recognizing the true language of the social sciences!)

The body of the book consists of chapters along the way, for the expert, from training to fame. They tick off some highly recognizable ploys for scoring in examinations, for getting a PhD thesis accepted, for writing an eye-catching first paper and so on. Nonsciencemanship or sciencemanship, depending on which way you look at it. There is a historical section, which to me seemed rather strained, where he demonstrates that discoveries and inventions made by men whose names every schoolboy knows were made earlier by other men whose "quasi-notional fashionistic normativity factor" (quFN Factor) was just too low. Coming to some of the experts *de nos jours*, he has very tasty things to say about, for example, Professor Christiaan Barnard and Dr Desmond Morris. (The piece on "transplant fashionism" is deliciously well researched.)

The book ends in a hail of miscellaneous swipes, some of them about as significant as shying at coconuts, others — for example, on current sex education — based on thoroughly sound human feeling. After that there's an examination paper which tests the reader's capacity for making the grade as an expert. To sum the book up: for my money there's too much of it, too many shallows between the occasional deeps. That's on the one hand. On the other, it would be ungracious of me not to say it made me laugh and Mr Ford's point is worth taking. And if he is lucky, he may plant his word "fashionistic" in current speech. WILLIAM COOPER

## Arms Control

*Impact of New Technologies on the Arms Race.* Edited by B. T. Feld, T. Greenwood, G. W. Rathjens and S. Weinberg. (A Pugwash Monograph.) Pp. xvi+379. (MIT: Cambridge, Massachusetts, and London, April 1971.) \$12.50; £5.85.

Most conference reports make for rather loose-jointed books and this one, a symposium on technical aspects of the arms race, is no exception. However, the tenth in a series of International

Pugwash Symposia, held at Racine, Wisconsin, in mid-1970, features some chapters of very direct bearing on control of the arms race. Two chapters in particular merit attention—the first on ballistic missile guidance, and the second on the restriction of research and development. These two issues are of paramount importance in the control of modern armaments and illustrate the grave difficulties which seem to insinuate the Strategic Arms Limitation Talks (SALT).

D. G. Hoag, director of MIT's Apollo Guidance and Navigation Program, has given a very authoritative 105 page exposition of missile guidance technology. The significance of this ICBM development is lucidly stated as follows:

"The development of high accuracy in ballistic missiles may be interpreted as an intent to achieve a first-strike capability by which an aggressor, by firing first, can destroy his adversary's weapons and ability to respond in retaliation. The development of high accuracy coupled with a multiple-warhead capability may appear even more sinister."

The US development and deployment of MIRV-missiles (multiple, independently targetable, re-entry vehicles) thoroughly confuses the arms race, raising both quantitative and qualitative problems for arms control. How many warheads (MIRVs) are aboard each missile? What is the quality of the missile guidance system?

Any dependable answer to the first question must inevitably boil down to on-site and, in fact, in-silo inspection. It is complicated by the fact that the Soviets have yet to deploy any MIRVed SS-9s (their heavyweight inter-continental ballistic missile); thus the inspection problem is asymmetric.

As for the question of warhead accuracy, the answer is filled with dilemmas as illustrated by Hoag's observation: "More accurate systems are almost certainly coming, and when they do come we may not know for sure that they have arrived". One could go a step further and assert that, since quality cannot be inspected, an enemy is driven to the worst assumptions. Fear of a first strike overdrives the arms race and the inability to delimit quality of a strike system solely taxes the ability of those who would reach agreements on strategic armaments.

Arms controllers are always nervous about what may pop out of the research and development oven. Any agreements they may promote may be sabotaged by weapons zealots, who prematurely disclose advances which may take place. Jan Prawitz of Sweden's National Research Institute of Defence contributes an incisive com-

mentary on restricting research and development in which he concludes:

"There is, therefore, no general way of controlling military R and D, as this control would sometimes have to deal with the intentions and thoughts of individual scientists. In specific areas, however, practical measures might be envisaged."

He suggests one—the nuclear test ban (where, alas, the treaty has not slowed the clock of weapons technology) and another—a MIRV test ban. The latter is no longer feasible because of the asymmetry in Soviet and US testing and it seems that MIRV is a runaway technology which will elude the grasp of the Strategic Arms Limitation Talks.

The United States appears to be racing itself, not competing with the Soviet Union, as it seeks to exploit military technological opportunities.

RALPH E. LAPP

## Abstracts

*Abstracts and Abstracting Services.* By Robert Collison. Pp. 122. (Clio: Santa Barbara, California, and Oxford, May 1971.) \$4.75.

THIS book gives a fairly wide survey of the history and current practice of abstracting, and deals with the nature and style of abstracts, the writing, editing and indexing of abstracts, as observed in practice, and to a lesser extent their publication. There is a special chapter on the early history of reviews and abstracts; present services are also rapidly scanned, and there is an appendix of some five hundred titles; there is also a useful reading list of papers on the subject. There is a two-page chapter on the possibilities of mechanizing abstracting. The index covers mainly authors and institutions, but otherwise not more detail than section headings.

The writing is straightforward and clear, although in parts of the book the descriptions are far too much like a catalogue, instead of an informed discussion. The examples, and hence the rather limited discussions, are largely taken from the humanities and social sciences, with relatively few references to scientific and technical journals (though the appendix lists more). Considering that the big developments in modern abstracting, the major demand, and the outstanding examples of abstracting services have been in the scientific and technical fields, the imbalance of the book's approach becomes increasingly obvious. *Chemical Abstracts* is given three or four minor mentions (chiefly in the "early history"), and its innovations in production and outstanding indexes, as well as the tape versions, are not described at all. POST is listed, but not CBAC. *Bulletin Signaletique* is mentioned, but not the