Race, Benedict insisted, is a biological fact; it can be studied using ordinary laboratory techniques. One's 'race' is genetically determined at conception, just like one's sex. The investigation of race and racial differences is a laudable enterprise, for it can teach human beings more about themselves and Benedict was sanguine enough to believe that self-knowledge was a salutary goal. Despite the biological reality of race, however, she pointed out that scientific efforts to divide the human species into particular races could never yield any universally satisfactory result, because of what she called the 'mingling of peoples'. The nature of history was such that 'pure' races do not actually exist, and the larger racial grouping (such as tripartite division into Caucasian, Mongoloid and Negro), the fewer the physical characteristics which can be more or less consistently accommodated. Further subdivision permits the taxonomic inclusion of additional characters, but at the price of an increasing number of anomalies.

Two particularly cogent themes emerged from Benedict's reflections on the nature of race and racism. First, she was firm that there was no evidence of a difference in intelligence between the various races. Variation in performance on intelligence tests she attributed entirely to cultural or social factors. For instance, some cultures hold that it is impolite to answer a question unless one is absolutely and unassailably certain. Members of these groups will uniformly score badly on conventional intelligence tests. In other cases, scores improve dramatically when the children of a race (e.g. Black Americans) are offered the social and educational opportunities of the Northern United States, instead of the South. She did not discount the possibility that there are significant genetic components to intellectual capacity, but individual variation was so great and human beings so culturally pliable that generalizations based on race were meaningless. She based her statements on research done in the 1930s, but modern readers will find her discussion topical.

A second theme addressed the issues surrounding the rise of Nazism and the 'Aryan myth'. Her point, argued primarily from history, was that racism (the notion that one group has the stigmata of superiority and the other has those of inferiority) was a relatively modern phenomenon without biological foundation. It was, as she put it, the 'new Calvinism'.

Although Benedict wrote as a scientist, her inclinations, one senses, were really

those of a humanist. (It could be argued that the two designations are not incompatible.) She had a passionate commitment to human dignity and equality, and four decades of debate and research have done nothing to detract from the essential core of her analysis.

A foreword by Professor John Rex puts this little book into contemporary pers-

pective, and two statements on the biology of race prepared in 1964 and 1967 by scientists convened by UNESCO round out the volume, which retains interest both as a period piece and as a clear exposition of its subject. □

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Neural counterpoint

Steve Blinkhorn

The Throwing Madonna: Essays on the Brain.

By William H. Calvin.

McGraw-Hill: 1983. Pp.253. Hbk \$13.95; pbk \$7.95.

SOME see popular science as simply the dissemination, in a stripped-down form, of what one might call regular science. 'Sexy' science has a simplified outline. There are many styles in which this is done, from Scientific American didactic, through Cousteau's heavily personalized 'denizens of the deep' approach to Reader's Digest 'I am John's lateral geniculate nucleus'. On the other hand there is a genre which seeks to dance a light-footed counterpoint to regular science, to act not merely as a means of transmission but to add to and cast into new perspectives what lies unloved by all but a few in the more impenetrable journals.

The Throwing Madonna is a case in point. If one can get past the title and stomach the overly self-conscious, occasionally arch and always unlovely prose style, one finds a thesis advanced, a point of view explored and a deal of loosely related material drawn together by the overall theme of "Essays on the Brain".

The thesis, that handedness, stone-throwing, the development and control of language and the practice of mothers carrying infants on the left arm, are linked in the origins of our species belongs to what one might call speculative evolutionary paleoanthropology. This is a field refractory to attempts at empirical disconfirmation, and rich in connotation. It is the world of the artist's impression, in which hominids more hirsute than ourselves are busy inventing tools in the foreground, whilst in the background still more hirsute apes look on uncomprehending, but somehow sullenly envious. Calvin's peculiar merit is that he pursues his thesis into the structure and function of the cerebral cortex of modern man, in a way which holds out the distant prospect of a solid evidential basis for his ideas.

Once into the modern brain he is considerably more at home, examining the relevance or otherwise of the digital computer as a metaphor for the brain,

dislodging the action potential from its preeminent place in the process, and ranging over tic douloureux, schizophrenia and the inadequacy of funding for research in his subject. But all too often one finishes an essay with a sense that more might (and should) have been said, and the considerable unevenness of style suggests that if the book of essays has indeed reached maturity as a form, then Calvin is not its most practised exponent.

There is a point of view that works such as this are essentially disreputable, a kind of intellectual self-indulgence which has no place in the rigorous world of science. The contrary view, that it is in the less disciplined exposition of ideas which ultimately drive more rigorous research that the sense and direction of science are found, receives some support from this at times engaging collection. It is a modest product, worth its modest price. □

Steve Blinkhorn is Director of the Psychometric Research Unit, Hatfield Polytechnic, UK.

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