The Spread of Antarctic and South Pacific Research Behind the *2002 Hunter Award*

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This article brings together the publications that comprised my successful submission for the New Zealand Psychological Society's *2002 Hunter Award*. One publication summarizes a number of projects on human adaptation to Antarctic conditions, and the others relate to stress/trauma assignments in the South Pacific. In comparison with the achievements of the pioneer in whose name the award was established, the collection makes only a slight contribution to the accumulation of knowledge - although the first does happen to be an appeal for the adoption of a general systems theory of which Sir Thomas Hunter might have approved, and the others (concerned with helping people to cope with the substantial demands imposed on them by different kinds of catastrophe) might not have escaped his attention (Taylor, 2003a).

A long-term professional interest in the rehabilitation of offenders, together with the good fortune to sit at the feet of the ethnopsychologist Ernest Beaglehole at Victoria University of Wellington, and a chance encounter with the versatile experimentalist T.H. (Harry) Scott on his return from his PhD studies at McGill University, generated my commitment to human adaptation to different environmental and human stressors that has lasted almost a fifty years. Much of the resulting research output was sketched previously in valedictory papers on retirement from academia (Taylor, 1991a; 1991b, 1991c; 1991d: Lane & Taylor, 1991), but the latest Antarctic publication developed from an invited address to the First All-India Conference of Physiology held in New Delhi in 1995. The others were an extension of my clinical studies of casualties of disaster stress (Taylor, 1989a).

The Antarctic paper was written simply as a plea for more researchers to adopt an interdisciplinary approach in the design and conduct of their studies (Taylor, 2002a). The invitation to digress on the theme came my way,

because of research that I had undertaken in the Antarctic from 1967 to 1982 with the Antarctic Division of the Department of Scientific and Industrial Research (Taylor, 1987) and from 1983 -1988 with Greenpeace (Taylor, 1989b[1]; Taylor, & Brown, 1994). At the time the Indian Antarctic Research Programme was bearing fruit (Sachdeva, Naidu, Chhajer, Rai, Sandaresuan, 1994), and its promoters wanted to consider the conceptual and methodological issues they might encounter before embarking on a more ambitious plan for a more comprehensive investigation of human adaptation to polar conditions: the researchers were from the conventional scientific tradition that was more laboratory-based than clinical, naturalistic, and observational, but they accepted Crick's (1994) trenchant criticism of reductionism, and they were inclined to favour the early Baconian commitment to the integration of knowledge rather than to its fragmentation (Colverson, 1989).

To give but two glaring examples of such fragmentation, a group of productive biological researchers conducted isolation studies in a

specially constructed *Tier Bunker* facility at the Max Plank Institute at Amersee in Bavaria in the 1960's, and they measured carefully the dietary, hormonal, and gross body movements of their subjects for a month at a time (Aschoff, 1965; 1981). But from discussions on site in 1975 I found they ignored totally the cognitive and emotional responses of their participants, and they saw no need to conduct follow-up studies that might have led them to identify any adverse side-effects of the kind that Bexton, Heron, and Scott (1954) had found long before. Then, when visiting the library of the Johnson Space Center at Houston in 1987, I found that NASA had ignored behavioural science completely in its preparation for long-duration space flights, except for discerning the preference of its crews for capsule-windows and bulkhead decorations (Taylor 1989c). In fact the entire four and a half year Skylab Project (Johnston & Dietlin, 1977) that was designed to test the broadest sense of survival and the ability of humans to live effectively in apace stations, involved not one single psychological component. Instead, the assembled team of biomedical scientists adopted an exclusive bio-engineering approach as they addressed the shifts of body fluids, and changes in muscular tone, vestibular balance, orientation, sleep patterns, and circadian rhythms of their astronaut subjects up aloft. They assumed that humans could perform effectively for long periods in space if their physical health were properly maintained and their bodily needs were satisfied. Although they were leading laboratory physiologists, they had not caught up with the 1948 WHO declaration of health and wellbeing as having mental and social as well as physical components.

For me, encountering such perceptual constriction impelled a rare excursion into epistemology – the philosophy of the process by which knowledge is acquired – in search of pointers to the way ahead. As a result I became an advocate for the widespread adoption of a robust, flexible, and all-embracing system for the acquisition of knowledge known either as General Systems Theory (GST)[2] or Living Systems Theory (LST) (Taylor 1991a). Although there are different versions of such a theory, in essence their common aim is to encourage collaboration rather than competition between researchers, and to promote the integration rather than the separation of empirical findings from different domains of intellectual and empirical inquiry. Enthusiasm to separate the domains and variables, experimentally had led many scientists to ignore the compounding or moderating effects of any combination of variables and to set up intra-disciplinary as well as inter-disciplinary status hierarchies that created unproductive tension.

According to Mandel (2002), general system theory can be traced to the 6th Century BC Chinese Philosopher Lao Tzu and to the early Greeks, but it languished over the centuries as scholars narrowed their fields of inquiry to intensify their focus and to give priority to particular sectors. Fifty years ago Bertalanffy (1951) revived the theory with a grand formulation that promised ultimately to combine the disparate findings from studies of cells, micro-organisms, organs, organisms, group dynamics, and community life. In 1987 the polymath Miller (1990) extolled such an all-embracing attempt at a conference at the Ames Space Centre in Silicon Valley, when NASA was in the throes of modifying its biomedical support for astronauts. He went on to describe LST as 'an integrated conceptual approach to the study of biological and social living systems, the technologies associated with them, and the ecological systems of which they are all part', and he described the goal of research on LST as collecting data 'to make deductive tests of hypotheses derived from inductive, integrated theory'. Among the supporting papers at the same conference were some that exemplified the application of the very theory he espoused – i.e. those stemming from the International Biomedical Expedition to the Antarctic (IBEA) (Rivolier, Goldsmith, Lugg, & Taylor, 1988).

The IBEA was a comprehensive, extensive, and expensive project constructed solely for the purpose of studying human adaptability to the hostile climate of Antarctica. Organised under the auspices of a Working Group of the Scientific Committee for Antarctic Research (SCAR), it sought the answers to questions from clinical medicine, physiology, psychology, and psychophysiology that might have a bearing on the effects of geographical isolation and group insulation. Overall, the search was for a general factor of bio/medico/social stress. It involved a range of field studies in French Antarctic Territory as well as a non-stop day and night battery of before and after laboratory studies in the Commonwealth Health Laboratories in Sydney. It had naturalistic, psycho-metric, and experimental features that involved both within-group and between-group effects.

Following McGrath (1970), the IBEA defined stress as the substantial imbalance between demands that were made and the ability of individuals to respond. In the laboratory, the demands consisted of a routine of cold baths and noradrenaline injections for a randomly obtained experimental group, to see if they might induce better acclimatization to the cold as compared to untreated and matched controls. The variables under detailed consideration included blood-flow, blood and urine content, dietary intake, growth of skin flora, perspiration and heat flows in hot chambers, perimeter body chilling, heat exchange, respiratory capacity, shivering in cold chambers, oxygen volume output, reaction times, sleep patterns, decision-making, symptom development, personal perceptions, attitudes, interpersonal behaviour, and group relations. Samples and responses in the different research domains were taken at predetermined times according to a complex schedule of programmed activities. The data were recorded through appropriate biochemical, biological, chemical, electronic, electrophysiological, observational, photographic, and psychometric instrumentation and procedures, and the results were made available for the use of every researcher involved in the project. In the field, all participants were exposed in randomly allocated and changing pairs to the same climatically hostile Antarctic environment and rigorous living conditions during a six-week traverse across the Polar plateau

on motorized toboggans and sledges.

The key participants were 11 biomedical scientists from general medicine, physiology, and psychology and a technician who serviced their equipment. During the before-and-after phases of the project they were augmented with about the same number of biomedical staff to assist in the conduct of their labour intensive experiments They were drawn from five different countries, and they adopted English as the common language because it was the mother tongue for eight of the twelve. For logistic reasons they alternated their roles between conducting their own experiments and serving as subjects in the experiments conducted by their colleagues.

Suffice to say, the results showed that the incidental, intrusive, and invasive procedures involved in the experimentation had a greater impact on individual and group performance than the frigidity of the Antarctic climate (Rivolier, Goldsmith, Lugg, & Taylor, 1988, ch. 7). The cold baths had only a temporary effect in facilitating the adaptation of the experimental group to the frigid temperature in Antarctica, and the stringent conditions imposed on the group as a whole evoked few decrements – except in terms of personal and interpersonal relationships. The most serious of the personal reactions induced clinical depression in a subject that caused him to be evacuated from the field – the probability of which had been predicted. The most serious of the interpersonal reactions led a few subjects to plan to sabotage the invasive experiments for which a particular scientist was responsible. Such adverse reactions raised questions about the need for stress researchers in similar studies to monitor the effect of their own interventions in addition to those which might occur experimentally (Taylor & McCormick, 1987).

Despite its shortcomings, the IBEA broke the ground for interdisciplinary and international research on projects in hostile environments, including the US space research programme (cf. Stuster, Bachelard, Suedfeld, 2000: Suedfeld & Steel, 2000: Harrison, 2001). However, other isolation researchers in Norway purporting to be on a similar interdisciplinary project (Bonting, 1993) subsequently made little mention of adapting their methodology in their report of a 28day study of six subjects in a submersible (Taylor, 1997). Although those experimenters purported to have adopted an integrated design, they kept their intellectual distance from each other as physiologists, psychologists, telecommunication experts, and toxicologists. One particular group of physiologists in the study, (Gunga, Maillet, Kirsch, Röcker, Gharib, & Værnes, 1993), complained of having to jostle for priority, search for a niche in a complex programme of activities, delegate measurement to 'trained laymen', and 'even then to co-operate with all these other colleagues whose data will merge with (their) data'. They went on to complain of the difficulty they had in determining whether psychological or physical factors were ultimately responsible for the changes they observed – as if to imply that no psychological variables would be operating were no psychologist to be involved in the research project! To a detached observer, their continuing search for the single 'ultimate' factor – the Holy Grail for early 20th Century scientists – confirmed that reductionism dies hard. It raised questions about the need for universities to modify their bio-medical and behavioural science curricula to incorporate interdisciplinary methods for solving problems of complex behaviour; fortunately a ginger group operating under the auspices of the International Society for System Sciences now seems to have the matter in hand (ISSS, 2002).

But even researchers with a real multidisciplinary commitment rarely have access to sufficient personnel, equipment, facilities, and funding to help them meet every situation that arises. For example, although in the 1970's with the help of the Medical Research Council I was able to include studies of problem-solving, taste perception, EEG recording, and reaction times in a project with Antarcticans who had wintered-over, at the time of the 1979 aircrash on Mt. Erebus it was not possible for me to do more than to use standard clinical interviews and standard rating scales with the emergency personnel that had been drafted there to pick up body-parts (Taylor & Frazer, 1981). The particular omission of blood and urine samples from the recovery parties for the analysis of catecholamines and glucocorticoids as markers of stress, led a psychophysiologist at University College in London to chide me for presenting results that he found less than convincing – although when challenged he did admit that he was a laboratory worker who had never made such requests from participants in such emotionally traumatic and physically inclement research conditions.

Among other outcomes, the Mt Erebus tragedy led me to develop a classification scheme for disasters and their casualties that brought many scattered clinical reports into a manageable conceptual framework – the latest of which carries entries for 'complex terrorism' and 'corporate malfeasance' (Taylor, 2003b). It also led me a) to reflect on the protection that many emergency workers adopted spontaneously to help them cope with the demands of body-handling b) to regard non-declarative memory as a target in the treatment of trauma casualties, particularly in a cross-cultural setting (Taylor, 1998b), and c) to consider the type of psychological first-aid that might be appropriate for post-disaster work and the kind of organisation that might best be developed to offer it (Taylor, 2002b).

The protection adopted spontaneously by emergency workers, consisted of regarding body-parts as objects with which they were familiar, such as broken dolls, waxworks, jigsaw puzzles, and meat from the deep-freeze. The cognitive transformation helped them to hold their emotional reactions in check as they completed their gruesome task on behalf of the families of the victims and the whole community to identify the dead, and from their pattern of injuries to discover the cause of the tragedy. Talking about such matters afterwards, helped them to bring their emotions into play and then begin to recalibrate their experience.

The immediate aim of health professionals was to create situations that would allow people to ventilate their tangled feelings and reactions in such a socially-acceptable manner as

they were able, and in the process move towards regaining their self-control (Taylor & Frazer, 1982). The benefit seemed to be enhanced when accompanied by a remedial programme in which stimulants are avoided, exercise is encouraged, social supports are utilised and life styles are re-examined (Davis, Eshelman, & McKay, 1998). The process appeared to prevent memories of trauma becoming embedded in the psyche, the adverse psycho/neuro/endocrinological effects of which are now coming under laboratory scrutiny (van der Kolk 1996: Ursin 2000). As a result, the protections and procedures are being discussed with emergency personnel who might be required to recover mutilated bodies, and even with students in the health professions that show anticipatory anxiety when beginning classes in pathology (Hancock, Williams, & Taylor, 1998).

If at one time I followed Erikson (1968) in perceiving the main crises that people faced as those arising at their personal phases of developmental adjustment, since the Mt Erebus aircrash I have given more prominence to crises arising from disasters. For this purpose disasters can be defined as external events that seriously overtax the ability of individuals and their communities to respond with the resources available. Often they shatter the lives of those that are directly involved, destroy their familiar pathways to meet personal needs and responsibilities, and bring sharply into focus the meaning and purpose of life. Thereafter the recovery occurs in stages that tend to be predictable (cf. Young, Ford, Ruzek, Friedman, & Gusman, 1998). First comes the *heroic* phase of arousal in which individuals attend to whatever task has to be done. Then in sequence follows the *honeymoon* phase of sublime optimism, *disillusionment* as reality sets in, and finally *restabilisation* as a semblance of normality returns. Should the initial disaster impact be massive with concurrent fear of recurrence, as with the terrorist attack on the twin towers in New York on 11 September 2001, the initial phases are less pronounced, with despair accompanying disillusionment, and restabilisation being long deferred (Gold & Faust, 2002).

In assessing the provisional levels of adaptation of individuals and communities to their immediate post-disaster situations, health professionals have to attune their expectations accordingly as they apply conventional criteria to (Taylor, 2002c). To guide them they have the WHO (1986) definition of health as a complete state of mental, physical, and social well-being when making judgements of a triage kind about a casualty as being either beyond immediate help, able to respond to help, or in no need no help. Casualties in the first category are in too serious a state to manage without complete hospital care. Those in the second appear to have retained sufficient strength of personality to benefit from any short-term assistance they might be given to help them reflect on their situation. Those in the third category have weathered storms before and have sufficient resilience to offer support to others.

However that orientation to disasters and the guidelines were generated by health professionals in the developed countries of the world, and there is no certainty that they would apply to people experiencing catastrophe elsewhere (Marsalla, Friedman, Gerrity, & Scurfield, 1996). But, publications by indigenous clinicians about their work at home is scarce (cf. Wagner and Tan, 1971; Ohaeri, 2000), and apart from deVries (1996) and Lindner (2001), the experience of European clinicians working abroad with trauma casualties in other cultures is not well publicised. However Mollica, Caspi-Yavin, Bollini, Truong, Tor, and Lavelle (1992) did find that they had to adapt their concepts and therapeutic techniques in their work with traumatised refugees from SouthEast Asia arriving in the USA, and their efforts led to the inclusion of a glossary of culture-bound syndromes in DSM IV (1994, pp. 843-849). Yet Thakker and Ward (1998) found that cross-cultural conceptualisation not entirely acceptable, and Korolenko and Muhamedzanov (2001) found it incomplete. Most recently the World Health Organisation (WHO) (2003) gave some helpful advice in the matter by offering universal guidelines for mental health workers facing

emergencies in the less economically developed parts of the globe.

Pacific Transfer

Personally, as a student of Ernest Beaglehole I was obliged to think cross-culturally and to put ethnopsy-chological concepts into practice when working in the Courts, Prisons, the University Counselling Service, and Psychiatric services (Taylor, 1968; 1991b; 1997). But the matter came to prominence for me most recently during three recent post-disaster assignments on which I was engaged in three different South Pacific countries – the first of which involved the assessment of the viability of a community of about 600 people on the tiny atoll of Manihiki in the northern group of the Cook Islands that had been overwhelmed by a 30 metre wave during a cyclone with the loss of 20 lives (Taylor, 1999). The second focussed on the traumatic repercussions from a tragic fire that broke out in the locked dormitory of a school in Tuvalu with the loss of a Matron and 18 of her pupils (Taylor, 2000), and the third on the con-sequences for parliamentarians, their families, and their staff that were taken hostages during political strife in Fiji (Taylor, Nailatikau, & Walkey, 2002).

In all three instances there was insufficient time before departure to do more than obtain logistic briefings, collect a few robust clinical rating scales, and get orientated by officials who knew the cultural situations and the key people there. In each case the customary search for scholarly material on the culture, language, and history of the countries had to be deferred until after the event. But in each place, immediately on arrival it was possible to solicit the help of local medical personnel as participants in the different projects. Subsequent encounters with numerous casualties in all three places confirmed the familiar display of different post-traumatic anxiety reactions, with the typical symptoms of intrusion, avoidance, and arousal. But they also raised questions about the rigidity of the diagnostic procedure that made no allowance for traumatic symptoms of Acute Stress Disorder that, while still being severe after four weeks, were diminishing and not likely

to warrant the diagnosis of PTSD.

It would have helped in each place had there been ready-made translations of conventional rating scales available that had been standardised with normative data drawn from the local populations: attempts to undertake this later in Tuvalu were not successful, but those in Fiji were completed and have been submitted for publication. However in each country it soon became evident that the reactions observed had to be seen in the emotional and social context of extended family and community groups, and within the cognitive frameworks of deeply held religious beliefs. As the anthropologist Danielsson (1956, p.89) pointed out, in Polynesia (ie. Manihiki and Tuvalu) the casualties were more firmly obligated to their kinship networks of quasi parent-child relationships than would be the case with families in many places in the Western world.

There, uncles and aunts had the authority of parents over their nephews and nieces, cousins were like brothers and sisters, and grandparents had much of the responsibility for bringing up the infants. The extended families shared their prosperity and hardship in the mostly subsistence economies, and, because there were no state social welfare systems to which the impoverished could turn for help, they turned to their tribal affiliations and charitable neighbours when they were in dire need. But the obligations were double-edged, because while the extended families provided a vibrant network of social support for their members, they also spread the intensity of suffering and grief further than in cultures based on the more restricted nuclear family structure.

Here in New Zealand the question arises as to how Europeans, urban Māori with tenuous iwi connections, and Polynesian immigrants, to say nothing of the many other groups that make up the entire population, might either revive their extended family structures or create viable surrogates for mutual support. Immediately, the Māori model of restorative justice and wellbeing that involves the wider family in the reformation of young offenders comes to mind as having relevance for the

treatment of trauma (Hudson, Morris, Maxwell, & Galaway, 1996: Shore, Wirth, Cahn, Yancey, & Gunderson, 2001).

In bicultural Fiji the situation for casualties differed from that in Manihiki and Tuvalu, because the disaster they were experiencing was a continuing event rather than one having an immediate impact from which they could begin their recovery work. It also split rather than united the whole population, making the families withdraw into their ethnic groups. In particular some of the Fijian-Indians hostages made themselves virtual prisoners in their own homes with their immediate families around them, waiting anxiously for good news on the radio or television. They did not feel safe to move ahead psychologically and work on their experience until the 56th day when their loved ones were released from the Parliament buildings in which they had been held. Even then they could not be at all sure that they had a future in the country in which they were born. Unlike the survivors of other types of disaster, they had no support from a grieving nation and the international community. Their sense of belonging had been jeopardised seriously in a way that seemed quite undeserved – and the deprivation brought to my mind a consideration of justice – civil, criminal, and social - as a basic human need instead of being construed merely as an extraneous factor either in the development of conscience for the individual or in the bonding of groups, communities, and nations (Taylor, in press).

Religious beliefs

Although the briefest acquaintance with ancient and contemporary history challenges the notion that religion necessarily brings peace and security, the casualties in all three countries were strengthened by their religious affiliations. From such sources they invoked examples, texts, and phrases that encouraged them to cope either with the aftermath of a completed traumatic event or with the continuing saga of intimidation, threats, and extreme uncertainty. Their devotion raised questions about the fundamental nature of beliefs in the resolution of

trauma, and the neglect of the topic in formal clinical training – to say nothing of its avoidance as a topic of conversation in the general population at large back home here in New Zealand.

Yet in Manihiki the particular religious attribution the clergy presented to explain the onset of the calamity had to be questioned, because it seemed clinically to compound the anxiety and grief of many survivors. Instead of being emotionally supportive, the representatives there of all four of the recognised Christian churches, in true early 19th Century fundamentalist Missionary style, interpreted the inundation as a punishment from a wrathful God for the moral transgressions of the community (cf. Gutch, 1974). Consequently they obliged the survivors to search their souls for the moral transgressions that, according to their teaching, would have brought the tempest upon the island. The clergy had yet to grapple with the necessary conceptual tension between religion and science, with the avant-guarde of the one offering provisional explanations for physical events until supplanted by empirical facts, and those of the other accepting the place of subjective experience in the interpretation of events (cf. Geering, 1994). They certainly had no notion of El Nino as being a more likely explanation for the inundation they suffered than that which they took from the book of Revelations.

In such circumstances it seemed sensible if controversial to question the clergy about the way in which they balanced their theological explanations with the scientific, and to provide explanatory posters with alternative explanations for the occurrence of natural disasters that the Ministry of Civil Defence and Emergency Management in New Zealand had prepared in Polynesian languages for its local population (Taylor 2001a). The intervention was controversial, because in any post-disaster setting it is not normally the function of trauma therapists to try to question the basic religious or non-religious belief system of any ethnic group. Rather their job normally is to work within the given cultural parameters of a population in

helping to relieve symptoms and promote healing, no matter under what particular system of belief a community might be operating.

Fortunately the clergy in Tuvalu took a liberal stand with their theological interpretations by asserting that the dormitory fire was not an act of God, a *Kole fakasola*. They declared that it had been a pure accident, a *fakalavalava* – even if they did not go so far as to mention the legal concept of *force majeure* that the insurance industry uses to attribute an unforeseen event to an act of God! They went further and asserted that the behavioural reactions of the bereaved were within the normal range, rather than a sign of madness, a *fakavalevale*. Unlike their colleagues in Manihiki, in offering such a supportive explanation they did not add to the emotional turmoil of their congregation by playing on its supposed guilt. Instead they used the supportive strength of the New Testament scriptures to help the bereaved to come to terms with their grief. But because there was a widespread belief in Tuvalu about the existence of ghosts and evil spirits associated with the dead, it seemed appropriate for me to ask the clergy to consider what it might do to exorcise them.

In Tuvalu ghosts and spirits were said to arise from graves on the third day and come under the spell of the devil unless protected by the families of the deceased. In the present instance it was said that the risk of their causing malevolence was greater than usual because circumstances had prevented the bodies from being returned to the care and protection of the families in their home islands. Such beliefs were reported to be pre-Christian, and to be passed down as a blanket prohibition for warning the younger children not to misbehave and the adolescents not to roam at night. Like many a primitive admonition, the fear of ghosts carried through the population into adulthood, and after the fire it affected several of them adversely[3]. One man was so convinced of hearing a ghost call at night that he brought in his relatives to sleep in his house, and he put his own mat in the centre of the whole family as he had done during his childhood when he was frightened. Another was so

terrified of working alone on his vegetable patch in the bush that he cut short his home-leave to return to his job abroad. Similarly a woman was quite unable to fulfil her evening duties in the village because of her fear of the ghosts at the school, and she obliged her family to shift away. Several adolescents also developed night terrors and needed to be escorted by their parents to the outdoor toilets.

The spectre of malevolent ghosts instilled such fear that there was talk of abandoning the school at which the victims were buried. Had that happened there would have been serious repercussions, because the school was the only post-primary school in the remote island chain, the brighter students would have lost the opportunity to compete for higher education abroad, their job prospects would have been adversely affected, and they would have had more of a struggle later to provide security for their parents in old age as their culture demanded.

To their credit the clergy in Tuvalu responded to the challenge, and in their sermons and pastoral work they put the spirits into a workable theological context. At the behest of schoolchildren who swore they heard the voices of ghosts over the mass-grave, one Minister made an appeal to the ghosts in public to implore them to let the deceased to rest in peace and not to trouble their friends. About the same time several students were seen to be sitting near the grave and were heard talking to those that had died. Wisely, their need to feel able to approach the grave rather than to shrink away from it was borne in mind by those that designed an appropriate permanent memorial for the site. Certainly a year after the event there was far less fear of ghosts and spirits expressed by the whole community than there had been around the time of the tragedy – moreover by then the school roll had increased, rather than decreased as originally had been feared[4].

The religious situation differed somewhat in Fiji from that in the other places, because of the co-existence of Christianity, Hinduism, and Islam. As elsewhere in the South Pacific, European Missionaries took

Christianity to Fiji early in the 19th century, and the Indians brought the other religions from 1874 when they were indentured by the British Colonial Government to grow sugar cane. Subsequently the different religions seem to have operated harmoniously, and they were often held up as an example for people elsewhere in the world to follow. Certainly the differences were not raised in justification for either of the two political coups that occurred in Fiji in 1987 or the third in May 2000. More at issue was the reluctance of the indigenous Fijians to extend full political equality to the ethnic Indians, and their fear that despite Constitutional assurances they might lose control of their land (cf. Lal, 2000). But a few Ministers in the Christian Church were more partisan, and they aligned themselves publicly with the rebel leaders and forgave promptly those of their flock that had taken part in the rioting and looting in the streets. Some went on to express the desire for Fiji to become exclusively a Christian country.

Yet, despite the suggestions of intolerance, all three religions in Fiji provided a source of personal strength for individual hostages and for their families from which they had been separated. To an outside observer their respective embedded value systems made the different cultural groups more resilient than might have been the case had any unselected group of Westerners been in similar circumstances (Taylor 2001b). They took my thoughts back to the debility, despondency, and dread that overtook so many prisoners during the Korean War and led the Americans to introduce a moral code afterwards to help anyone else that might be taken prisoner (Kinkead, 1959, pp. 20-21). They also brought to mind the existential insights that Frankl (1985) developed from his experience as a prisoner in the Nazi concentration camps, and led me to conclude that belief systems and values are an important component of human behaviour, health and well being as to warrant recognition as such by the WHO. Were that to happen, it would be entirely consistent with the Māori approach to health as consisting of mental (*te kaha hinengaro*), physical (*te kaha tinana*), social (*te kaha whanau*),

and spiritual factors (*te kaha wairua*) (Durie 1985).

However, the recognition of values would create a vexed epistemological issue for psychologists, because it would oblige them as behavioural scientists to do the unthinkable and incorporate a metaphysical component in their theoretical and empirical studies. The task would not be easy to undertake, because, apart from a few instances, such as Beit-Hallahmi & Argyle's comprehensive review of religious belief (1997), the discipline has spent 50 years or so trying to slough off philosophical attachments in order to achieve 'scientific' respectability[5]. But O'Donohue (1989) offered rapprochement when advocating the adoption of a 'metaphysician-scientist–practitioner model'. Then the philosopher/psychiatrist Bracken (2002) brought the matter squarely into the intellectual arena by promoting the use of Heidegger's existentialist philosophy in the treatment of trauma. Although the two proposals have attracted little academic interest so far, on the practical side, Miller (1999) did much to integrate psychology and religion; the US National Organisation for Victim Assistance devoted a chapter in a training manual to the philosophical conundrums that often arise for victims of crime (Young, 2001, Ch. 10); and after the September 11 terrorist attack on the World Trade Centre, the American Psychological Association, no less, advised its practitioners that they were facing 'compelling challenges', and to attend to their 'spiritual needs individually or within a community' (see www.apa.org/ practice/practitionerhelp.html - accessed 2 November 2001)[6]. It remains to be seen whether the issue will be explored further by scholars and researchers (Taylor, 2001b).

Conclusion

The epistemology, the topics, the methods, and the intra-disciplinary as well as the inter-disciplinary nature of the research outlined above, raised questions that are far from settled. At best the variegated pattern of research highlights the problems that attracted one psychologist during the latter part of his academic and his professional

career, and at worst it might show a spread of effort over too wide a field. It is left for others to check the citation indices and to put the result into perspective, either by seeing what effect the research has had already or by speculating on the effect it might come to have on developments in psychological theory and practice.

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Notes

1. Intitiating the use of the computer completion of questionnaires and reaction-time recording for the satellite transmission of data in real-time during the period of isolation.

2. The confusion of the acronym with that for the Goods and Service Tax raised the eyebrows of a few members of the Royal Society of New Zealand Wellington Branch when in 1998 I gave an address entitled '*Scientists demented, ANZAAS lamented, GST presented.*' Retrieved November 20, 1998 from: http://www.wellington.rsnz.nz/scital998.htm

3. Here it should be mentioned that the fear of ghosts and spirits features in no less than seven of the 25 culture-bound syndromes mentioned in DSM IV TR (2000, pp. 898-903). But the fear is not altogether unknown in communities in the Western World, particularly after acts of malevolence. On one occasion I appealed to the clergy to account for their practice of exorcism to counteract evil spirits Taylor (1975). About the same time the film *Exorcist*, based on W.P.Blatty's book, had made its first box-office hit in New Zealand, and it induced a few bizarre reactions that brought a few people to the psychiatric unit at Wellington Public Hospital. The Anglican Church had also just 'cleansed' a vicarage in Kaikohe in which one of its priests had been murdered.

4. Another matter arose concerning the long established practice of locking up of adolescent girls in their dormitories at night to prevent pregnancy, but it was not taken far. Although few countries can claim to have dealt with the problem well, in the opinion of UNICEF (2001, p.20), the Netherlands, with its accent on sex education, free contraceptives, and counselling support 'appears to hold the key to lowering teen-age birth rates' – of the others in the list of the 24 nations that were considered wealthy enough to provide the same services, the UK, New Zealand, Hungary, and the USA, in that order, had the worst results! However subsequently in Tuvalu the authorities left the dormitories unlocked but surrounded those for the girls with high wire fences.

5. It is no defence for neglecting the topic to say that even the briefest acquaintance with ancient and contemporary history challenges the notion that religion necessarily brings peace and tranquillity, because with justification it can be argued that mankind is in a state of continuing development towards the achievement of such goals, and that in any case psychology, like theology, is not free of acrimony.

6. Here it is presumed that following McDonald (2000), spirituality can be defined as the term covering religious attitudes, experiential dimensions, existential well-being, paranormal beliefs, and religious practices.

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