**Australian Research Council / Department of Employment, Education, Training and Youth Affairs**

# 1999 Large Research Grant Application Form

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|---|---|
| **Total number of pages contained in this application** | 19 |
| **Chief Investigator** (Person 1) | Brian Martin |
| **File** *(Research Office use only)* | |

When completing this form, please refer to the Large Research Grants Scheme Guidelines for 1999 and comply strictly with Part B Instructions to Applicants.

| **1. Institution/organisation to administer grant** | **2. Total funds requested for each year ($)** 1999 | 2000 | 2001 |
|---|---|---|---|
| University of Wollongong | 50536 | 52115 | 53870 |

**3. Project title** (Short descriptive title, no more than 20 words in length)

Communication technology for nonviolent struggle

**4. Project summary** (In no more than 100 words, summarise aims, significance and expected outcomes)

Organised nonviolent struggle, as an alternative to military methods, can be greatly aided by appropriate communication technology. The project involves investigating a number of communication media—the post, radio, television, telephone, fax and computer networks—to assess their relevance to nonviolent struggle. The findings will be used to determine what specific measures can be taken to adapt, promote or develop communication technology to serve the purposes of nonviolent struggle.

**5. Keywords**

| | | | |
|---|---|---|---|
| **1** | nonviolent action | **4** | |
| **2** | technology policy | **5** | |
| **3** | communication technology | **6** | |

**6. Summary of participants, including all Team Leaders, Chief/Partner Investigators and all named Associate Investigators** (to be retained in the same order throughout the application)

| Person Number | Surname, title and initials | Institution/organisation | Department | Role (TL, CI, PI, or AI) |
|---|---|---|---|---|
| **1** | Dr B Martin | U of Wollongong | STS | **CI** |
| **2** | | | | |
| **3** | | | | |
| **4** | | | | |
| **5** | | | | |
| **6** | | | | |
| **7** | | | | |
| **8** | | | | |
| **9** | | | | |

## 7. Research classification codes

| Field of Research Classification (FORC) codes | % | Socio-Economic Objective (SEO) codes | % | ARC Category (CAT) codes |
|---|---|---|---|---|
| 119999 | 80 | 200101 | 40 | 711 |
| 050499 | 20 | 100299 | 40 | |
| | | 159999 | 20 | |

## 8. Priority areas and other codes (Please place a cross in the appropriate box/es)

### 8.1 Priority areas

- Food Sciences and Technology
- Marine Geosciences
- Exploration Geophysics
- Early Career Researcher

### 8.2 Other codes

- Multi-Panel application
- Members application
- Antarctica
- Research Infrastructure (Equipment and Facilities)
- National Health and Medical Research Council

### 8.3 If the proposed research will involve international collaboration, please specify country/ies

| | | | |
|---|---|---|---|
| 1 | | 4 | |
| 2 | | 5 | |
| 3 | | 6 | |

## 9. Links to other applications

### 9.1 Is this application associated with a concurrent ARC Research Fellowship application? No

If Yes, please specify:

| | |
|---|---|
| File number (if known) | |
| Name of the Fellowship applicant | |
| Type of Fellowship (SRF, ARF/QEII or APD) | |
| Administering Institution | |

Can the project be undertaken if the Fellowship application is unsuccessful? Yes No

If the salary for a Research Associate/Senior Research Associate is included in the budget request, will it be for the same person as the ARC Research Fellowship application detailed above? Yes No

### 9.2 Is funding for this project contingent on support from elsewhere? No

If Yes, please specify

**10. Individual details for each Team Leader, Chief/Partner Investigator or named Associate Investigator**

(Please complete an individual sheet for each participant listed in Question 6)

**Participant's surname** Martin **Person number - Question**

| | |
|---|---|
| **Role** (TI, CI, PI or AI) | CI |
| **Title:** | Dr |
| **First name:** | Brian |
| **Second name:** | |
| **Department/school/other:** | Science and Technology Studies |
| **Institution/organisation:** | University of Wollongong |
| **Sex:** | m |
| **Date of birth:** (dd/mm/yyyy) | 14/02/1947 |
| **E-mail address:** | brian_martin@uow.edu.au |
| **Postal address line 1:** | STS |
| **Postal address line 2:** | University of Wollongong |
| **City/town:** | |
| **State:** (abbreviated) | NSW |
| **Country:** | |
| **Postcode:** | 2522 |
| **Telephone:** (include country, area codes) | 02-4221 3763 |
| **Facsimile:** (include country, area codes) | 02-4221 3452 |
| **Position currently held:** | associate professor |
| **Year appointed to current position:** | 1997 |
| **Highest academic qualification type:** | PhD — Institution: Sydney U |
| Awarded date (or) Thesis submitted date | 1976 — Country: Australia |
| **Anticipated absence/s:** (Type and dates) | |

**Time commitment:** 6 (Number of days to be spent on this project out of a maximum of 21 working days per month available for all activities)

**11. Total research support** (Please complete an individual sheet for each Team Leader or Chief/Partner Investigator)
The current proposal must be included as (R).
Asterisk (*) any support closely related to this project.
Indicate the number of days to be spent on each project/program out of a maximum of 21 working days per month available for all activities

**Participants surname** Martin **Person number Question**

| Source of support | Title of project | (*) | Support type Past (P), Current (C) or Requested (R) | Time commit -ment | 1997 $ | 1998 $ | 1999 $ |
|---|---|---|---|---|---|---|---|
| ARC | Communication technology for nonviolent struggle | | R | 6 | | | 50356 |
| ARC | Science and technology for nonviolent struggle | * | P | | | | |

**11.1 Source/s of salary in 1999 and % from each source**

| Source/s of salary in 1999 | % of salary |
|---|---|
| University of Wollongong | 100 |

## 12. Detailed budget

| Detailed budget items | Priority | Amount requested | | |
|---|---|---|---|---|
| | | 1999 | 2000 | 2001 |
| **Personnel**<br>Research associate + 26% on-costs | A | $47856 | 49615 | 51370 |
| **Other**<br>Postage, fax, telephone (for simulations) | C1 | 2000 | 2000 | 2000 |
| **Travel**<br>Train trips to Sydney, bus trips to Canberra | C2 | 500 | 500 | 500 |
| **Total** | (n/a) | 50356 | 52115 | 53870 |

## 12.1 Financial summary

| **Support requested** | Personnel $ | Equipment $ | Maintenance $ | Travel $ | Other $ | **Total** $ |
|---|---|---|---|---|---|---|
| **1999** | 47856 | | | 500 | 2000 | 50356 |
| **2000** | 49615 | | | 500 | 2000 | 52115 |
| **2001** | 51370 | | | 500 | 2000 | 53870 |

(Please note: Totals must equal those shown in Question 2)

**13. If any Team Leader or Chief /Partner Investigator is associated with, but not the Director of, a Commonwealth Government funded Centre (eg Special Research Centre, Key Centre for Teaching and Research, Cooperative Research Centre):**

Please explain the difference between the proposed research and the core activities of the Centre:

Please explain the nature of the applicant/s employment or association with the Centre:

**14. If relevant (refer to Question 8.1), please describe how the research proposal and its expected outcomes relate to one or more of the designated priority areas.**

In no more than ten pages, please provide the following information:

**15. Aims, significance and expected outcomes.**
**16. Research plan, methods, techniques and proposed timing.**
**17. Relevance of applicant skills, training and experience to the project.**
**18. Role of each Team Leader or Chief/Partner Investigator in the proposed research; role of any other participant/s.**
**19. Explanatory statement of track record, relative to opportunity.**
**20. Justification of the budget.**

**ITEMS ADDITIONAL TO THE PAGE LIMITATION:**

**21. Publication listing for each Team Leader or Chief/Partner Investigator (1993-97).**
**22. A single page report detailing progress on each closely related ARC project which received funding between 1993 and 1997** (as asterisked in Question 11)**.**

**Category** The project is multidisciplinary, mainly growing out of the fields of peace research and technology studies, both falling into the "social science (other)" category. Its connection with most of the field of communication studies is more distant.

## Aims, significance and expected outcomes

In recent years there have several dramatic instances of popular nonviolent action against repressive governments. "People power" in the Philippines toppled the Marcos dictatorship in 1986; massive rallies helped undermine Eastern European regimes in 1989; and popular protest and persuasion thwarted the 1991 Soviet coup. There are also many less well known examples where nonviolent methods have been used with potent effect.

A crucial area for any struggle—nonviolent or violent—is communication. Broadcast technologies of radio and television are ideally designed for central control by rulers. By contrast, new interactive communication technologies such as fax and email are better suited for popular resistance to repressive regimes. Email, for example, was used to mobilise resistance to the Soviet coup. Yet there has been very little investigation of how to make communication technologies more effective for nonviolent struggle.

Militaries have invested billions of dollars in R&D on communication systems. Rulers in repressive states have access to the latest equipment and systems for command and control. By comparison, there has been virtually no R&D specifically oriented to help nonviolent opponents of such rulers. This project is an important step in redressing this imbalance.

I am uniquely qualified and experienced to carry out this research, with two decades of research experience both in nonviolent action and in the social analysis of science and technology. My background as a research scientist and computer programmer, plus my long experience in social science research and in leading group projects on nonviolent defence, is an ideal preparation for the present project. My previous ARC project was a pioneering study of technology for nonviolent struggle, laying the groundwork for the specific task of investigating communication technology for nonviolent struggle.

### Aims

- To investigate how communication technologies have been and can be used for nonviolent struggle against repression and oppression.
- To determine what can be done, socially and technologically, to make communication technologies more effective for this purpose.
- To assess the ways in which communication technologies have been shaped by military and other influences and how this affects their usefulness for nonviolent struggle.
- To provide a set of priorities for adapting or introducing communication technologies for nonviolent struggle.
- To provide a methodology for nonviolent activists to evaluate communication technologies.
- To develop a framework for a policy on communication for nonviolent struggle.

### Theoretical significance

The project will constitute an extended application and test of an innovative theoretical approach to the examination of social influences on technology. By examining what communication technologies are most useful for nonviolent struggle, priorities are obtained for research areas, research projects and methods of research that are quite different from ones associated with military priorities. New insights will be obtained by studying not just the technology that exists but also the technology that might exist in different social structures.

The normal and longstanding way of investigating social influences on the development of technology is to examine closely the social history of particular technological artefacts to determine the degree to which they have been influenced or 'shaped' by economics, class structure, ideologies, etc.[1] The limitation of this approach is that there is seldom any assessment of the sort of technology that might have been developed if society and circumstances had been different.[2] This project approaches this issue by looking at the usefulness of communication technologies, which have been shaped by various influences (including military applications), for an alternative purpose, namely nonviolent struggle. Whereas most analysts have simply examined science and technology within existing social structures, this project is based on postulating a radically different goal as the basis for examining social influences.

There is also a more specific theoretical issue. One analysis of communication technology concludes that broadcast media such as radio and television are more useful for the purposes of centralised control than network media such as the telephone. Yet in some prominent examples of nonviolent resistance, such as the Czechoslovak resistance to the 1968 Soviet invasion, broadcast media have been central to the popular nonviolent struggle. Resolving this apparent paradox will throw light on how the selective usefulness of technology grows out of its relationship to its social context, including systems of politics, economics and defence, and provide insights into uses of the available mix of communication technologies today.

**Practical significance**

The results of this project will contribute to the effectiveness of nonviolent struggles against repression and oppression, and thus help reduce suffering. They also will provide practical guidance for a reorientation of communication technology for defence, from military defence to nonviolent defence.

There is a small but thriving field of study in nonviolent resistance to aggression. However, very little has been done in this field to study the relevance of science and technology for nonviolent resistance and, quite surprisingly, very little on communication. The project will continue a pioneering effort within the tradition of research into nonviolent action.

**Outcomes**

- Wider awareness by planners and social activists on how best to design and use communication technology to resist aggression and repression.
- A network of nonviolence practitioners with experience in using and thinking about the use of communication technologies in their activities.
- A book and a number of articles on
  - — the social shaping of communication technologies;
  - — the usefulness of different communications technologies for nonviolent struggle;
  - — technology policy recommendations for communication and nonviolent struggle.

1. For example, Barry Barnes, *Scientific Knowledge and Sociological Theory* (London: Routledge and Kegan Paul, 1974); Donald MacKenzie, *Inventing Accuracy: An Historical Sociology of Nuclear Missile Guidance* (Cambridge, MA: MIT Press, 1990); Donald MacKenzie and Judy Wajcman (eds), *The Social Shaping of Technology* (Milton Keynes: Open University Press, 1985); Michael Mulkay, *Science and the Sociology of Knowledge* (London: Allen and Unwin, 1979).

2. Brian Martin. 'Science, technology and nonviolent action: the case for a utopian dimension in the social analysis of science and technology,'*Social Studies of Science*, Vol. 27, No. 3, 1997, pp 439-463.

## Background[3]

There are numerous methods for nonviolent struggle, including petitions, marches, rallies, strikes, boycotts, sit-ins and setting up alternative institutions.[4] These methods can be used to oppose a military invasion or coup, by directly hindering the aggressor. But perhaps more important is the role of nonviolent action in undermining support for the aggressor, whether that support is in the country under threat, in the home country of the aggressor, or among the troops themselves. The use of nonviolent community resistance to aggression as an alternative to military defence is often called social defence.[5]

A number of historical examples give a taste of what a nonviolent resistance would be like, such as the Finnish resistance to pressures from Russia from 1899-1905, German resistance to the occupation of the Ruhr in 1923, the collapse of the 1961 coup in Algeria and the defeat of the 1991 Soviet coup. Such examples cannot prove the effectiveness of social defence but do indicate possible methods of struggle using nonviolent action. Most importantly, in each of these cases the resistance was spontaneous: there was no advance planning for nonviolent struggle. Judging social defence by spontaneous uses of nonviolent action would be like judging military defence by uses of violence in which there was no military production, no military training and no advance planning.

It is in this context that research and development for nonviolent resistance become important. In any systematically planned programme of social defence, technology has an important role to play. Yet only a few previous authors have dealt with this issue. Johan Galtung, one of the world's leading peace researchers, discussed uses of technology in a few crucial and insightful paragraphs in an early article.[6] Richard Wendell Fogg, director of the Center for the Study of Conflict in Maryland, raised the implications of social defence for engineering research in a conference paper.[7] Finally, a task force advising the Netherlands government on social defence research projects, chaired by Prof. Dr. Johan Niezing, proposed a few projects dealing with technology.[8]

My previous ARC research on this topic was the first systematic study of this issue. Nearly every field of knowledge is potentially involved. For example, manufacturing engineers can help design factory systems that cannot easily be taken over by an aggressor. Agricultural research can be used to develop food production systems that are less vulnerable to disruption. Architects can design buildings that foster community solidarity. Power engineers can develop energy systems that are resilient against attack.

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3. The core ideas leading to this application have been published in Brian Martin, 'Science for nonviolent struggle', *Science and Public Policy*, vol 19, no 1, February 1992, pp. 55-58.

4. Gene Sharp, *The Politics of Nonviolent Action* (Porter Sargent, Boston, 1973).

5. Anders Boserup & Andrew Mack, *War Without Weapons: Non-violence in National Defence* (Frances Pinter, London, 1974); Robert Burrowes, *The Strategy of Nonviolent Defense: A Gandhian Approach* (Albany: State University of New York Press, 1996); Gustaaf Geeraerts (ed.), *Possibilities of Civilian Defence in Western Europe* (Swets and Zeitlinger, Amsterdam, 1977); Gene Keyes, 'Strategic non-violent defense: the construct of an option', *Journal of Strategic Studies*, vol 4, pp. 125-151 (1981); Stephen King-Hall, *Defence in the Nuclear Age* (Victor Gollancz, London, 1958); Johan Niezing, *Sociale Verdediging als Logisch Alternatief* (Van Gorcum, Assen, Netherlands, 1987); Michael Randle, *Civil Resistance* (London: Fontana, 1994); Gene Sharp, *Civilian-Based Defense: A Post-Military Weapons System* (Princeton: Princeton University Press, 1990).

6. Johan Galtung, *Peace, War and Defense: Essays in Peace Research, Volume Two* (Christian Ejlers, Copenhagen, 1976), 378-426, at pp. 390-391, 400-402.

7. R. W. Fogg, 'A technical equivalent of war,' in H. Chestnut, *Contributions of Technology to International Conflict Resolution* (Oxford: Pergamon, 1987), pp. 113-120.

8. Advisory Group on Research into Non-violent Conflict Resolution ('Niezing Commission'), *Research into Non-Violent Conflict Resolution and Social Defence: A Detailed Research Programme* (Amsterdam: SISWO, 1986); Giliam de Valk in cooperation with Johan Niezing, *Research on Civilian-Based Defence* (Amsterdam: SISWO, 1993).

It became apparent during the course of this study that for the purposes of nonviolent struggle, the single most important area of technology is communication. A top priority of military rulers is to control communication. In the cases of the Indonesian invasion of East Timor in 1975, the military coup in Poland in 1981, and the Beijing massacre in 1989, rulers made attempts to cut off communications with the 'outside world.' One of the first things commonly done in a coup d'état is to occupy radio and television stations.

Communication is crucial to legitimacy in modern society. If social defence is to work, it must both have effective communication systems of its own and be able to disrupt the communications of the aggressor. It is crucial to maintain communication with people in other countries. Knowledge of what is 'really going on' is usually extremely damaging to the aggressor. Genocides are usually carried out in secrecy.[9]

There are numerous important areas in computers and communications worthy of development for social defence: nonjammable broadcasting systems; cheap and easy-to-use short-wave radio; miniature video recorders; encrypted or hidden communications via computers, telephone and radio; ways of destroying or hiding computer information. Some relevant systems already exist but are not widely available or known, such as micropower radio.

## Relevance of the applicant's skills, training and experience to the project

My extensive research experience in two previously distinct areas—social defence and the social shaping of science and technology—puts me in an ideal position to carry out this project. I have a long experience in examining social influences on science,[10] including considerable attention to science, technology and warfare.[11] This is aided by the insights gained from over a decade of postdoctoral research experience as a research scientist, 20 years of applications programming and authorship of 35 scientific papers in several fields (stratospheric modelling, numerical methods, astrophysics, wind power and electricity grids) in addition to my more extensive research in the social sciences.

I have extensive experience in interviewing in a range of areas, including technical specialists at BHP (in collaboration with Colin Kearton), fluoridation partisans, and scientists and engineers. This, plus my long experience in working in science departments and collaborating with a considerable number of scientists, provides an ideal background for dealing with technical experts in communication and with technical information as required by the project.

I have been involved in the study of nonviolent alternatives to military defence since the late 1970s and have written extensively on this topic.[12] I have been a leader in several group projects which involved interviewing people (such as public servants, tradespeople and computer programmers) about what can be done to oppose an invasion or military

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9. Leo Kuper, *Genocide* (Penguin, Harmondsworth, 1981).

10. Brian Martin, 'The selective usefulness of game theory', *Social Studies of Science*, vol. 8, 1978, pp. 85-110; Brian Martin, *The Bias of Science* (Canberra: Society for Social Responsibility in Science, 1979); Jill Bowling and Brian Martin, 'Science: a masculine disorder?', *Science and Public Policy*, vol. 12, December 1985, pp. 308-316; Brian Martin, 'Mathematics and social interests', *Search*, vol 19, no 4, July-August 1988, pp. 209-214; and others.

11. Brian Martin, 'Science and war', in Arthur Birch (ed.), *Science Research in Australia* (Canberra: Australian National University, 1983), pp. 101-108; Brian Martin, 'Computing and war', *Peace and Change*, vol. 14, April 1989, pp. 203-222.

12. Brian Martin, 'Mobilizing against nuclear war', *Social Alternatives*, vol 1, nos 6-7, June 1980, pp. 6-11; Brian Martin, 'Grassroots action for peace', *Social Alternatives*, vol 3, no 1, October 1982, pp. 77-82 (also published in Swedish and Japanese); Brian Martin, *Uprooting War* (London: Freedom Press, 1984) (also published in Italian); Brian Martin, *Social Defence, Social Change* (London: Freedom Press, 1993); and others.

coup.[13] This sort of investigation into the practicalities of nonviolent defence is highly regarded overseas. My experience in leading group investigations will be valuable in building enthusiasm for teamwork with the research associate and interested students.

My background in examining social influences on science and technology motivates the theoretical aim of assessing the usefulness of science and technology, shaped by military influences, for nonviolent struggle. My background in social defence provides the motivation for studying means for nonviolent struggle.

My research has been translated and published in six foreign languages, and my work on social defence in particular is widely recognised internationally.

## Research plan, methods, techniques and proposed timetable

The research will be carried out in part using traditional methods of searching and studying various literatures and of interviewing key individuals. In addition, the topic lends itself to an exciting version of action research that might be called reflexive action research. What this means is that ideas and information about the use of communication media for nonviolent struggle will be sought by actually running simulations of communication media.

***Outline of stages*** (greater detail is given below)

***1*** (12 months). Detailed study of the dynamics of communication technology in relation to nonviolent struggle, based on case study examination, interviews, and queries via computer. For each of several communication media, specific episodes of their use in nonviolent action will be chosen. Technological aspects of each episode will be probed by interviewing relevant experts.

***2*** (12 months). Reflexive action research on selected communication technologies. Simulations will be planned and run to test ideas developed in stage 1.

***3*** (6 months). Formulation of principles and priorities for communication technology policy for nonviolent struggle, drawing on material from stages 1 and 2.

***4*** (6 months). Writing up findings.

The first two stages will provide the basic data for the project. The third stage uses this data to explore the theoretical and policy issues about the social shaping of science and technology. The second and fourth stages are concerned with organising the results into relevant and communicable form.

**1. Detailed study of the dynamics of communication technology in relation to nonviolent struggle (12 months)**. Several key communication media will be selected: the post, telephone, radio, television, fax and computer networks. Special attention will be given to the Internet, including email, newsgroups and the World Wide Web. For each medium, one or more specific episodes will be examined, chosen because they provide understanding of sociotechnical dynamics relating to nonviolent struggle. Examples are the role of short-wave radio during the 1987 coups in Fiji, the role of fax machines during the 1989 crackdown on the Chinese pro-democracy movement, the role of television in the 1989 East German revolution, the role of computer networks in worldwide Baha'i resistance to Iranian government repression of Baha'is since 1979, and the role of the telephone in the popular resistance to Serbian rulers in 1996-97. Collection of information

[13]. Jacki Quilty et al., *Capital Defence: Social Defence for Canberra* (Canberra: Canberra Peacemakers, 1986) (also published in Italian and Dutch); Alison Rawling et al., 'The Australian Post Office and social defence', *Nonviolence Today*, no 14, April-May 1990, pp. 6-8. Schweik Action Wollongong (Brian Martin, member), 'Telecommunications for nonviolent struggle,' *Civilian-Based Defense: News & Opinion*, Vol. 7, No. 6, August 1992, pp. 7-10. See also Brian Martin, Sharon Callaghan and Chris Fox, *Challenging Bureaucratic Elites* (Wollongong: Schweik Action Wollongong, 1997), which creatively links social defence with grassroots challenges to bureaucracies.

on these episodes will be through contact with participants or observers, plus any published material. The value of first-hand accounts is that realistic assessments can be made, going beyond the brief treatments in the mass media and avoiding the idealisations found in some of the nonviolence literature. Contacts, where not known already, will be found through peace and nonviolence networks.

Next, a series of interviews will be held with managers, specialist technologists and workers concerned with each of the media. They will be asked how the technological system might be used for nonviolent struggle and, more specifically, how it might be adapted or changed to make such struggle more effective. To prompt discussion along these lines, we will raise ideas obtained from examination of the specific episodes mentioned above as well as from our own assessments, plus ideas from previous interviewees. It is anticipated that there will be about 40 interviews. Some will take place in Wollongong and Sydney. Others at greater distance can be carried out by phone or electronic mail. The Chief Investigator and the research associate will carry out some interviews together and some individually. Going by previous experiences, I anticipate that many international specialists will contribute.

The process of finding suitable interviewees will vary between media. For example, in the case of radio, initial interviews will be with existing contacts involved with community radio, short-wave radio, and mainstream radio. Those interviewed will be asked to suggest other suitable interviewees. This process will be continued until "convergence" is reached, namely that there is substantive agreement or resolution concerning technical issues.

**2. Reflexive action research on selected communication technologies (12 months).** The plan for this stage is to run limited simulations of communication in nonviolent struggle as a means of obtaining information about the strengths and weaknesses of the technological system—computer network, telephone, short-wave radio, etc.—for the purposes of nonviolent struggle, and also to determine how such simulations can spread the idea of social defence.

Consider, for example, the case of computer networks. The simulation will be designed to test the aspects of computer networking found through interviews to be both strengths and weaknesses for the purposes of nonviolent action. First, a plan for the simulation will be drawn up, with a proposed scenario, method and criteria for evaluation. Second, individuals and groups will be approached to participate in the simulation, beginning with contacts in the Australian Nonviolence Network and also social defence contacts in countries such as Canada, England, Italy and the Netherlands, as well as computer system administrators and other relevant individuals. The plans for the simulation will be revised in the light of comments from likely participants. Third, the simulation itself will be run: sending of communications in a 'crisis,' with some individuals playing the role of antagonists or spoilers who might fail to respond, send disinformation, cause technical failures, etc. Finally, the simulation will be evaluated using the previously agreed criteria.

The simulation is a form of action research[14] and in this case will be a form of communication itself, hence the qualifier "reflexive." The simulation will involve not only

[14]. Some examples, from a variety of fields, include Stephen Kemmis and Robin McTaggart (eds.), *The Action Research Planner* (Geelong, Victoria: Deakin University, 1988, 3rd edition); Robert A. Rubinstein, 'Reflections on Action Anthropology: Some Developmental Dynamics of an Anthropological Tradition,' *Human Organization*, Vol. 45 (Fall 1986), 270-279; Alain Touraine, *The Voice and the Eye: An Analysis of Social Movements* (Cambridge: Cambridge University Press, 1981); Yoland Wadsworth, *Do It Yourself Social Research* (Melbourne: Victorian Council of Social Service, 1984); William Foote Whyte (ed.), Participatory Action Research (Newbury Park, CA: Sage, 1991); Trevor Williams, *Learning to Manage our Futures: The Participative Redesign of Societies in Turbulent Transition* (New York: Wiley, 1982).

people already familiar with social defence but others who are invited to join in. In the light of earlier experience with social defence projects, this will not be difficult to organise. A follow-up survey will be used to determine what understanding these new people have gained about nonviolent struggle. Most importantly, the simulation will provide insights about the practicality of the ideas developed through the literature search and interviews. Thus, it provides a "reality test" for what is otherwise a theoretical investigation.[15]

Although a simulation may seem to be an application rather than research per se, in this case it is profoundly theoretical. The simulation will provide insight into the relation between theory and practice, which itself is one of the central theoretical issues in social defence. It is also of central importance for developing policy on communication technology for nonviolent struggle, which is the task of stage 3.

**3. Formulation of principles and priorities for communication technology policy for nonviolent struggle (6 months)**. The information from stages 1 and 2 provides the basis for specifying priorities for how communication technology should be adapted or developed in order to improve the capacity for nonviolent struggle. This involves examining the resources, supporters and opponents of making changes towards communication technologies more suited for nonviolent struggle and then assessing which particular initiatives should have highest priority. The principles at this stage refer to general ways to assess communication technology in this regard; these can also be applied to new technologies in the future. Existing literature on science policy provides relatively little guidance for initiatives that can come from the community rather than just government or industry, hence much of this work involves developing new frameworks.

It is during this stage that the findings from stages 1 and 2 will be used to draw conclusions concerning the selective usefulness of communication technologies—that is, the specific features of their non-neutrality. This theoretical issue is implicit in the design of stages 1 and 2 and dealing with its implications is essential to this stage's task of formulating principles and priorities.

**4. Writing up of findings (6 months)**. Findings will be published as the research proceeds, in a range of journals, including peace research, social studies of science, information technology, and communications. A major outcome will be a book reporting policy-relevant findings. Thus this "stage" will be spread across most of the three years of the project. Some of these publications will be in the nature of 'probes,' attempting to stimulate feedback relevant to the ongoing research. At well as formal academic publications, there will be "publication" via computer conferences and other media studied and used during the project.

## Roles of the chief investigator and research associate in the project

The chief investigator will:

- formulate, refine and periodically reassess the project's framework;
- develop detailed research plans, including selection of communication technologies, relevant instances of nonviolent struggle, and the methods of collecting information;
- arrange and participate in interviews and collecting published material;
- design and participate in the simulations;
- lead the process of policy formulation and writing up.

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15. Military training exercises are routine but there have been few in the social defence area. The most well-known example of a social defence simulation was held at Grindstone Island, Canada: Theodore Olson and Gordon Christiansen, *Thirty-One Hours* (Toronto: Canadian Friends Service Committee, 1966). It provided penetrating insights into the social psychology of nonviolent resistance, suggesting the value of further simulations.

Within the basic structure of the project, the research associate will be expected, with guidance and assistance from the chief investigator, to:

- investigate the dynamics of several communication technologies;
- arrange interviews with specialists and participate in interviews
- take interview notes;
- help organise and participate in simulations;
- classify the results according to the theoretical framework utilised;
- contribute to policy formulation and writing up.

## Justification of the budget

The main and essential item in the budget is the salary for a research associate for three years. This level of appointment is necessary to obtain a person able to understand communication technology in a wide range of areas and as well the theoretical issues involved in both the social shaping of science and technology and the principles of nonviolent action.

The research associate will need the experience and understanding to assess written material in its connection to theoretical frameworks, to quickly grasp the essentials of new areas of science and bodies of social science theory, to be a sensitive interviewer, to be able to organise participants for simulations and to participate in preparing material for publication. It is most unlikely that a suitably qualified and committed person could be attracted to a fractional appointment.

The need for three years' salary is based on the timetable, which essentially specifies 12 months for looking at communication technologies for nonviolent and military struggle, 12 months for reflexive action research, 6 months for developing the principles and priorities and 6 months for writing up. Since this is pioneering work, this is a minimum requirement for satisfactory completion of the project.

The remainder of the budget is for computer searches, postage, photocopying and local travel to carry out interviews. These items can, if necessary, be covered by university research funds or the chief investigator's salary, and hence are not essential to the completion of the project.

## Publications, 1993-

The full text of most of these publications is available at http://www.uow.edu.au/arts/sts/bmartin/pubs/.

***Core of the project***

Brian Martin. Science, technology and nonviolent action: the case for a utopian dimension in the social analysis of science and technology. *Social Studies of Science*, Vol. 27, No. 3, 1997, pp 439-463.

Brian Martin, Communication technology and nonviolent action. *Media Development*, Vol. 43, No. 2, 1996, pp. 3-9.

***Relevant to the project***

***(a) nonviolent struggle***

Brian Martin, *Social Defence, Social Change* (London: Freedom Press, 1993), 157 pages.

Brian Martin, Sharon Callaghan and Chris Fox, with Rosie Wells and Mary Cawte, *Challenging Bureaucratic Elites* (Wollongong: Schweik Action Wollongong, 1997), 56 pages.

"Nonviolent defence: Robert Burrowes' approach," essay review of Robert Burrowes, *The Strategy of Nonviolent Defense*, in *Nonviolence Today*, No. 55, July/August 1997, pp. 19-22; a shortened version appeared in *Gandhi Marg*, Vol. 19, No. 1, April-June 1997, pp. 107-112.

"Critique of violent rationales," review article of Howard Ryan, *Critique of Nonviolent Politics: From Mahatma Gandhi to the Anti-Nuclear Movement* (http://netwood.net/~hryan, 1996), in *Pacifica Review*, Vol. 9, No. 1, 1997, pp. 83-91; reprinted in *Nonviolence Today*, No. 55, July/August 1997, pp. 15-19.

Helen Gillett, Brian Martin and Chris Rust, Building in nonviolence: nonviolent struggle and the built environment. *Civilian-Based Defense*, Vol. 11, No. 3, Fall 1996, pp. 1, 4-7.

Brian Martin. Possible pathologies of future social defence systems. *Pacifica Review*, June 1995, Vol. 7, No. 1, 1995, pp. 61-68.

Schweik Action Wollongong (Lisa Schofield, Brian Martin, Rosie Wells, Terry Darling and Debra Keenahan). Social defence and community empowerment. *Australian Social Work*, Vol. 47, No. 1, March 1994, pp. 48-54.

***(b) social dynamics of science and technology***

Brian Martin, *Suppression Stories* (Wollongong: Fund for Intellectual Dissent, 1997), 171 pages.

Brian Martin (ed.), *Confronting the Experts* (Albany, NY: State University of New York Press, 1996), 204 pages.

Brian Martin. Captivity and commitment. *Technoscience*, 1998, in press.

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Brian Martin. STS and social activists. *Technoscience*, Vol. 10, No. 1, Winter 1997, pp. 11-12.

Brian Martin. Technological vulnerability. *Technology in Society*, Vol. 12, No. 4, 1996, pp. 511-523.

Brian Martin. Critics of pesticides: whistleblowing or suppression of dissent? *Philosophy and Social Action*, Vol. 22, No. 3, July-September 1996, pp. 33-55.

Brian Martin. Sticking a needle into science: the case of polio vaccines and the origin of AIDS. *Social Studies of Science*, Vol. 26, No. 2, May 1996, pp. 245-276.

Brian Martin. Social Construction of an 'Attack on Science' (essay review of Gross and Levitt, *Higher Superstition*), *Social Studies of Science*, Vol. 26, No. 1, February 1996, pp. 161-173.

David Dingelstad, Richard Gosden, Brian Martin and Nickolas Vakas. The social shaping of drug debates. *Social Science & Medicine*, Vol. 43, No. 12, 1996, pp. 1829-1838.

Brian Martin. Beyond mass media. *Metro Magazine*, No. 101, March 1995, pp. 17-23.

Brian Martin and Evelleen Richards. Scientific knowledge, controversy, and public decision-making. In Sheila Jasanoff, Gerald E. Markle, James C. Petersen and Trevor Pinch (eds.), *Handbook of Science and Technology Studies* (Thousand Oaks, CA: Sage, 1995), pp. 506-526.

Brian Martin. Anarchist science policy. *The Raven*, Vol. 7, No. 2, Summer 1994, pp. 136-153.

Brian Martin. Polio vaccines and the origin of AIDS: the career of a threatening idea. *Townsend Letter for Doctors*, No. 126, January 1994, pp. 97-100.

Brian Martin. Peer review and the origin of AIDS—a case study in rejected ideas. *BioScience*, Vol. 43, No. 9, October 1993, pp. 624-627.

Brian Martin. The critique of science becomes academic. *Science, Technology, & Human Values*, Vol. 18, No. 2, April 1993, pp. 247-259.

Brian Martin. Is the 'new paradigm' of physics inherently ecological? *Chain Reaction*, no. 68, February 1993, pp. 38-39. Reprinted in *The Raven*, vol. 6, no. 4, October-December 1993, pp. 353-356.

***Other publications***

Brian Martin. Advice for dissident scholars. *Thought & Action*, 1998, in press.

Brian Martin and Gabriele Bammer. When experts disagree. In: Don Ranney, *Chronic Musculoskeletal Injuries in the Workplace* (Philadelphia: W. B. Saunders, 1996), pp. 101-113.

Brian Martin and Glenn Mitchell. Uncovering some assumptions. *Health Care Analysis*, Vol. 4, 1996, pp. 134-136.

Brian Martin. Undergraduate research: a learning process. *Overview* (Academic Development Services, University of Wollongong), Vol. 3, No. 1, 1996, pp. 21-23.

Christine Dimmer, Brian Martin, Noeline Reeves and Frances Sullivan. Squatting for the prevention of haemorrhoids? *Townsend Letter for Doctors and Patients*, No. 159, October 1996, pp. 66-70.

Brian Martin. Democracy without elections. *Social Anarchism*, No. 21, 1995-96, pp. 18-51.

Brian Martin. Against intellectual property. *Philosophy and Social Action*, Vol. 21, No. 3, July-September 1995, pp. 7-22.

Brian Martin. Eliminating state crime by abolishing the state. In Jeffrey Ian Ross (ed.), *Controlling State Crime: An Introduction* (New York: Garland, 1995), pp. 389-417.

Brian Martin. Plagiarism: a misplaced emphasis. *Journal of Information Ethics*, Vol. 3, No. 2, Fall 1994, pp. 36-47.

Brian Martin. Protest in a liberal democracy. *Philosophy and Social Action*, Vol. 20, Nos. 1-2, January-June 1994, pp. 13-24.

Brian Martin. Antisurveillance. *Anarchist Studies*, Vol. 1, No. 2, 1993, pp. 111-129.

## Progress report

The project "Science and technology for nonviolent struggle," funded by the ARC for 1993-1995, laid the groundwork for the proposed, more specific project on communication technology. Research assistant Mary Cawte and I searched through the literature on nonviolent struggle, finding but a few references to science and technology. We developed a new framework for analysing the potential relevance of different scientific fields to nonviolent struggle. We interviewed quite a number of scientists and engineers and also obtained valuable comments by posting queries on computer conferences. Somewhat surprisingly, we found a majority of useful ideas by searching through a variety of journals in many different fields. In addition, we initiated some investigations, especially on radio, to determine how technologies were shaped historically to be used the ways that are familiar today.

Our conclusions include the following:

• Most science and engineering is not helpful for nonviolent struggle. This isn't surprising, considering that nonviolent struggle has never been a research and development priority, whereas military goals often have been.

• Given that psychological and organisational elements are generally more important than other elements in a social defence system, social sciences are much more important for nonviolent struggle than natural sciences and engineering.

• There are a few areas where science and engineering can make a big difference, notably survival and communication.

• The "scientific method" for testing technology for nonviolent struggle inherently involves popular participation much more than for the case of military systems. Separating technology from social dynamics is more obviously nonsensical in nonviolent than violent approaches to conflict.

• For converting technologies from military to nonviolent purposes, the highest priority should be utilising presently available technologies and the lowest priority should be developing new theories. This is the reverse of the tendency of the limited government funding available for social defence, which has been more for research than application.

• The most effective way to gain information about science and technology for nonviolent struggle is to relate the issue to current concerns in a field. The case of encryption in telecommunications is a good example.

We have aimed at publishing articles in a variety of fields, partly because the research crosses many boundaries and partly in order to stimulate responses from a variety of researchers. We have published or submitted articles to journals in the fields of nonviolence,[16] peace research,[17] engineering,[18] science and technology studies,[19] and communication.[20] Several more articles are under way, and a book manuscript is being considered for publication.[21]

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[16]. Mary Cawte, 'Rebellious occupied territories,' *Civilian-Based Defense*, Vol. 8, No. 6, Winter 1993-94, pp. 10-13.

[17]. Mary Cawte, 'Research proposals for nonviolent defence: strategy and tactics. A review artcle of *Research on Civilian-Based Defence* by Giliam de Valk,' *Pacifica Review*, vol 6, no 1, May-June 1994, pp. 95-106; Mary Cawte, 'Making radio into a tool for war,' submitted for publication.

[18]. Brian Martin, 'Engineers and nonviolent struggle,' *Engineers Australia*, December 1993, pp. 36-37.

[19]. Brian Martin. 'Science, technology and nonviolent action: the case for a utopian dimension in the social analysis of science and technology,'*Social Studies of Science*, Vol. 27, No. 3, 1997, pp 439-463.

[20]. Brian Martin, 'Communication technology and nonviolent action,' *Media Development*, Vol. 43, No. 2, 1996, pp. 3-9.

[21]. Brian Martin, *Technology for Nonviolent Struggle*, submitted to Syracuse University Press.

## 23. Certification

### Certification by Pro Vice-Chancellor (Research) or equivalent or delegate

I certify that:

i) I am prepared to have the project carried out in my institution under the circumstances set out by the applicant/s;
ii) all details on this application form are true and complete;
iii) the amount of time which the investigator/s will be devoting to the project is appropriate to existing workloads.
iv) the Head of Department has approved the application;
v) approval of the Partner Investigators participation to the extent indicated has been received from his/her employer;
vi) this institution supports this application and if successful it will provide basic infrastructure for the project;
vii) the project can be accommodated within the general facilities in this institution and that sufficient working and office space is available for any proposed additional staff; and
viii) if successful, the project will not be permitted to proceed until appropriate ethical clearance has been obtained; and

| **Signature of Pro Vice-Chancellor (Research)** | **Name** | **Date** |
|---|---|---|
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