

# Application Form for Large Grant Support in 1998

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

When completing this form, please refer to the "ARC/DEETYA Large Research Grants Scheme Guidelines for 1998".

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## 1. Institution to administer grant 2. Total funds requested each year in this application

Code	Name	1998	1999	2000
0012	University of Wollongong	50,356	52,115	53,870
Admin Contact	Name: Aapo Skorulis			
	Phone No: 042-213386			

## 3. Project title

Communication technology for nonviolent struggle

## 4. Project summary

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. Research and other codes

(Refer to Appendices E-G in the Guidelines for codes)

Field of Research							Socio-Economic							Category Code(s)		
						%							%			
1	1	9	9	9	9	80	2	0	0	1	0	1	40	7	1	1
0	5	0	4	9	9	20	1	0	0	2	9	9	40			
							1	5	9	9	9	9	20			

  

Priority Area (Please mark the appropriate box(es))								Other		
CIT	GEO	FST	MIN	OPT	TEC	INT	If INT, please specify	MLT	ME	RIE
					x					
								NHR	ANT	ECR

## 6. Key words

1	nonviolent action	4	
2	technology policy	5	
3	communication technology	6	

## 7. Team Leader, Chief/Partner Chief Investigators

### 7.1 Details

	Chief Investigator/Team Leader				Chief/Partner Chief Investigator				Chief/Partner Chief Investigator							
Title (eg. Prof, A/Prof, Dr),	A/Prof				Title				Title							
Initials and surname	B Martin				Initials Surname				Initials Surname							
Current appointment/year	A/Prof, 1997															
Department/School/Other	Science and Technology Studies															
Institution	University of Wollongong															
Institution /Private Code	0012															
Is this person	Male	<input checked="" type="checkbox"/>	Female	<input type="checkbox"/>	Male	<input type="checkbox"/>	Female	<input type="checkbox"/>	Male	<input type="checkbox"/>	Female	<input type="checkbox"/>				
Date of birth	14/02/47				/ /				/ /							
Average working days per month to be devoted	this project	6			all other	4			this project	II other projects			this project	all other		
Team Leader (TL) or Chief Investigator (CI), Partner Chief Investigator (PC)	TL				CI				CI	PC			CI	PC		

## 7.1

## Details (Continued)

Contact details: Address	Chief Investigator/Team Leader	Chief/Partner Chief Investigator	Chief/Partner Chief Investigator
	Science and Technology Studies, University of Wollongong, NSW 2522		
Telephone (+ area code)	042-213763		
Facsimile (+ area code)	042-213452		
E-mail address	brian_martin@uow.edu.		
Highest academic Year conferred Institution Country	PhD, 1976, University of Sydney		

7.2 Is the Team Leader or any Chief/Partner Chief Investigator receiving research support from any of the programs/organisations listed below? If Yes, brief documentation demonstrating that the proposed research is not already supported by these programs/organisations and that the Chief/Partner Chief Investigators have the time and capacity to undertake this project should be provided.

Program/Organisation	Chief Investigator/Team Leader		Chief/Partner Chief Investigator		Chief/Partner Chief Investigator	
	Yes	No	Yes	No	Yes	No
Special Research Centre		x				
Key Centre for Teaching and Research		x				
Cooperative Research Centre		x				
National Health and Medical Research Council		x				
Defence Science and Technology Organisation		x				
C'wealth Scientific & Industrial Research Organisation	People from these organisations are not eligible to be Chief Investigators or a Team Leader					
Australian Institute of Marine Science						
Institute of Advanced Studies, ANU						
Other Government funded or partly Government funded R & D organisation Please specify:						
Documentation attached for research support						

7.3 Please indicate source of salary and % from each source for the Team Leader, and/or each Chief/Partner Chief Investigator

Chief Investigator/Team Leader		Chief/Partner Chief Investigator		Chief/Partner Chief Investigator	
Source of salary	%	Source of salary	%	Source of salary	%
University of Wollongong	100				

7.4 What other major research programs will be being undertaken or supervised by each Chief/Partner Chief Investigator during the period being applied for?

Chief Investigator/Team Leader Program Name		Chief/Partner Chief Investigator Program Name		Chief/Partner Chief Investigator Program Name	
Suppression of dissent					
Average days per month spent on all these	4	Average days per month spent on all these		Average days per month spent on all these	

**7.5 Planned or anticipated absences. Provide details.**

	Chief Investigator/Team Leader	Chief/Partner Chief Investigator	Chief/Partner Chief Investigator
Type of absence	Long service leave		
Dates of absence (inclusive)	April-May 1998		

**8. Other project participants**

**8.1 Associate Investigators: none**

**8.2 Other participants** (Provide details of any other participants (eg. technical, research or other staff, postgraduate research or honours students) to be involved in the project. Please show numbers and the level of involvement (average days/month))

Ross Colquhoun, PhD student (topic: psychology for nonviolent struggle) is likely to be involved, time to be determined. As in previous years, undergraduate student researchers will work with me on projects over the summer (8 weeks full-time). Their projects will be related to communication for nonviolent struggle.

**9. Other support**

**9.1 Are any of the Chief Investigators or Partner Chief Investigators applying for support for this, or a closely related, project in 1998 from any other source(s)? This includes applications for particular budget items included in Item 10.** Yes  No

If Yes, please specify:

Chief/Partner involved	Chief Investigator/Team Leader	Chief/Partner Chief Investigator	Chief/Partner Chief Investigator
Funding source(s)			
Requested amount			
Support period			
Administering			

**9.2 Is this application associated with an ARC/DEETYA Research Fellowship application?** Yes  No

If Yes, please specify:

Name of the Fellowship applicant

Type of Fellowship sought SRF  ARF/QEII  APD

Is the success of your Large Grant research proposal dependent on the outcome of this Fellowship application? Yes  No

**9.3 If you have included the salary for a Research Associate or a Senior Research Associate in section 10.1 of this application is it for the same person/position as any ARC/DEETYA Research Fellowship application outlined above in section 9.2?** Yes  No

**10. Budget**

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**10.1 Detailed budget**

<b>Project title (as per front page)</b> Communication technology for nonviolent struggle
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Detailed budget items	Priority	Amount Requested		
		1998	1999	2000
<i>Personnel</i> Research associate +26% on-costs	A	47,856	49,615	51,370
<i>Other</i> Postage, fax, telephone (for simulations)	C1	2000	2000	2000
<i>Travel</i> Train trips to Sydney, bus trips to Canberra	C2	500	500	500

**10.2 Financial summary**

Support requested Year	Personnel \$	Equipment \$	Maintenance \$	Travel \$	Other \$	Total* \$
1998	47,856			500	2000	50,356
1999	49,615			500	2000	52,115
2000	51,370			500	2000	53,870

• Please ensure that the totals in this financial summary are the same as the totals shown at Item 2

**10.3 Surname of Team Leader and/or Chief/Partner Chief Investigators (first named three only)**

	Title	Initial	Surname	Institution	Institution Code
Chief Invest./Team L'dr	A/P	B	Martin	University of Wollongong	0012
Chief/Partner Chief					
Chief/Partner Chief					

**11. Total support for this project, closely related project(s)/programs, activities or budget items for this project.**

"C" is for current support, "R" is for support that has been requested, "P" is for submissions planned in the near future.

Chief Investigator/ Team Leader/ Partner CI/	Source of support	Title of project / Budget item	Support type (C, R or P)	1996 \$	1997 \$	1998 \$

**12. Total support for all other projects/programs or activities**

"C" is for current support, "R" is for support that has been requested, "P" is for submissions planned in the near future.

Chief Investigator/ Team Leader/ Partner CI/ Surname	Source of support	Title of project	Support type (C, R or P)	1996 \$	1997 \$	1998 \$
Martin	U of Wollongong	Suppression of dissent	C	2000	2000	

**13 Is/was this project funded as a Small Research Grant?**

Yes  No

If Yes, please specify:

Year(s) of

#### 14. Commencement/completion of the proposed project

Has the project Yes  No  If no, when will it start?

How long will you need ARC support? (number of )

How long will this project take? (number of years)

#### 15. Consent to refer application

Do you consent to this application and supporting documentation being referred to assessors, other ARC programs and other funding agencies for consideration? Yes  No

#### 16. Statutory and other requirements

Does the research involve:

- |   |     |                          |    |                                     |
|---|-----|--------------------------|----|-------------------------------------|
| a) importation of experimental organisms? | Yes | <input type="checkbox"/> | No | <input checked="" type="checkbox"/> |
| b) human subjects?                        | Yes | <input type="checkbox"/> | No | <input checked="" type="checkbox"/> |
| c) animal experimentation?                | Yes | <input type="checkbox"/> | No | <input checked="" type="checkbox"/> |
| d) deposition of biological materials?    | Yes | <input type="checkbox"/> | No | <input checked="" type="checkbox"/> |
| e) genetic manipulation?                  | Yes | <input type="checkbox"/> | No | <input checked="" type="checkbox"/> |
| f) ionising radiation?                    | Yes | <input type="checkbox"/> | No | <input checked="" type="checkbox"/> |
| g) social science data sets?              | Yes | <input type="checkbox"/> | No | <input checked="" type="checkbox"/> |

#### 17. Benefits of research

- **Contributions to the quality of our culture** Dialogue and discussion are the foundation both of democracy and of nonviolent action. By providing insights into technologies most appropriate to foster dialogue and discussion, the research will contribute to the creation of a technological infrastructure for a democratic society.
- **Direction applications of research results** The results will provide both specific recommendations and methods for technological choice relating to communication, applicable at the levels of government, organisations and individuals.
- **International links** The method of carrying out the research involves developing and building international links for the purpose of simulations with communication technology. These links will build on existing links with nonviolence researchers in several countries.

#### 18. Aims, significance and expected outcomes

##### **Aims**

- To provide theoretical insight into how the selective usefulness of technology grows out of its relationship to its social context.
- To provide a set of priorities for adapting or introducing communication technologies for nonviolent struggle.
- To provide methodological guidance for users of nonviolent action for investigating communication technologies.

##### **Significance**

- Uses and tests the pioneering approach of determining what technologies might have been or might be developed with different priorities and a different social context.
- Lays the groundwork for reorientation of community technology for nonviolent struggle.

##### **Expected 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 technology in their activities.
- Publication of a book and a number of articles on: (a) the social shaping of communication technologies and their selective usefulness for violent and nonviolent struggle; (b) techniques for testing the usefulness of telecommunications technology for nonviolent struggle; (c) technology policy recommendations for communication and nonviolent struggle.

## 19. Certification for Team Leader, Chief Investigators and Partner Chief Investigators

I certify to the best of my knowledge that:

1. all the details on this application form are true and complete; and
2. I have complied with the Guidelines and, if I am successful, I will accept the Conditions of Award relating to ARC/DEET Large Research Grants;
3. I understand and agree that all statutory requirements, as itemised in the application form, must be met before the proposed research can commence;
4. all persons listed in this application form as Associate Investigators have agreed to take part in the proposed research.

I authorise the PVC Research (or equivalent) or their delegate to sign all subsequent documentation relating to this application on my behalf.

### Signatures of Team Leader, Chief Investigator/Partner Chief Investigators

*Team Leader or Chief Investigator's signature*

*Date*

*Chief Investigator/Partner Chief Investigator's*

*Date*

*Chief Investigator/Partner Chief Investigator's*

*Date*

## 20. Head of Department clearance

1. I agree that the project can be accommodated within the general facilities in my Department and that sufficient working and office space is available for any proposed additional staff.
2. I am prepared to have the project carried out in my Department under the circumstances set out by the applicant/s.
3. I have noted the amount of time which the investigator/s will be devoting to the project and agree that it is appropriate to existing workloads. I agree that teaching relief will be arranged if the ARC agrees to any request for teaching relief.

*Signature*

*Date*

**21. Certification by PVC Research (or equivalent) or their Delegate**

I certify that:

1. this institution supports this application and will provide basic infrastructure for the project if successful;
2. 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;
3. I am prepared to have the project carried out in my institution under the circumstances set out by the applicant/s;
4. if successful, the project will not be permitted to proceed until appropriate ethical clearance has been obtained; and
5. the amount of time which the investigator/s will be devoting to the project is appropriate to existing workloads.

<i>Signature</i>	<i>Date</i>
<input style="width: 490px; height: 35px;" type="text"/>	<input style="width: 120px; height: 35px;" type="text" value="/ /"/>

*Note: A confidential statement may be forwarded if thought advisable.*

<i>Signature</i>	<i>Date</i>
<input style="width: 490px; height: 35px;" type="text"/>	<input style="width: 120px; height: 35px;" type="text" value="/ /"/>

<i>Name</i>	<i>Position</i>
<input style="width: 310px; height: 35px;" type="text"/>	<input style="width: 330px; height: 35px;" type="text"/>

***Note: All certificates on this page must be signed and dated***



**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, expected outcomes and significance**

In recent years there have been 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.

### **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 telecommunications technology for nonviolent struggle;
  - technology policy recommendations for communication and 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.<sup>1</sup> 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. 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.

### **Background<sup>2</sup>**

There are numerous methods for nonviolent struggle, including petitions, marches, rallies, strikes, boycotts, sit-ins and setting up alternative institutions.<sup>3</sup> 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

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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. 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.

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

troops themselves. The use of nonviolent community resistance to aggression as an alternative to military defence is often called social defence.<sup>4</sup>

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.<sup>5</sup> 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.<sup>6</sup> 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.<sup>7</sup>

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.

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

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<sup>4</sup>. 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).

<sup>5</sup>. Johan Galtung, *Peace, War and Defense: Essays in Peace Research, Volume Two* (Christian Ejlers, Copenhagen, 1976), 378-426, at pp. 390-391, 400-402.

<sup>6</sup>. R. W. Fogg, 'A technical equivalent of war,' in H. Chestnut, *Contributions of Technology to International Conflict Resolution* (Oxford: Pergamon, 1987), pp. 113-120.

<sup>7</sup>. 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).

countries. Knowledge of what is 'really going on' is usually extremely damaging to the aggressor. Genocides are usually carried out in secrecy.<sup>8</sup>

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.

## Personal background

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,<sup>9</sup> including considerable attention to science, technology and warfare.<sup>10</sup> 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.<sup>11</sup> 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 coup.<sup>12</sup> 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.

<sup>8</sup>. Leo Kuper, *Genocide* (Penguin, Harmondsworth, 1981).

<sup>9</sup>. 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.

<sup>10</sup>. 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.

<sup>11</sup>. 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.

<sup>12</sup>. 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.

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

### 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,<sup>13</sup> peace research,<sup>14</sup> engineering,<sup>15</sup> science and technology studies,<sup>16</sup> and communication.<sup>17</sup> Several more articles are under way, and a book manuscript is submitted for publication.<sup>18</sup>

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<sup>13</sup>. Mary Cawte, ‘Rebellious occupied territories,’ *Civilian-Based Defense*, Vol. 8, No. 6, Winter 1993-94, pp. 10-13.

<sup>14</sup>. Mary Cawte, ‘Research proposals for nonviolent defence: strategy and tactics. A review article 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.

<sup>15</sup>. Brian Martin, ‘Engineers and nonviolent struggle,’ *Engineers Australia*, December 1993, pp. 36-37.

<sup>16</sup>. 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*, 1997, in press.

<sup>17</sup>. Brian Martin, ‘Communication technology and nonviolent action,’ *Media Development*, Vol. 43, No. 2, 1996, pp. 3-9.

<sup>18</sup>. Brian Martin, *Technology for Nonviolent Struggle*, submitted to Syracuse University Press.

## Research plan, methods and techniques; 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 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<sup>19</sup> and in this case will be a form of communication itself, hence the qualifier “reflexive.” The simulation will involve not only people already familiar with social defence but others who are invited to join in. Given 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.<sup>20</sup>

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

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<sup>19</sup>. 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).

<sup>20</sup>. 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.

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. As well as formal academic publications, there will be “publication” via computer conferences and other media studied and used during the project.

### **Justification of budget**

The main 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. 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 and classify the results according to the theoretical framework utilised.

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 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.



## Publications, 1992-

### *Core of the project*

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

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, in press.

Brian Martin. Science for non-violent struggle. *Science and Public Policy*, Vol. 19, No. 1, February 1992, pp. 55-58. Reprinted in *Philosophy and Social Action*, Vol. 18, No. 3, October-December 1992, pp. 7-12 and, in abridged form, in *SANA Update*, No. 104, October 1992, pp. 13-14.

Brian Martin. Engineers and nonviolent struggle. *Civil Engineers Australia*, Vol. 65, No. 14, December 1993, pp. 36-37.

### *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.

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.

Schweik Action Wollongong (Brian Martin, member). Telecommunications for nonviolent struggle. *Nonviolence Today*, No. 27, July/August 1992, pp. 19-23, and *Civilian-Based Defense: News & Opinion*, Vol. 7, No. 6, August 1992, pp. 7-10.

#### *(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. Technological vulnerability. *Technology in Society*, 1997, in press.

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.

Brian Martin. Scientific fraud and the power structure of science. *Prometheus*, Vol. 10, No. 1, June 1992, pp. 83-98.

Brian Martin. Intellectual suppression: why environmental scientists are afraid to speak out. *Habitat Australia*, Vol. 20, No. 3, July 1992, pp. 11-14.

Brian Martin and Pam Scott. Automatic vehicle identification: a test of theories of technology. *Science, Technology, & Human Values*, Vol. 17, No. 4, Autumn 1992, pp. 484-505.

Gabriele Bammer and Brian Martin. Repetition strain injury in Australia: medical knowledge, social movement, and de facto partisanship. *Social Problems*, Vol. 39, No. 3, August 1992, pp. 219-237.

### **Other publications**

Brian Martin. Is publishing a web site address defamatory? *Defamed*, 1997, 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*, 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.