

AUSTRALIAN RESEARCH COUNCIL

Application for Initial Large Grant Support in 1996

When completing this form, please refer to the 'Program Guidelines for 1996 Research Grants'.

Applications should not be hand written and must be lodged by 1 March 1995 with the:

Director, Individual Grants Section
Research Branch (Location 731)
Department of Employment, Education and Training
GPO Box 9880
CANBERRA ACT 2601



1. Institution to administer grant

University of Wollongong

Office Use Only

File Number

F.O.R. Code

2. Project title

Maximum 38 characters per line (4 LINES). Do not use quotation

Communication technology and
nonviolent struggle

See Guidelines for codes

3. a. Total funds requested in this project in the application

1996

48,455

1997

50,183

1998

51,910

b. Socio-economic Objective

100300

c. Field of Research Classification

110899

d. Category Code

705

Priority Area (If applicable)

TEC

Other Special Interest Codes (If applicable)

MLT

4. Chief Investigators (see Guidelines)

	1	2	3
a. Title (eg. Prof, A/Prof, Dr) Initials and surname.....	Dr B Martin		
b. Full address	Department of Science and Technology Studies, University of Wollongong, NSW 2522 Telephone (042) 213763 Facsimile (042) 213452 E-mail b.martin@uow.edu.au	Telephone Facsimile E-mail	Telephone Facsimile E-mail
c. Appointment held	Senior lecturer		
d. Name of Dept/School/Other (please indicate which)	Department of Science and Technology Studies		
e. Year of birth	1947		
f. Highest academic qualification	PhD, U Sydney, 1976		
g. Sex (please tick box)	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"/>
h. Average working days per month to be devoted to the project	10		

5. Key Symbols or Key Words - List of key symbols are available from your Research Office

Give up to six key symbols or Key words to describe the subject area of this proposal

nonviolent action

technology

communication

6. Summary of Project

Write a summary, in no more than seven lines, intelligible to a lay reader, of the aims of the research, the expected outcomes and the overall significance. Do not use quotation marks. (Each line allows 70 characters including spaces)

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 systems—including 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.

7. Support

<p>a. Are you applying for support for this or a closely-related project in 1996 from any other source? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p><i>If Yes, specify which agency</i></p> <p>_____</p> <p><small>Note: The project title and the amount requested must be included in Section 14.</small></p>	<p>c. Are you requesting Funds for a Research Associate or Senior Research Associate? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p><i>If Yes, what is his/her name?</i></p> <p>_____ to be advertised</p>
<p>b. Have you applied for any of the four ARC Research Fellowships? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Is this person applying for an ARC Research Fellowship? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>

8. Work Experiments

<p>a. Does the work proposed involve human experimentation? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>c. Does the work proposed involve experiments in which there is preparation or use of recombinant nucleic acids constructed in vitro from sources which do not ordinarily recombine genetic information? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>
<p>b. Does the work proposed involve animal experimentation? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	

9. Chief Investigator Information

If any Chief Investigator is associated with a Special Research Centre or Cooperative Research Centre, supporting documentation is required.

For each Chief Investigator, detail the following:

- a. Indicate source of salary and % from each source

1	2	3
University of Wollongong, 100%		

- b. What other major research programs are being undertaken or supervised by the Chief Investigator?

1	2	3
Suppression of intellectual dissent		
Average days per month spent on these programs	Average days per month spent on these programs	Average days per month spent on these programs
6		

Other Participants

10. Provide details of the Associate Investigators.

List: * name * organisation * highest qualification	* date conferred * conferring institution * involvement in the project (average days/month)
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11. What technical and other staff (other than those requested) will be available to assist with this project?
Indicate the level of their involvement in the project (average days/month).

12. Budget Information

Detailed budget items	Priority	Amount requested			Office Use Only
		1996	1997	1998	
<i>Personnel</i>					
Research associate + 26% on-costs	A	47,055	48,783	50,510	
<i>Other</i>					
Postage, fax, telephone (for simulations)	C1	1000	1000	1000	
<i>Travel</i>					
Train trips to Sydney, bus trips to Canberra	C2	400	400	400	
Total		48,455	50,183	51,910	

Financial summary

Support requested	Personnel \$	Equipment \$	Maintenance \$	Travel \$	Vessel \$	Other \$	Total \$
1996	47,055			400		1000	48,455
1997	48,783			400		1000	50,183
1998	50,510			400		1000	51,910

Office use only

Surname of 1st Chief Investigator Martin	Administering Institution University of Wollongong
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13. Total support for this project or a closely related project

List the support received, requested or to be requested from your own organisation and all other sources, excluding this application

Name of organisation and title of project	1993 \$	1994 \$	1995 \$	Requested 1996
ARC, Science and technology for nonviolent struggle	32,000	32,000	32,000	

14. Total Support for all other projects

List the support received, requested or to be requested from any funding source. Continue on a separate sheet if necessary.

Name of organisation and title of project	1993 \$	1994 \$	1995 \$	Requested 1996
University of Wollongong, Science and Technology Analysis research programme	3000	3000	2000	2000

15. Average number of working days per month to be devoted to all projects to be undertaken in 1996 (including this project)1st Chief Investigator 16 days 2nd Chief Investigator days 3rd Chief Investigator days**16. Commencement/Completion day of project**Has the project started? Yes ☐ No ☒ If No, when will it start? January 1996How long will you need ARC support? 3 years How long will this project take? 3 years**17. Was this project funded as a small grant last year?**Yes ☐ No ☒*If Yes, please attach previous assessments, if any.***18. Will there be any research or honours students working on the project?** Yes ☐ No ☒*If Yes, state the number in each case.*

19. Certification - to be signed by all applicants

I/We certify that all the details on this form are correct and complete.

I/We understand and agree that:

- research which involves human or animal experimentation must be carried out in accordance with the guidelines laid down in the NH&MRC Codes of Practice;
- research which involves the use of recombinant nucleic acids constructed in vitro from sources which do not ordinarily recombine genetic information must be carried out in accordance with the guidelines laid down by the Recombinant DNA Monitoring Committee;
- research which involves the use of ionising radiation must have the risks involved assessed by a recognised Ethics, Safety or Bio-safety Committee, and personnel must be trained and hold a current licence, as appropriate; and
- a certificate of compliance with appropriate guidelines must be received from a recognised Ethics, Safety or Bio-safety Committee before payment of any proposed grant can be made.

I/We declare that all persons listed as Associate Investigators have agreed to take part in the proposed research.

Signature of Chief Investigators

1.	Signature <div style="border: 1px solid black; height: 25px; width: 150px;"></div>	Date <div style="border: 1px solid black; height: 20px; width: 60px;"></div>	I/We authorise _____ to sign all subsequent documentation on our behalf	Date _____/_____/_____ _____/_____/_____ _____/_____/_____
2.	Signature <div style="border: 1px solid black; height: 25px; width: 150px;"></div>	Date <div style="border: 1px solid black; height: 20px; width: 60px;"></div>		
3.	Signature <div style="border: 1px solid black; height: 25px; width: 150px;"></div>	Date <div style="border: 1px solid black; height: 20px; width: 60px;"></div>		

Note: All certificates must be signed.

20. Certification by Head of Department

I certify 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. I am prepared to have the project carried out in my Department under the circumstances set out by the applicant/s.

I have noted the amount of time which the investigator/s will be devoting to the project and certify that it is appropriate to existing workloads.

Note: A confidential statement may be forwarded to the Committee if thought advisable. Refer to the 'Program Guidelines for 1996 Research Grants'.

Signature

Date

Name (in block letters):

Jim Falk

Designation:

Professor and Head of Department

21. Certification by Director of Centre (CRC, Key, Special) if appropriate

I certify that the project cannot be more appropriately accommodated within the Centre's Commonwealth funded research program, but if the application is successful, sufficient working and office space will be made available for the proposed research proposal. I am prepared to have the project carried out as a stand alone project in the Centre under the circumstances set out by the applicant/s.

I have noted the amount of time which the investigator/s will be devoting to the project and certify that it is appropriate to existing workloads.

Signature

Date

Name (in block letters):

Designation:

22. Aims, research plan, justification of budget, and publications

To answer this question fully, you should refer to the 'Program Guidelines for 1996 Research Grants' so that you can cover the points specifically made in it, especially in relation to policy and priority information and detailed justification of the budget proposal.

Your explanation should be comprehensive but brief.

No more than 13 pages, including this form (but excluding publications), will be considered in the assessment process. Exceptions to this rule are:

- * a 15 page limit for proposals over \$100,000 or with more than two Chief Investigators;

Pages in excess will be discarded.

Use the following headings to detail your answer:

- * Aims and significance
- * Research plan, methods and techniques
- * Progress Report (see Appendix C of the 'Program Guidelines for 1996 Research Grants')
- * Justification of Budget
- * Timetable
- * Benefits of research
- * Publications - you should list all your refereed publications for the last 5 years. Use asterisks to identify publications relevant to this project.

Where the cooperation or assistance of another body is needed for the project to be successful, the Council must be provided with appropriate details.

Aims and significance

The aim of this project is to investigate how communication technologies can be used for nonviolent struggle and what can be done, socially and technologically, to make them more useful. Simultaneously, an assessment will be made of the ways in which communication technologies have been shaped by military and other priorities and how this affects their value for nonviolent struggle. This in turn will allow the development of a framework for communication policy for nonviolent struggle.

The project has a two-fold significance, theoretical and practical.

Theoretical significance There is a long tradition of investigations into social influences on the development of science and technology. The normal approach is to examine closely the social history of particular scientific theories and 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 science and technology that might otherwise have been developed.

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. This approach is pioneering theoretically, since most analysts have simply examined science and technology within existing social structures, and have not postulated a radically different goal as the basis for examining social influences.

As well, there is 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 social structure and circumstance.

Practical significance 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. The results of this project will provide practical guidance for a reorientation of communication technology for defence.

Category of project

The project is multidisciplinary, mainly growing out of the fields of peace research and technology studies. No single category code captures either field. The closest seem to be 705 (sociology) and 704 (political science).

Background²

There are numerous methods for nonviolent struggle, including petitions, marches, rallies, strikes, boycotts, sit-ins and setting up alternative institutions.³ These methods can be used to directly 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.⁴

1. 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 behind 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).

4. Anders Boserup & Andrew Mack, *War Without Weapons: Non-violence in National Defence* (Frances Pinter, London, 1974); Robert Burrowes, *The Strategic Theory of Nonviolent Defense* (Albany: State University of New York Press, 1995, in press); Gustaaf Geeraerts (ed.), *Possibilities of Civilian Defence in Western Europe*

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, science and technology have an important role to play.⁵ My ARC research on this topic over the past three years has been 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 science and technology is communication. There are many examples in which 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, attempts were made 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.⁶

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

This proposal brings together two strands of research that have occupied much of my attention for many years: the social shaping of science, and social defence. I have a long experience in examining social influences on science,⁷ including considerable attention to science, technology and warfare.⁸ 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

(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); Gene Sharp, *Making Europe Unconquerable: The Potential of Civilian-based Deterrence and Defense* (Ballinger, Cambridge, Mass., 1985); Gene Sharp, *Civilian-Based Defense: A Post-Military Weapons System* (Princeton: Princeton University Press, 1990).

⁵. Johan Galtung, *Peace, War and Defense: Essays in Peace Research, Volume Two* (Christian Ejlers, Copenhagen, 1976), 378-426 is one of the few authors to discuss this issue, and then only in a few paragraphs.

⁶. Leo Kuper, *Genocide* (Penguin, Harmondsworth, 1981).

⁷. 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.

⁸. 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.

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.⁹ 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.¹⁰ This sort of investigation into the practicalities of nonviolent defence is highly regarded overseas where the usual approach is advocacy at the level of ideas. My background, involving both extensive interviewing and theoretical analyses in relation to nonviolent defence, gives me uniquely relevant knowledge and skills for carrying out the proposed project.

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 seven foreign languages, and my work on social defence in particular is widely recognised internationally.

Progress report

My current project, "Science and technology for nonviolent struggle," funded by the ARC for 1993-1995, has laid the groundwork for the proposed, more specific project on communication technology. Research assistant Mary Cawte and I have searched through the literature on nonviolent struggle, finding but a few references to science and technology. We have developed a new framework for analysing the potential relevance of different scientific fields to nonviolent struggle. We have 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 science and technology for nonviolent struggle inherently involves popular participation much more than for the case of military systems. Separating "science and 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.

⁹. 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.

¹⁰. 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. A project on bureaucracy and nonviolence is in progress.

- 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. Because of long response times from some journals, this strategy is taking time to bear fruit. We have published or submitted articles to journals in the fields of nonviolence,¹¹ peace research,¹² engineering,¹³ science and technology studies,¹⁴ and communication.¹⁵ Several more articles are under way, and a first draft of a book manuscript is complete. Eventual publication of these works should lead to contact with interested researchers and thus provide new ideas for the research.

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, which 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, as described below. In outline, the research will be carried out in the following stages.

1. Detailed study of the dynamics of communication technology in relation to both violent and nonviolent struggle, based on literature searches, interviews, and queries via computer (18 months).
2. Reflexive action research on selected communication technologies (6 months).
3. Formulation of principles and priorities for communication technology policy for nonviolent struggle (6 months).
4. Writing up findings (6 months).

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 both violent and nonviolent struggle. Several key communication media will be selected: the post, telephone, radio, television, fax and computer networks. For each one, a study of the history and dynamics of technological development will be carried out, with special attention to relevance of the technology to violent and nonviolent struggle. We will not actually be writing a history, but rather using historical and contemporary accounts to gain insights into the sociotechnical dynamics of the medium under scrutiny. For example, without doing a comprehensive history of the postal system, it is still possible to learn about how what originally was a highly insecure system serving mainly the purposes of the crown in Britain came to be a more secure and reliable system due to commercial and popular pressures. Note will be made of any direct military influence on the communication technologies, and also of uses of the technologies for nonviolent struggles.

This study of the history and dynamics of technological development will take about twelve months spread throughout the three years but concentrated towards the beginning. It will draw on prior familiarity with much of the key literature and go far beyond a literature review to produce an analysis that provides guidance for the interviews and simulations. Much of this work will be done by the research associate under guidance.

Next, a series of interviews will be held with managers, specialist technologists and workers concerned with each of the technologies. They will be asked how the technological system might be used for nonviolent struggle and, more specifically, how it might be adapted or

¹¹ Mary Cawte, 'Rebellious occupied territories,' *Civilian-Based Defense*, Vol. 8, No. 6, Winter 1993-94, pp. 10-13.

¹² 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.

¹³ Brian Martin, 'Engineers and nonviolent struggle,' *Engineers Australia*, December 1993, pp. 36-37.

¹⁴ Brian Martin, 'Science, technology and nonviolent action: the case for a utopian dimension in the social analysis of science and technology,' submitted to *Social Studies of Science*.

¹⁵ Brian Martin, 'Communication technology and nonviolent action,' submitted to *Communication Review*.

changed to make such struggle more effective. To prompt discussion along these lines, we will raise ideas obtained from the literature as well as from our own assessments, plus ideas from previous interviewees. It is anticipated that there will be about 60 interviews. Some will take place in Wollongong and Sydney. Others at greater distance can be carried out by phone, electronic mail, etc. The Chief Investigator and the research associate will carry out some interviews together and some individually. We 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 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 the literature and 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 research¹⁶ 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.¹⁷

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. 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

¹⁶ Some examples, from a variety of fields, include David Hess, *Science and Technology in a Multicultural World: The Cultural Politics of Facts and Artifacts* (typescript), chapter 8; 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); Trevor Williams, *Learning to Manage our Futures: The Participative Redesign of Societies in Turbulent Transition* (New York: Wiley, 1982).

¹⁷ The pioneering social defence simulation at Grindstone Island, Canada—see Theodore Olson and Gordon Christiansen, *Thirty-One Hours* (Toronto: Canadian Friends Service Committee, 1966)—provided penetrating insights into the social psychology of nonviolent resistance.

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 future technologies. 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. Findings will be published as the research proceeds, in a range of journals, including peace research, social studies of science, information technology, communications, etc. 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. At 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 history and 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 suitable 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 18 months for looking at communication technologies for nonviolent and military struggle, 6 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.

Benefits of research

The results of this project can be applied directly to communication technology policy, for example in designing electronic mail networks that are more secure against hostile intervention. The study will contribute to the quality of culture by providing insight into the social shaping of communication technology, thus opening up to social control what might otherwise be perceived to be an autonomous process. It will lead to greater awareness of specific ways in which communication technology specialists as well as members of the public can use nonviolent action to defend against aggression and repression.

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