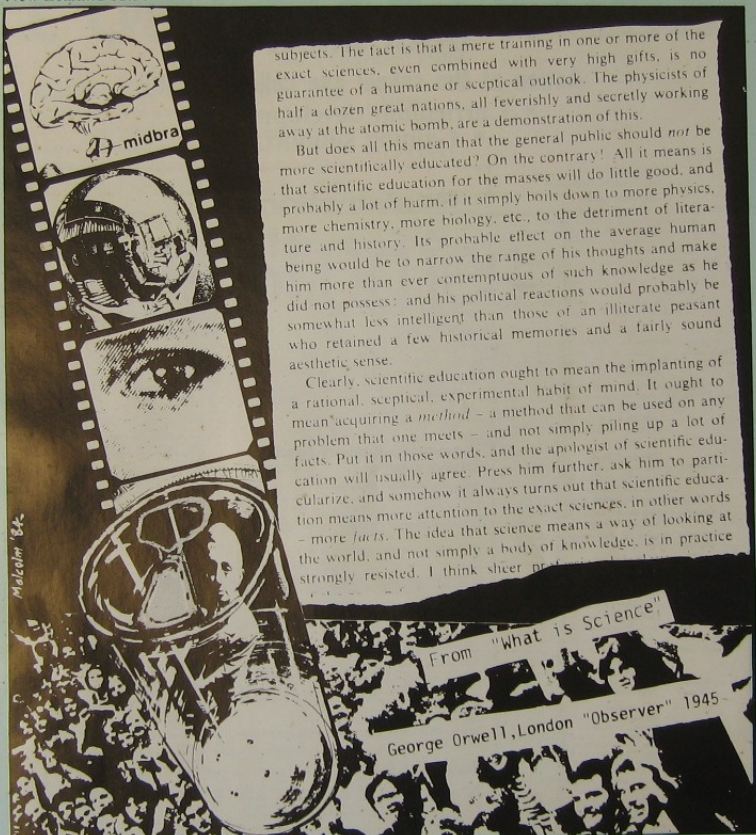


Peace Studies

Australia \$1.80
New Zealand \$2.50

October 1984



subjects. The fact is that a mere training in one or more of the exact sciences, even combined with very high gifts, is no guarantee of a humane or sceptical outlook. The physicists of half a dozen great nations, all feverishly and secretly working away at the atomic bomb, are a demonstration of this.

But does all this mean that the general public should *not* be more scientifically educated? On the contrary! All it means is that scientific education for the masses will do little good, and probably a lot of harm, if it simply boils down to more physics, more chemistry, more biology, etc., to the detriment of literature and history. Its probable effect on the average human being would be to narrow the range of his thoughts and make him more than ever contemptuous of such knowledge as he did not possess; and his political reactions would probably be somewhat less intelligent than those of an illiterate peasant who retained a few historical memories and a fairly sound aesthetic sense.

Clearly, scientific education ought to mean the implanting of a rational, sceptical, experimental habit of mind. It ought to mean acquiring a *method* – a method that can be used on any problem that one meets – and not simply piling up a lot of facts. Put it in those words, and the apologist of scientific education will usually agree. Press him further, ask him to particularize, and somehow it always turns out that scientific education means more attention to the exact sciences, in other words – more *facts*. The idea that science means a way of looking at the world, and not simply a body of knowledge, is in practice strongly resisted. I think sheer practicality is the main reason

Science, War and Peace
Peace Education
Faster than a speeding bullet
(The hypervelocity electromagnetic railgun)

National symposium on peace and disarmament education

Action at the school and college level

- Curriculum development.
- Gaining support.

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Australian Teachers Federation
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Disarmament
Federation of College Academics
Independent Teachers' Federation of Australia
People for Nuclear Disarmament
United Nations Association of Australia
Victorian Association of Peace Studies
Movement Against Uranium Mining
Peace Education Task Force

Programme
Friday, October 26, 7.00 pm-10.00 pm
Guest speaker: Susan Ryan, Minister for
Education and Youth Affairs and Mr Cliff Delan,
President, ACTU

Saturday, October 27, 9.00 am-10.30 am
Panel Discussion: Principles involved in Peace and
Disarmament Education

11.00 am-12.30 pm
Issue Based Workshops

LUNCH
1.30 pm-3.00 pm
Panel Discussion: Practical Implications, an Australian
perspective from all levels.

3.30 pm-6.30 pm
School/College Programme Workshops
Saturday evening dinner and guest speaker
6.30 pm-9.30 pm

Sunday, October 28, 9.00 am-10.00 am
School/College Programme Workshops

10.00 am-12.00
Activities, Games, Films, Computers

LUNCH
1.00 pm-2.30 pm
Panel Discussion: International Experience

2.45 pm-3.30 pm
Plenary Session: Symposium Overview

Displays of posters, art work, books, pamphlets, A.V.,
computer materials will be on show throughout the
symposium.

Endorsements
All participants are to be endorsed by their Teacher,
Parent or Trade Union organisation.

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Organizing Committee
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M Saei, Marg White, (01) 63 9920
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TUV, Bill Teepe, (03) 380 6465
VLA, Eric Ryan, (03) 429 2422
VTC, Judy Hill, (03) 82 8081

Registration

All participants are to have registration forms endorsed by their
teacher, parent or trade union organisation

In case of:

First name

Last name

Male/female (for accommodation only)

Address

State

Telephone

Occupation

Organization

Endorsed

(Authorised Officer of your organization)

Accommodation and child care

Please circle your requirements or write:

Travel Inn Motel	Friday	Saturday	Sunday
Single bed and breakfast	\$45	\$45	\$45
Double bed and breakfast	\$25	\$25	\$25
Triple bed and breakfast	\$20	\$20	\$20
Blank			
Child care	No.		
Day only	Age		

Fees to be included with registration

Motel deposit \$10

Symposium fee \$30

Amount deposited \$

Note: Symposium fee covers morning and afternoon teas. Saturday night dinner and lunch both days.

Chèques payable to ATF National Symposium account

Travel

Please make your own arrangements or contact your organization for advice.

Registration Returns

Forms should be forwarded to the Secretary of Teacher Union,
Parent or Trade Union organization for endorsement, one week
prior to the closing date. Endorsed forms must be received by
COGERS (if closing date).

Mark your envelopes: National Symposium for Peace and
Disarmament Education

Workshop preferences



School/College programme workshops

- 101 Nuclear Free Australia and Pacific
- 102 Australia — Third World Relations
- 103 Radiation and Nuclear Waste
- 104 Non-Violent Protest Techniques
- 105 1986 Year of Peace
- 106 Conflict Resolution
- 107 Environmental Issues
- 108 Uranium Mining
- 109 World Resources/Military Budgets
- 110 Women, Peace and Disarmament
- 111 Children's Perceptions of Nuclear Threat
- 112 From Despair to Empowerment
- 113 Human Rights
- 114 Racism
- 115 Land Rights
- 116 Alternative Technologies
- 117 Nuclear Weapons and Disarmament
- 118 Alternative Defence Policies
- 119 Nuclear Power and Weapons
- 120 Peace Education and Trade Unions

Preferences: 1 2

Issue based workshops

- 201 Lower Primary
- 202 Upper Primary
- 203 School Wide Programmes — Primary
- 204 School Wide Programmes — Post Primary
- 205 Teacher Training
- 206 In-service
- 207 Community Participation
- 208 Students Parents Teacher Coops
- 209 TAFE Trade Certificate Programmes
- 210 TAFE College Based Programmes
- 211 CAE/University Programmes
- 212 Multicultural Schooling
- 213 Physical Education
- 214 Social Studies: Geography, History
- 215 Mathematics
- 216 Art and Craft
- 217 Music
- 218 English and Modern Language
- 219 Sciences
- 220 Legal Studies and Economics
(When choosing 213,220 specify particular area of study, e.g. 219 — Chemistry)

Preferences: 1 2

Other workshops you would like?

Peace Studies

No 7 October 1984

The dutiful service of world science to the global war machine and armaments industries is well known. It accounts for much of the ambivalence in community attitudes to science. The railgun (ie the 'hypervelocity electromagnetic railgun') is a classic example of a scientific concept with limited technological development being picked up by the drive for weaponry and channelled into the arms race. The pursuit of 'artificial intelligence' or 'strategic computing' is another example.

In this and the next issue of *Peace Studies* we present a series of articles by members of the group Scientists Against Nuclear Arms. The authors retain an essential faith in science — an optimism for science. They argue for a redirection of research priorities. They also call for a position of social activism by scientists on questions of war and peace, as a matter of social responsibility and out of a concern for human welfare.

The task is enormous. French Air Force General Gallois in a hawkish article in *Politique Internationale* on Reagan's 'Star War' proposal concluded that it would demand scientific endeavour for the next 20 years: "Reagan's United States, is on its way toward a new 'takeoff'. The billions of dollars invested in the space projects will stimulate and sustain all the most advanced technologies. The United States will skim off the world's gray matter, and the efforts of so much talent directed toward the great scientific adventure will increase even further the gap that separates the New World from the Old."

He concludes: "that this is probably the justification for the strategic turning point (Star Wars) decided on by the President of the United States".

The leap by science into the void of outer space is to court global disaster — an urgency averted to by Julie Dahlitz in her discussion of "Australia and the Arms Race" in the August issue of *Peace Studies*.

Is the scientific community so easily bought? If members of that community are to stand up against such pressures, they need to call on another long tradition in science — science in the service of humanity — rather than science in the service of the national defence organization; science for peace rather than preparation for war in the name of peace.

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October 26-28, 1984
Melbourne College of Advanced Education
757 Swanston St., Carlton

Peace co-operative rejected

Some time ago Brisbane's Peace and Education Centre (then called Peace Research and Resource Centre), applied for incorporation as a co-operative. The members felt that "education for peace and education for co-operation are synonymous", and that formal registration would be a good way of "externalising" this.

In January, however, their application was rejected by the Registrar. The Centre then appealed to the District Court, but in August Judge Kimmonds ruled that the Peace Research and Resource Centre was not a Co-operative in the sense intended in the Co-operatives and Other Societies Act.

The case raises the question of whether co-operatives serving social rather than economic interests should be recognised. The Brisbane Centre feels strongly that they should. VAPS is currently establishing a publishing co-operative in Victoria, as a separate entity, and will not face the same obstacles. Victoria's Co-operation Act is also being changed to remove some of the more archaic provisions.

The Centre has decided in the meanwhile to seek registration under its new name as an Incorporated Association. The members maintain that they will continue to apply their co-operative principles in their organisation and work.

The September newsletter of the Centre reports lively activity in the Brisbane region, including workshops and informal arrangements for

An invitation to write for Peace Studies

- Contributions are sought in a wide variety of areas:
- short notes, reports, news, items of interest
- letters from readers
- articles to 2,000 words
- fiction, poetry, exploratory essays
- reviews and review articles
- cartoons, graphics, and photographs

Contact the magazine on (03) 660 2900 ext 38, or write to *Peace Studies*, GPO Box 12741, Melbourne, Vic. 3001, Australia, to talk over your ideas. Written contributions should be typed, double-spaced, wide margins, on one side of sheet, and include a brief description of the author. Please provide contact telephone number if available.

mutual encouragement of member's peace research. These include quarterly meetings at which research in progress is reported and discussed.

The newsletter also reports that peace and justice groups in the area are approaching the Federal Government to fund a Peace and Justice Centre to fund the work of local groups.

The address of the Centre is 5 Lansborough Terrace, Toowoong, 4066.

Herbicides in war

The USA used some 91 million kilograms of anti-plant agent during the Second Indochina War against the natural environment of Indochina, making this war a major example of *chemical warfare* — the second in history, following the massive use of anti-personnel agents in the First World War — and an example of *environmental warfare*.

The new SIPRI publication *Herbicides in War: The Long-term Ecological and Human Consequences* is the definitive study to address these questions. After more than a decade has passed, Vietnamese on-site research and clinical human studies have provided the first opportunity to examine in depth the delayed consequences of this massive use of herbicides. The publication focuses on the Vietnamese studies, but places these findings also into the context of present knowledge from other scientific research, and includes a useful selective bibliography. It builds on the work of an independent international symposium of scientists convened in Ho Chi Minh City, 13-20 January

1983, which brought together prominent scientists from 20 different countries, East and West, to meet with their Vietnamese colleagues.

Published by Taylor and Francis, London.

Nuclear Disarmament Party

Australia's newest single issue political party was formed in Canberra on June 17 and is presently undergoing registration with the electoral office.

Having been a member of this party since its inception I've been able to observe the steady growth of its membership which has been an inspiration in our attempt to steer Australia on the path to ending uranium mining, closing foreign military facilities and prohibiting the

presence of nuclear weapons on our soil or within our waters or air space.

We strongly support the newly elected New Zealand Labour Government's nuclear policy which shows that these goals are not unrealistic and can have great impact.

We are now well-established in both the ACT and NSW, and Victorian branches, including Melbourne, are presently well on their way to becoming operational. Naturally, our need for hard-working participants in the Party's activism is difficult to meet and we urge anyone with uncompromising views of an anti-nuclear nature to help and join us.

Further information from NDP, PO Box 4114, ACT, 2604 or ring: ACT Dr. Michael Denborough (062) 864 650 NSW Janet Kenny

(02) 90 2870 VIC Gary Guest 898 4610 Martina van Holland



Missiles recalled

The US Navy has had to recall more than a third of its first batch of Trident C4 missiles, according to a report by Harold Jackson in the *Guardian*, (26.8.84). There are persistent problems with the first-stage engine, and a senior naval officer has admitted that the entire arsenal of more than 700 Trident C4 weapons may be unreliable. The report follows a stir created last year when the US Under Secretary of Defence, Mr. Richard Delaver referred to the "lousy performance" of the missiles.

The weapon is designed as the USA's principal seaborne strategic missile. It has a range of over 6000 km and

can be equipped with up to eight 100 Kiloton warheads. So far, three of the huge Ohio class nuclear submarines — each carrying 24 Trident missiles — have become operational. There are also 12 older nuclear-powered Poseidon submarines which were specially modified at a cost of over \$2 billion to carry the Trident.

The *Guardian* editorial argues — "The moral of the failure of the engines on one-third of the C4 missiles is that if the West can suffer such a loss of effectiveness by accident, with no fear of the consequences, it can do so by design. The answer to the Russians' shortsighted refusal to talk about arms reductions is therefore to make some reductions unilaterally and see what the Kremlin has to say about that".

Peace Foundation

The Committee for an Australian Peace and Development Research Institute (APADRI) is seeking comments on a proposal to establish an Australian Foundation for Peace Studies.

The proposal has been prompted by a view that the newly established peace research centre at the Australian National University will be limited in its activities as it will be a much smaller organisation than originally proposed. The Committee is seeking reactions to its proposal for an independent foundation and correspondence should be addressed to Hon. Secretary, APADRI, 24 Goodpaster Street, Hawker, A.C.T. 2614.

Third World War

In 1980 Community Aid Abroad organised a widespread network of workshops focussed on poverty and oppression in the third world. The program was called *Third World War*.

CAA is now launching a similar program; this time it is: *The Third World War, the Philippines Front*. This study and action program is designed to enable us to understand problems experienced in third world countries in general, through an intensive study of the

New Zealanders support the ban ... poll.

A recent nation-wide opinion poll shows that a clear majority of New Zealanders support the new Labour Government's nuclear weapons-free policies. The poll, taken three weeks after the general election by the highly-regarded *Heyley* organisation, showed 76.4% supported a ban on the entry of nuclear weapons, 18.4% disapproved and 5.2% were uncommitted. Labour's policy for a nuclear weapons-free South Pacific won 69.2% approval with 23.8% opposed and 7% undecided.

Almost 60% approved Labour's policy to renegotiate the Anzus alliance, 23.9% disapproved and 16.2% were uncommitted. However, on the question of banning nuclear-powered ships, opinion appears evenly divided with 45.4% approving such a ban, 45.3% disapproving and 8.7% undecided.

Labour's Minister of Defence, Mr. Frank O'Flynn, said that the poll confirmed majority support for his government's policy. He added that the evenly split result on nuclear-powered ships was easily offset by the high majority against the entry of nuclear weapons into New Zealand.

Others point out that a ban

situation in the Philippines."

The arrangement is for small groups of people to meet on from four to seven successive weeks, usually in private houses. People can join existing groups or form groups of their own; e.g. a



on nuclear weapons would automatically ban nuclear-powered ships, as the commanders of these habitually refuse to state whether they are free of nuclear weapons.

However, a US Embassy spokesman, Mr. Charles Bell, said the poll would not strengthen Labour's hand in dealing with the US on nuclear visits. "We have no indication from Washington that our feelings have changed in any way on this", he said. He claimed the poll was interesting "but rather meaningless" and raised more questions than it answered.

group of VAPS members could meet and ask CAA for a discussion leader. Participants will need the study guide which costs \$2. A background book on the Philippines is being produced. The main topics covered by the discussions are: human rights, health, the Philippines economy, militarisation, forces for change, and Australia's role in the Philippines, including military aid. For further details contact the Melbourne CAA office, phone (03) 419 7055.

Maralinga

The Minister for Resources and Energy, Senator Peter Walsh, has released a number of statements on weapons tests at Maralinga as well as tabling documents in Federal Parliament.

The statements and attachments are a major source of information on the Maralinga

What shall we tell the children

The booklet of this name mentioned in *Peace Studies* last month is available in Australia for \$1.80 post paid from *Interhelp*, PO Box 172, South Lismore, NSW 2480.

Sound Women's Peace Camp

Women of Australia are moving to protest against the global violence which surrounds us! Like our sisters at Greenham, Comiso and other places around the world — and following on from the women's peace camp at Pine Gap in 1983 — women will be gathering at Cockburn Sound in December of this year to express their opposition to nuclear madness through creative, non-violent action.

This action, the second national women's peace camp, will be known as the "Sound Women's Peace Camp". The submarines entering Cockburn Sound (Stirling Naval Base) are soon to carry Tomahawk (sea launched cruise) missiles — the same as have been deployed at Greenham Common. This, if nothing else about the base makes our action of international scope, linking us with world-wide anti-cruise protests.

We would like to reach as many people in as many different places as possible with information about the Sound Women's camp. If you are interested in writing an

article we would be happy to send a kit of information about the camp. Alternatively, we would be prepared to collate some of this information into an article, of a size specified by you.

The world's ever increasing nuclear arsenal, and the accompanying threat of war is of concern to all people. We feel your readers would be interested to hear how we, as women, are overcoming our traditional invisibility to effectively protest against this threat.

Carolyn Smith,
for WAND media/secretarial
collective,
PO Box 53,
North Fremantle, WA 6159.

Something else we can do!

It will be 10 years on 13th November, 1984, since Karen Silkwood was killed. A bright school-girl, she had believed that scientists knew so much that they were way above ordinary people.

Shortly before her death she found that most of those "superior beings" who worked in the nuclear field had been either deliberately lying, or

under-stating the dangers from radio-active particles that workers from uranium extraction to the manufacture of plutonium rods were daily being subjected to. Navajo Indians had for years been showing high incidence of cancer of the lungs.

Thousands of Australians are opposing the mining, sale and export of uranium, basing their propaganda mainly on the making of nuclear bombs. But we do not have any simple explanation of the real dangers of 'small doses' because we too are indoctrinated into believing the scientists who tell us of the "safety" limits, and who would dare to contradict a "scientist"?

Those few scientists who have battled to expose the truth have been ridiculed, and often have lost their jobs.

Two books, *The Killing of Karen Silkwood*, by Howard Kohn (Hodder and Stoughton) and *Poisoned Power*, by two US Scientists, Goffman and Tamplin (my copy was from Sydney Public Library) should be read by everyone working for a nuclear-free world. The Silkwood court case and *Poisoned Power* both give convincing evidence that it is not only the nuclear bombs we need to worry about but

that there is no safe dosage for the body — "a speck of the size of a pollen grain" breathed in can be the beginning of leukemia, and various kinds of cancer, which may not show up until 5, 10, 20 years hence. (A bleak outlook for the children of the world.)

The best tribute we could pay Karen Silkwood, her family and all those unnumbered people in America who stood up to the Kerr-McGee machine (and the scientists paid by it) and exposed the "tiny dose" dangers, would I think be a special leaflet, written simply to help the 'ordinary' people to a position where they would have confidence to oppose the lies and half truths of the pro-uranium scientists. Dr. Glenn Seaborg (the scientist who named plutonium) is quoted as saying:—"If ever an element deserved the name associated with the underworld, it's plutonium. Plutonium is fiendishly toxic, it's a thousand times more deadly than nerve gas, twenty thousands times more deadly than cobra venom." (p. 80, *Who Killed Karen Silkwood*).

Gladys Bird,
Forster, NSW

Faster than a speeding bullet: the electromagnetic railgun.



A new weapon is being developed by the United States with Australian assistance — a device which can accelerate small projectiles to astonishing speeds. PAUL GRECO reports on the dangerous game of ballistic missile defence for which it is intended.

On March 23, 1983 President Reagan issued a challenge to the scientific community of the United States. He called upon: "those who gave us nuclear weapons, to turn their great talents to the cause of mankind and world peace, to give us the means of rendering nuclear weapons impotent and obsolete".

He envisaged the development of a Ballistic Missile Defence (BMD) and Air Defence that would intercept and destroy all nuclear weapons launched to attack the United States. Attractive as this may seem at first, upon further study it is evident that the deployment of such a system will not necessarily make the world any safer. In fact it may do just the opposite. Whether it is wise to develop such a defence system or not,

research is already well under way. The US Department of Defense plans to spend almost \$8 billion over the next three years for research on missile defence. It is the purpose of this paper to discuss the recent development of a particular ballistic missile "kill" mechanism, Australian involvement in this research and finally to look briefly at the consequences of the deployment of Ballistic Missile Defence.

Boost phase attack

An attack by the USSR on the US, or vice versa, would use mainly land based Intercontinental Ballistic Missiles and Submarine Launched Ballistic Missiles. These would be able to

reach their targets within 30 minutes of launching. It is defence against these weapons that is under consideration in this paper, although a comprehensive defence would also need to deal with bombers and cruise missiles.

A comprehensive system of defence against ballistic missiles would be made up of a number of 'layers' designed to be able to attack the incoming missile in the different phases of its flight. The means of defence range from attack against the re-entry vehicle (carrying one warhead) just above the target, to attack against the booster rocket (carrying as many as ten warheads) not far from the launch site. It is attack in the very early stage (or boost phase) that is attracting most interest at present.

The Reagan Administration's Defense Technologies Study Team is quoted in *Aviation Week and Space Technology* (Dec. 5 1983) as saying: "The ability to effectively respond to an uncontrolled threat is, therefore, strongly dependent on the viability

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Deterrence

The essence of deterrence is the certainty that the potential enemy is able to retaliate in kind to a nuclear strike.

To use imagery readily understood by President Reagan: two men face each other with guns drawn, both know that they can kill each other; both know that if one fires the other will get off a shot which will kill the other. In this situation, each has an incentive not to fire.

But what about the situation where both have sufficiently precise weapons to be able to wound each other rather than kill each other? This is analogous to limited nuclear war. It is an absurd concept because it depends on both sides being prepared to abide by an agreed set of rules in a situation of great trauma.

And finally there is war fighting where one side believes it is possible to win. This means having the ability to fire down the barrel of the opponent's weapon. For success it requires two things, precision weapons and a willingness to strike first.

But what is the rational response of the other gunman in such a situation, if he perceives his opponent has or is developing a precision gun which will destroy his own gun?

He must fire first, before his own weapon is rendered ineffective. His opponent who is developing the precision weapon knows this so he also has an incentive to strike first. This is why the development of guidance and weapons systems which are aimed at destroying the second strike capability of the opposing superpower is so diabolical.

Kenneth Davidson
The Age 30 August 1984

lity of a boost-phase intercept system". Destruction of missiles within the first five minutes of flight is regarded as the key element of an "layered" defence system. In an early attack, all of the reentry vehicles can be destroyed in one hit thereby greatly reducing the number to be dealt with by subsequent layers. The destruction would occur

over the attacker's territory so that even the debris would never reach the target.

Although early attack seems a favourable option, it has the disadvantage that the "kill" must occur within a short period (5 minutes). The potential number of targets would be approximately 2000 boosters. What is required is a space based, high energy, rapid attack, "kill" device. Until recently the main candidates have been "directed energy" devices such as lasers. At present, however, interest is focussed on a hypervelocity electromagnetic railgun that could fire from an orbiting space platform.

The electromagnetic railgun

Electromagnetic propulsion is nothing new. It had been worked on for some 80 years but none of these efforts evolved into a practical device. Revival of serious interest began in the early 70's when Richard Marshall and his colleagues of the Australian National University in Canberra updated the old concept. They produced a railgun that could accelerate 3 gram plastic cubes to velocities of 6 kilometres a second. The device is called a railgun because its "barrel" consists of two parallel rails. When the gun is fired, a powerful pulse of electricity (enough to light up a small city) goes down one rail and surges to the other rail via the thin metal back of the projectile. This metal "fuse" is vapourised, creating a cloud of electrically charged particles (plasma). The plasma is accelerated by a magnetic field and moves down the barrel, pushing the projectile ahead of it.

The attractiveness of electromagnetic propulsion is the high projectile speeds obtainable. The theoretical limit is the speed of light: Speeds of up to 150 kilometres a second are within practical limits. Travelling at such high velocities (hypervelocities), the railgun projectile is

"Revival of serious interest began in the early 1970s when Richard Marshall and his colleagues at the Australian National University in Canberra updated the old concept."

able to destroy by mere impact. Research at the University of Texas has already successfully accelerated a 320gram projectile to 4.2 kilometres a second. The kinetic energy associated with such a projectile is equal to that of a 1 tonne automobile travelling at 270 kilometres an hour. One can imagine the penetrating ability of such a projectile.

A recent US defence department study (*Aviation Week and Space Technology* Dec. 5 1983), recommended that railgun technology should be exploited for missile defence. It recommended that \$525 million be spent on its development over the next six years. At present, a number of companies (General Dynamics, Westinghouse, Litton, General Electric, Vought, General Atomic Physics International, Aerojet) are working in conjunction with the Airforce Space Technology Centre at Kirtland, New Mexico. Defence Department officials say that present research is only scratching the surface and that industry is: "limited only by the speed of light and engineering problems".(1) Westinghouse has installed a prototype railgun in Dover, New Jersey and is developing a space-based design. Three defence firms are working on a multishot device.

Although still in the early stages of development, the electromagnetic railgun is certainly a serious candidate for destroying missiles in the early phase of attack.

Australia's involvement

As was mentioned earlier, Australia has pioneered the development of the railgun. In fact Richard Marshall went to the United States to help in the developmental work at the University of Texas. Research has continued at the Defence Department Materials Research Laboratories here in Melbourne. Until recently this was led by Dr. Anthony Bedford, Australia and the US are involved in a col-

More powerful than a rolling locomotive?

Quote: "Research at the University of Texas has already successfully accelerated a 320 gram projectile to 4.2 kilometres a second. The kinetic energy associated with such a projectile is equal to that of a 1000 kg automobile travelling at 270 kilometres an hour."

laborative programme carried out under the auspices of a joint Memorandum of Understanding on co-operative research and development. This bilateral agreement for the technology development of railguns has been underway for the last 3 years.

The Australian Government claims (*Hansard, House of Representatives*, May 2, 1984), that it is not interested in Ballistic Missile Defence. The main potential application of the railgun for Australia seems to be in areas such as the interception of anti-ship missiles. Of course, while not of interest to Australia, the research being done at the Marybong laboratories directly contributes to the proposed American BMD system.

BMD - is it worth it?

At first we may all agree that an impenetrable shield to the array of nuclear weapons that plague our planet could be nothing but desirable. But before we give our support we need to consider the ramifications of such a development. It must be stated at the outset that the effectiveness of such a shield is technologically, highly improbable. It is unlikely that a leakproof system could be developed against today's offensive weapons, let alone those to be produced in the future. There is no reason to believe that dramatic advances are any less likely in offensive technology. Because of the incredible destructive power of nuclear weapons, a mere 2% successful penetration of an all out first strike would obliterate US or Soviet society. Furthermore although a leakproof defence is never likely to be obtained, the existence of a BMD system would encourage an attacker to use a higher number of warheads to do the same job. It would also be able to provide considerable defence against a ragged retaliatory

attack, and hence favour the attacking side. In other words it would also be able to deal quite adequately with a small number of incoming warheads.

It is argued that missile defence would act as a deterrent by making a nuclear attack more costly, less reliable and less devastating. However it is necessary to consider a number of extensive consequences of deploying a BMD that may not be obvious at first.

- BMD favours the side that strikes first and thus makes such an attack more tempting or even 'necessary'.
- There would be less incentive for US or USSR leaders to avoid conventional conflicts, since a nuclear response might be seen as either less likely or less effective. This would especially be the case for smaller nuclear powers. Both superpowers could pursue a more aggressive foreign policy. BMD would make both superpowers even more super than they are already.
- Because of the perceived threat of BMD against offensive missiles military strategists may develop new fighting weapons which could inflict more damage than was possible before. In any event, the arms race would be escalated, with even more military dollars being spent.

So far we have ignored the Anti-Ballistic Missile treaty of 1972. This treaty all but bans Ballistic Missile Defence. It certainly precludes such an extensive system as envisaged. It specifically bans the use of testing of any space based defence system. A communique released by the US and USSR at the conclusion of the 1977 review of the treaty stated:

"The parties agree that the treaty is operating effectively . . . serves the security interests of both parties, decreases

the risk of outbreak of nuclear war, facilitates progress in the limitation and reduction of strategic offensive arms and requires no amendment at this time."

The Anti-Ballistic Missile treaty is viewed as the only formally enduring accomplishment of more than a decade of US-USSR strategic arms negotiations. It is strongly agreed that an abandonment of the treaty would make it more difficult to control and reduce strategic offensive weapons. John Foster, who serves on the US president's Foreign Intelligence Advisory Board says in *Ballistic Missile Defense* that: "Despite the treaty's imperfections, most students of nuclear policy, regardless of their political orientation, believe, as I do that the treaty is very important to peace and that its viability should be nurtured and protected."

Conclusion

After considering the matter to some degree, I, like Raymond Garthoff, executive officer of the US delegation to the Strategic Arms Limitation Talks, find that "It is difficult to reach any

Australia's Role

The Government cannot fudge this issue. Australia has played a pioneering role, which is an on-going role in a technology which has the primary purpose of attempting to make President Reagan's "Star Wars" dream a reality.

To continue this electromagnetic gun programme will make Australia's concern to prevent an arms race in outer space totally unbelievable in the eyes of other nations.

Senator Michael Macklin
Australian Democrats.

other conclusion but that under present and foreseeable circumstances, any intensified pursuit of BMD can only have a negative impact on East-West relations, ranging from moderately to disastrously negative in both its political and its military and arms control dimensions." (*Ballistic Missile Defense*)

A major ballistic missile defence programme would be costly and destabilizing as well as ineffective. It would increase the risk of nuclear war without significantly reducing its consequences and surely damage, if not destroy, the prospects for arms control. Hope lies not in technology, but in stabilizing arms control and in persistent serious effort to remove political tension between the superpowers.

SCIENTISTS AGAINST NUCLEAR ARMS



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"A major ballistic missile defence program would be costly and destabilizing, as well as inefficient. It would increase the risk of nuclear war without significantly reducing its consequences and surely damage, if not destroy the prospects for arms control."

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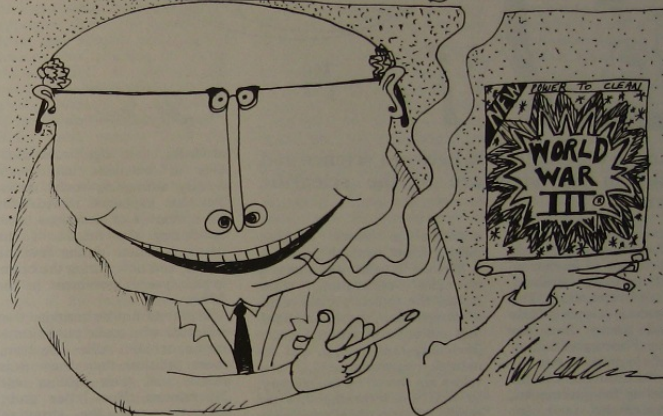
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Science, War and Peace (I): building a lasting activism

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There are strong pressures on scientists to stick to narrow research tasks, but at times activism develops. BRIAN MARTIN looks at the styles of activist scientists, and suggests ways to build a lasting social involvement.

Since the resurgence of the worldwide peace movement in the early 1980s, a great number of scientists and technologists have become active on peace issues. There are specific groups catering for occupations ranging from civil engineering to computer programming. Many individual scientists who have never before been involved in social action have taken public stands.

Historically this is quite an unusual situation. There are many influences on scientists which discourage social action. My aim here is to outline some

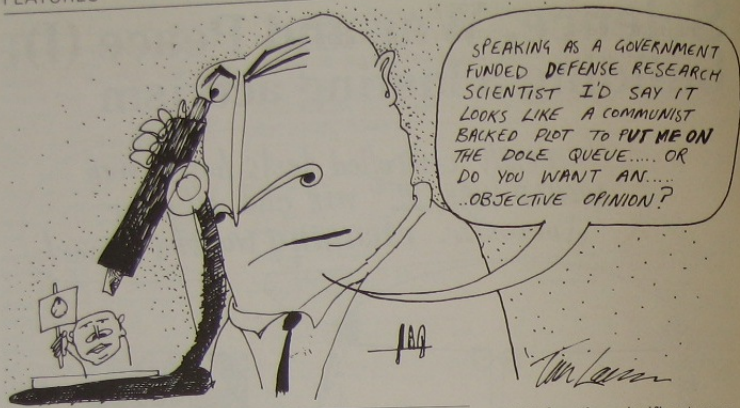
of the factors influencing scientists towards either quiescence or activism, and to suggest a few ways in which the present wave of activism can be steered to maximise its lasting impact.

Science and the war system

The normal operation of science is closely linked to the institutions behind war. There are several important mechanisms¹. First, a major fraction of funding for science is directly or indirectly linked to military ends.

Such funded research ranges from weather prediction to the psychology of soldiers. Funding priorities also influence the direction of technological innovation — such as the military promotion of computing — which then influences the ongoing development of science (see item on *Strategic Computing* in this issue). Another result of funding priorities is that what are seen as important scientific problems — in areas from remote sensing to plasma physics to the mathematical study of conflict situations — often become linked to military priorities or perspectives.

The key to the connection between science and war lies in the structure of the scientific community. Most modern



“The key to the connection between science and war lies in the structure of the scientific community.”

scientific researchers are full-time professionals working on specialised topics in a bureaucratic setting of government, university or corporation. This way of organising science is fairly recent, and results from the capturing and incorporation of the scientific enterprise into the dominant institutions of the state (including the government, state bureaucracies, and the military) and corporations². The state and to a lesser degree corporations provide funding for science, and they also provide positions of influence to scientific elites. To gain access to this money and power, science has been restructured to be highly professionalised, bureaucratized, specialised and, at the level of interaction with the state and corporations, hierarchical. Each of these features of science makes it selectively useful to the state and corporations: professionalisation and bureaucratization tie scientists to the projects actually or potentially useful to the funders of science; specialisation makes the results of scientific research difficult to use except by large-scale, bureaucratic organisations; and hierarchy cuts off participation by

scientists in major decision-making about research priorities. Science is also an intensely masculine occupation, manifesting the typically male values of competition, emotional aloofness and objectification of nature (including both women and the natural environment). These values are shared by the military, so it is not surprising that the results of ‘masculine’ research – based on the aim of domination and manipulation of nature – are so readily used for military purposes.

Popular pressures

This incorporation of science into dominant institutions is the reason why so few scientists have become involved in antiwar activities. But the structural pressures for quiescence and sticking to the narrow research task at hand are not all-powerful. At all times, there are individuals who refuse the terms of orthodox science, due to individual conviction. This conviction is often linked to radicalising experiences, or to belonging to communities of resistance such as the Quakers. And when social movements expand and influence community

attitudes, then significant numbers of scientists may begin overtly addressing social issues. This has happened in Australia on a number of occasions, such as during the height of the uranium debate during the late 1970s, and now during the boom in the peace movement in the 1980s.

It should not be imagined that scientists who make public statements or join rallies are being more political than those who remain in their offices and laboratories. The latter group cannot escape the structural influences of funding, bureaucratization and selective usefulness of scientific results. Their research is inevitably value-laden due to the values embedded in the context of their research, both organisationally and theoretically³. Those who become ‘socially active’ are merely being more overt in attempting to link their values and their actions.

But even those who join peace groups and groups for social responsibility of scientists often reflect in their behaviour the institutional pressures under which they continue to work. There are several typical paths for scientist activists.

In order to continue to maintain their scientific credibility among peers – in other words, to make their activism com-

“The pressures on socially active scientists can be very great . . . Some who remain active in conspicuous ways will be subject to harassment, denial of research funding, blocking of career advancement and sometimes dismissal attempts.”

patible with their careers as scientists – many scientist activists try to be seen to be ‘socially responsible’. One way to do this is to draw on one of the dominant themes in the ideological justification for science: the search for truth. Following this line, ‘responsible’ scientists prefer to offer only ‘objective’ comment on social issues. But although this approach draws its justification from the alleged neutrality of science, the practice of ‘social responsibility’ is not socially neutral in application, since any public comment on social issues is inevitably political in impact. Since most experts work for dominant institutions such as the military and critical technical comment is scarce, those who offer ‘objective’ comment on the issues in public often end up aiding the critics of established institutions.

However, the stance of providing allegedly ‘objective’ comment in the public arena is inherently unstable. Scientists who do this are seen as political by colleagues and superiors and can come under pressure to reduce their public activity. This pressure often can be withstood while social movements make public comment on the issues hard to suppress. But when the issue becomes less salient publicly, or more overtly politicised so that the stance of making ostensibly objective comment is hard to maintain, then a withdrawal of effort is one likely possibility.

Another possible response to the conflicting pressures on those who offer ‘objective’ comment is a shift to more political involvement in the issue. Those taking this path then join others who started out with such an orientation. Many who do this draw on a different theme in the ideological justification for science: service to humanity. The prevailing interpretation of this theme is that scientists should do their job well, and let society (that is, in practice, elite decision-

makers) decide how scientific results are used. This is then supposed to lead to proper use of the benefits of science. But the results – such as nuclear, biological and chemical weapons – have often led scientists to question their passivity in the decisions about applications of science. Such questioners may become socially active in a way which is political in a relatively overt way.

As long as social movements are strong, such involvement may be possible to sustain. But the pressures on socially active scientists can be very great. Many will be encouraged to return to the lab after the shouting has died down. Others, in the early stages of their careers or without a secure foothold, will be forced out of science if they do not conform. Still others who remain active in a conspicuous way will be subject to harassment, denial of research funding, blocking of career advancement and sometimes dismissal attempts⁴.

The style of activist scientists

Not only is the amount of social activism strongly influenced by the social environment in which scientists work, but so also is the



style and type of their social involvement. In many ways the assumptions underlying the social activism of scientists reflect the assumptions underlying their training and their working conditions. Several typical features of the efforts of activist scientists illustrate this.

- Belief in rationality. Scientists carry out their research work assuming the use of the rational thinking to develop theories and examine evidence. Although this assumption is suspect even for scientific work⁵, scientists apply it in the public realm when they trust in the power of knowledge and logic alone to bring about better social outcomes. This assumption is shared by many others in peace movements. Unfortunately, much more than knowledge and logic are needed to bring about changes in the face of vested interests.

- Appeal to elites. Scientists are used to pursuing careers and building research empires by enhancing their scientific reputations among scientific elites and catering to the requirements of organisational elites. The orientation in public activism is often the similar one of taking arguments to political elites, who are then expected to implement rational policies based on advice from scientists. This approach is largely useless, I would argue, since the structural position of elites is the main determinant of their views, and they cannot be expected to undertake policies which will undermine their own power.

- Reliance on expertise. Scientists are experts, and so surprisingly they tend to encourage dependence on their expertise. This means arguing social issues in technical terms, such as the familiar emphasis on the effects of nuclear war or the capabilities of the latest war technologies. Much of this effort is quite valuable, but often it also has the effect of removing the debate from political fundamentals and of disempowering those who are

Informal public enquiries.

Yet how effective has SANA been? What follows is a series of observations on what I believe are some key weaknesses which SANA needs to address if it is to enhance its effectiveness within the Australian peace movement. These reflections derive from applying a social science perspective to SANA as a social movement, drawing on social scientific understanding of the factors which affect the ability of social movements to achieve their objectives.

Absence of policy debate

My first observation is that whilst SANA has laudable aims, in brief, to halt and reverse the arms race, to engage in public education, to collaborate with other scientific groups with similar aims, and to provide a forum for public debate, these objectives have not been translated into specific policies. Policies have not been adopted on such issues as the mining and export of uranium, the bases and the ANZUS alliance, the hosting of nuclear powered and/or armed ships and other contentious issues currently being debated within the Australian peace movement. This stems in part from a rather narrow conception of what scientists can or should do as scientists. Many SANA members hold the view that the prime

their analyses and formulate policies.

In defence of SANA, some of the issues cited above such as those pertaining to the mining and export of uranium are contentious from the technical point of view and it would be difficult to gain unanimous adherence from the membership for specific problems. But this is no excuse not to debate them. Debate is an ongoing feature of the practice of science as illustrated by the content of scientific journals. Scientific scrutiny of the various points of view could be enlightening. It would have been a salutary public education exercise if SANA scientists had engaged in the uranium debate not just as individuals but as an organization. Yet some members of SANA believe that to have specific policies is to step over the boundary between science and politics; that to make public pronouncements for or against x or y is to engage in politics which would be divisive in an organization whose members do not share a common political viewpoint.

Be that as it may, the present lack of policies deprives the public of guidance and a voice from a credible group of people who must by virtue of their training have a certain degree of expertise which would entitle them to make authoritative pronouncements.

"Over the next few years it will be important for SANA to evolve some grassroots mechanisms whereby its members can determine policy democratically."

function of the organization is to disseminate the facts pertaining to this or that issue but it is for others to decide what conclusions to draw from those facts, depending on their moral and political points of view. I believe that this is inconsistent with how scientists behave in their own professional work. Theories and facts are appraised and analysed, and conclusions are drawn. If scientists can play a special role in the Peace Movement because of their ability to dissect technical and expert opinion, why should they not be able, too, to draw the obvious conclusions which follow from

This problem may well be resolved as the organization grows larger and as a more decentralized branch structure emerges. With a management committee that until now has had to co-ordinate activities right across the country it is perhaps inevitable that some ordinary members find it difficult to exert any influence on SANA's structure and priorities. New Zealand SANA, with a much smaller membership and a narrower geographical spread, has not experienced the same organizational difficulties. It has, for example, played a prominent role in opposing the visits of

nuclear armed ships. Over the next few years it will be important for SANA to evolve some grassroots mechanisms whereby its members can determine policies democratically.

Unscientific assumptions about social change

My second observation concerns the tendency to rely on assumptions about how social change can be brought about, assumptions which are not borne out by social scientific analysis of the political process in liberal-democratic societies like Australia. Most social scientists regardless of theoretical approach are agreed that popular conceptions about how political decisions are formulated and where real power resides are erroneous. The experience of studying sociology, for example, is often quite traumatic. One realizes the extent to which a whole range of our conceptions about the social world are merely the result of a profound socialization into a dominant belief and value system which bears little relationship to reality and merely serves to mystify. Most natural scientists within SANA have had little exposure to the social sciences and rely on what I would call unscientific commonsense judgements about social and political realities.

As an illustration, one could

scientists assert, the structures of militarism are deeply rooted in the fabric of society both in the West, and in the East, it is inconceivable that the arms race can be halted without profound changes in society. As Raymond Williams has so lucidly argued, if we want to get rid of nuclear weapons, we will have to get rid of a lot else besides.⁽¹⁾

Scientists in their work pride themselves on establishing connections which have hitherto passed unnoticed. SANA, too, needs to apply a scientific perspective to elucidate the linkages between the arms race and militarism and other aspects of our social life which may appear unrelated in popular consciousness. Only by increasing public awareness of how the structure of the nuclear arms race relates systematically to other features of our society can we hope to reverse the rising tide of militarism. This point implies that SANA needs to engage in a more widely ranging social criticism.

Spurious enquiries

My third observation concerns the responsibility of SANA members to take on the role for which they are ideally qualified, namely the critique of government defence and foreign policies based on solid scientific evidence. For this to be achieved, far more research needs to be done. And this itself requires a greater commitment on the part of SANA members to devote their time and energies to carry out the necessary investigations. As in all voluntary organizations, there has been a tendency so far for too much of the responsibility for SANA's activities to fall on too few shoulders. Scientists are doubtless busy people. But the organization can only further its effectiveness if more of its membership can become active and devote their skills to the furthering of the scientific expertise which an anti-nuclear movement requires.

Fourthly, SANA should oppose strongly, on professional grounds, any involvement by scientific experts in pseudo-scientific special enquiries whose sole object is to give government de-

"SANA should oppose strongly, on professional grounds, any involvement by scientific experts in pseudo-scientific special enquiries whose sole object is to give government defence and foreign policies credibility."

fence and foreign policies credibility. Any good scientist knows that the terms of reference for such committees can be so defined as to force a particular conclusion. The recent Slatyer Enquiry on the nuclear fuel cycle is one such case in point. Its scope was so narrowly defined that it was impossible for those scientists involved to have explored the issue adequately. Perhaps SANA should not have presented a submission.⁽²⁾ Another was the involvement of Australian scientists in the visit to the French testing site at Mururoa at the invitation of the French government. It is patently obvious that a comprehensive independent and impartial assessment of the short term and long term effects of French testing would have required a large team of scientists with open access to all the available information, including that classified by the French government together with the freedom to collect their own samples and data from wherever their scientific insights dictated. Anything less means that scientists run the risk of collaborating with governments that have a vested interest in keeping relevant information from the public. The history of British atomic tests in Australia should have made us more aware of the irresponsibility of some scientists whose allegiance lies elsewhere than with the protection of the public interest.

One can think of a range of issues where more scientific research is needed. One such topical issue is the question of the safety of nuclear-powered and nuclear-armed ships. Mr Hawke and Mr Hayden have obviously been embarrassed by the Labour Government's stand in New Zealand over the regular visit of such ships and have added their pressure to that of the USA. However, in 1970, an *Interdepartmental Committee on Naval Dockyard development in*

Australia warned about the risks from nuclear powered vessels to populous centres. Such warnings have been ignored. Yet the Holy Loch incident in Scotland where substantial radiation leakage from a nuclear submarine seriously contaminated the environment demands that Australia exercise more caution. According to the report by the Fund for Constitutional Government, US navy ships have leaked radiation at least 37 times since they began using nuclear reactors, contaminating coastal waters at least 13 times. This is the sort of information that an organization like SANA should be collating, scrutinizing and disseminating to the public. It would also be useful to know more about the political economy of the Australian armaments industry. Who will benefit from the current export drive in armaments? What kind of armaments are being produced? Whose interests are furthered through arms sales to South-east Asia? These are only two of the many issues where SANA could provide much needed objective information.

Ethics and education

My final observation relates to the need for SANA members to take up the question of ethical and political education in science courses at every level of the educational system.⁽³⁾ Science is not just an abstract body of knowledge but a social institution deeply embedded in the fabric of social life. The practice of science has moral, social and political implications. Most scientists like to think of themselves as professionals. Yet one of the defining criteria of a professional group is that it has a professional code of ethics which the profession itself zealously guards. Given the large number of scientists currently involved

continued page 26.

The seamy side of expertise: social scientists and Third World violence

Social scientists working for counter-insurgency programs are the "savants of violence". TOH SWEE-HIN also criticises the mainstream social science approach to the Third World, based on the idea of "modernization".

In the post-war era, the institutionalization and professionalization of social science has meant an increasing involvement of social scientists in the shaping of everyday life. Under the banner of technocratic expertise, many economists, sociologists, psychologists, political scientists, historians, anthropologists and educationists produce knowledge for the policy-making mills of public and private institutions. Some, like the Rostows and Kissingers, attain influential or high political office. Even when research is conducted "for its own sake", the ideas and conclusions can directly or indirectly influence social structures and relationships.

Value-free social science does not exist. Selecting research questions, methodology and analytical paradigm, and interpreting data, are all value-laden processes, and objectivity is best realized when underlying values are explicitly acknowledged. From the perspective of peace studies, the key question must be whether these valuations permit correct understanding of the causes of violence and then suggest possible peace-building strategies.

The Third World

In the Third World, social scientists have been influential in helping to shape the assumptions, parameters, directions and pace of so-called "development". Even in the colonial past, anthropologists often provided knowledge useful to the colonizers. With independence, social scientists have had a still greater role, with the expansion of foreign aid programmes, the promotion of research and modernisation and the growth of Third World higher education. *Much mainstream social-scientific*

knowledge about Third World underdevelopment fails to uncover the roots of mass poverty. This failure, when expressed in social change programmes designed to "develop" the Third World, or in foreign policies of various industrialized states, simply aggravates the oppressive and repressive conditions under which millions of people eke out impoverished and precarious existences. Although wars and civil conflicts do kill and maim, the daily manifestations of structural violence rooted in power inequalities, economic exploitation and cultural domination are no less painful, wretched or inhuman.

Indeed, often it is the denial of mass basic needs in favour of elite opulence, the worsening rich-poor gap, the maintenance of international inequalities, and the hegemonic interests of advanced industrialized elites, which fuel overt militarized violence. Social scientists who profess to produce knowledge supportive of mass development surely cannot ignore these political, economic and social realities of structural violence. Still, many experts in the past or present have shown no compunction or awareness about engaging in *academic imperialism*, producing knowledge and processes that serve primarily the interests of elites and ruling classes and thereby bolster structures and relationships of violence. In this brief analysis, two variants of the seamy side of social science are discussed.

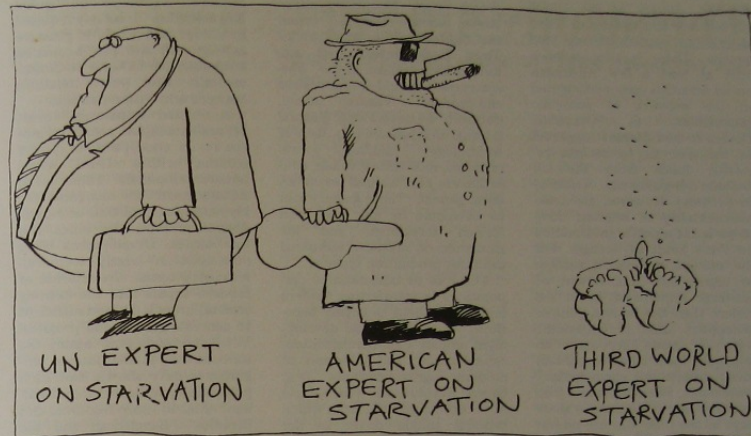
Savants of violence

The more explicit cases of social-scientific imperialism occur when academics are directly recruited to serve the ruling elites of advanced industrialized powers and collaborative local elites. Indeed in the colonial phase of Western

imperialism, anthropologists (even when not government-employed) generally gathered information and "intelligence" which facilitated more efficient rule and exploitation of the colonized. Anthropological paradigms tended to accept uncritically the framework of imperial domination, legitimized racist and hegemonic myths about "natives", and employed concepts which de-emphasized or rationalized the violence inherent in colonialism. Some modern-day anthropologists, as well as economists, and other social scientists have similarly been involved in explicit academic imperialism, although there are not enough data to determine the scope of these interventions.

Perhaps one of the most infamous (albeit stillborn) efforts was *Project Camelot*, a \$1.5 million programme initiated in 1964 by the U.S. Army and Defense Department. The project aimed at recruiting social scientists worldwide to study the potential for "internal war" in Latin American countries and to suggest strategies for preempting such "internal war". In effect, *Camelot* would facilitate U.S. counter-insurgency policies and goals in that strategic part of the Third World by propping up local ruling classes engaged in systematic oppression of their peoples. Although the ensuing political controversy eventually caused the project's cancellation, the fact remains that the social scientists recruited were prepared to accept an externally defined and controlled framework of "scientific colonialism". The assumptions of the proposed research were tilted in favour of U.S. ruling-elites' conception of "order" or "stability" and excluded considerations of whether alternative more democratic political systems are relevant or possible.

But though *Camelot* did not eventuate, there is evidence suggesting that similar kinds of oppressive social scientific ac-



tivities occur, albeit behind a veil of security and secrecy. The intensification of the Vietnam war provided one major stimulus for official and corporate support of counter-emancipatory research. Think-tanks such as the influential Council on Foreign Relations rationalized Cold War ideology and containment policies, and experts were recruited to advise the government on how best to "win" Vietnam. CRESS (Centre for Research on Social Systems, American University) received \$1.9 million U.S. Department of Defense funds in 1968 to investigate counter-insurgency, psychological warfare and military civic actions. Some large studies included "strategic and tactical factors underlying military counterinsurgency operations", "military resistance to communist underground movements", "development of methodology for tactical use by psychological operation units" and "combating insurgent infrastructure in Southeast Asia". Many studies were part of *Project Agile*, initiated by Defense Secretary McNamara "to provide a basis of knowledge, techniques and technology from which to draw blue prints for determining insurgency in its early stages". Besides testing out hardware

technology (e.g. armaments, radios, computerized data banks), *Project Agile* recruited social scientists to collect environmental and social behavioural data to assist "pacification" campaigns in Vietnam and Thailand.

In Indonesia, through the fifties, the Ford Foundation recruited social scientists at prestigious universities to train Indonesian economists, political scientists and public administrators. At least one key organizing expert was closely linked with the C.I.A., Pentagon and

"In the colonial phase of Western imperialism, anthropologists generally gathered information and "intelligence" which facilitated more efficient rule and exploitation of the colonized."

State Department. Following the 1965 repressive military takeover, this band of US trained technocrats (dubbed the "Berkeley Mafia") were put in charge of reorganizing Indonesia's economy along free-enterprise principles. Sustained by militarized repression, this growth-first model has inflicted a high degree of structural violence upon the poor Indonesian masses.

Another instructive example is Chile, where both U.S. and collaborative Chilean social

scientists played an early role in preempting social dissent (e.g. intelligence gathering) and later in the systematic undermining of the Allende government's mass-based social reforms. Immediately after the coup, several Chilean economists trained at US conservative schools set about repressive economic reorganization, based on blueprints which witnesses at a US Senate Select committee hearing said were CIA funded. Chicago economists Arnold Harberger and Milton Friedman were invited to give

guidance. There is little doubt that the "shock treatment" of puritanical monetarism exercised by the "chicago boys" imposed severe socio-economic violence on the Chilean masses, already suffering from Pinochet's militarized repression.

That the above illustrations are drawn from the U.S. context does not imply of course that other advanced industrial states have a clean bill. It would be surprising if intelligence and security organizations of other

Western powers or the USSR do not rely to a greater or lesser degree on social science expertise. There is also evidence that at least a few Australian social scientists have participated in the network of academic imperialism, as Coxsedge, Coldcutt and Harant suggested in the case of researchers receiving funds from the US Defense Department. (*Rooted in Secrecy*). However, given the inaccessibility of relevant data, there is little public information on these kinds of linkages. For the present analysis, it suffices to argue that this variant of academic imperialism is no less violent than the bombs, guns or helicopters used in hegemonic wars or made accessible to repressive local elites to contain social dissent and emancipatory movements. Social scientists who so knowingly participate in these ways in the Cold War are no less savants of violence.

The modernization theory and structural violence

This variant of social scientific imperialism concerns those whose research, teaching and consultations are not directly linked with imperialistic interventions by national security states. Indeed, given their larger numbers, it is of even greater importance to analyze the implications of such experts' work for Third

World peace. Essentially, mainstream social scientists favour the *modernization paradigm* of Third World development. Advanced industrialism in the "free-enterprise" mould is the desired end-product. Various social, political, economic and cultural internal deficiencies (e.g. lack of technology, capital, entrepreneurs, modernistic values, education etc.) are blamed for underdevelopment. Their scarcity can be overcome by aid, trade and foreign investment and the emulation of advanced industrial capitalist production systems.

The role of transnational corporations in transferring modern inputs is upheld as largely beneficial, while agricultural development equals commercialization, capitalization, and adoption of modern agritechologies (e.g. Green Revolution). The temple of economic growth, from which benefits trickle down to the masses, is worshipped, although some modernization experts now also argue for "redistribution with growth" or a "basic needs" strategy. But closer analysis reveals that this reformist ideology still does not or is unwilling to tackle the root causes of structural violence. Modernization political scientists hail the democracy of Western free-enterprise states, but if militarized juntas or dictators are required to maintain "stability", they become preferable to mass-based political and especially non-capitalist alternatives. Finally, the international economic and political status-quo is considered to be supportive of development, or as in the Brandt

model of reformism and "global Keynesianism" is merely required to change sufficiently to generate new growth and profit-oriented accumulation but not to fundamentally alter power relations between and within nations.

A related valuational thrust of modernization social science lies in its conception of power realities within Third World underdevelopment. There is an unwillingness to recognise the asymmetries of political-economic power between the elites and the masses. Development being conceived in largely technical-efficiency terms, the infusion of modern inputs into the existing societal order is deemed sufficient to generate growth and progress. Yet time and time again, the outcomes of modernization programmes have shown that such power inequalities enable dominant elites to usurp resources and benefits. Bangladesh and the Philippines provide particularly accessible examples, although the phenomenon is almost universal.

Towards peaceful science

The discussion has illustrated how social scientists can engage in research and applied work which largely serves, by commission or default, the interests of elites from the advanced industrialized and dependent Third World countries, and hence contributes to structural violence against the poor. However, apart from those who knowingly serve counter-insurgency exercises, imperial wars and "Cold War"

policy-making, there is no need to imply evil or violent intentions on the part of mainstream modernization experts. Indeed, some probably personally abhor repression, exploitation or corruption, and sincerely believe that their participation in aid/development programmes will benefit the poor.

My critique does not imply that in the complex processes of overcoming underdevelopment, technical/efficiency criteria or tools or modern technology may have no useful role; nor that a number of poor individuals, villages or districts might not marginally improve their lot through some modernization programmes. The question, of course, is can such limited showcase successes be generalized systematically to cover the whole society, given the entrenched power inequalities untouched or untouched by modernization criteria? Finally, it is true that not all underdeveloped Third World societies are equal in their degree of structural violence and that hence a simplistic, reductionist formula

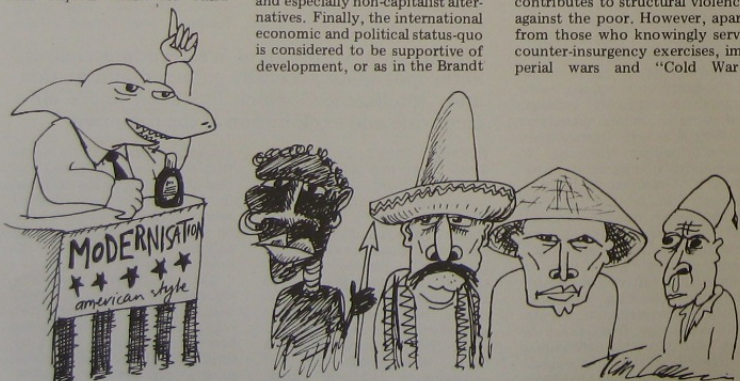
"Time and again, the outcomes of modernization programs have shown that power inequalities enable dominant elites to usurp resources and benefits."

of development cannot be applied. What is called for is that those modernization social scientists who are genuinely concerned about mass suffering should be willing to take a strong dose of self-critical re-evaluation of their values, assumptions, concepts and frameworks for understanding underdevelopment and the complex realities of structural violence.

Drawing upon the analyses of various critical social scientists, an alternative peace-oriented social science would have the following minimal characteristics. First, an unequivocal refusal to engage in research and expertise which is sponsored by ruling-elite agencies for counter-insurgency or paramilitary purposes, or for rationalizing Cold War policies. Second, an explicit systematic appreciation of structural violence and a consistent mode of analysis

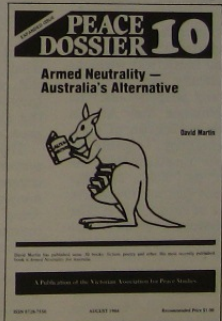
which serves the interests and struggles of the oppressed rather than the vested interests of local or international elites. (Here, though, to side with the oppressed does not imply an uncritical, subjective and idealist attitude about, for instance, any forces, ideas or strategies for change.) Third, a peaceful social scientist will need to constantly relate her/his research work towards a more just, emancipatory and peace-oriented world. Where the opportunity arises, she or he can express solidarity with the struggles of oppressed Third World peoples by producing knowledge together with them which could inform the poor in their quest for justice and dignity.

(A documented and more extensive version of this paper is available from the author).



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Strategic computing

Computer Professionals for Social Responsibility, was formed in California in 1982, and now has chapters around the USA. They are particularly concerned about the Pentagon's 'Strategic Computing Initiative'. The following is a summary of an article prepared by CPSR.

Computers are already an essential part of modern weapon systems. They are used for early warning, communications, weapons guidance, and in the simulations with which targets are selected and battles prepared.

In October 1983 the Pentagon's 'Defence Advanced Projects Agency' issued a 'Strategic Computing Initiative'. This SCI proposes a new generation of computer-based military systems, and \$600 million has been allocated for the first five years. The aim is hardware with at least a thousand-fold increase in raw computing power, and software focused on Artificial Intelligence (AI), i.e. machines with 'human-like intelligent capabilities' including natural language understanding, vision, speech and various kinds of automated reasoning.

The SCI proposes to develop military superiority by providing strategic and battlefield weapons with a radically new kind of flexibility and adaptiveness. The program promises that AI can make a new generation of computing technology, capable of adapting to unanticipated behaviour in the field. But the change is not just an increase in the amount of computation. *The SCI also proposes to automate high level military decision making.*

Modern warfare is marked by three interacting trends: increasingly powerful weapons, more separation between planning and execution, and a faster and faster pace. It is easy to see the dangerous potential of all three in combination. Faster, more complex and devastating battles force the military to rely more on computers, but current computers cannot handle the increase in uncertainty and complexity. This forces them to rely on people. But without computer

assistance people cannot cope either.

To cope with this confusion the SCI intends to use AI and automated decision making. The decisions to be automated are not minor; it is made clear that reliance on automated systems is meant to include the control of nuclear weapons.

The Limits of Reliability

The SCI offers no argument to warrant this faith in automatic decision making. Artificial Intelligence is still in its infancy; apart from this immaturity, and apart also from the obvious problems of transistors and other components failing, there is a fundamental reason why computer decision making is not appropriate in areas as complex and consequential as nuclear weapons.

The fundamental problem is that computers are madly literal minded; they do exactly what we program them to do. But, except in trivial cases, we cannot anticipate in advance all the circumstances they will encounter.

The US ballistic warning system, for example, has been triggered by such unforeseen events as a flock of geese or a rising of the moon. The primary insurance against this kind of failure has been the intervention of humans with judgement and common sense. But in the scenario envisioned by the SCI, this human element will be replaced by machines. For this to be reliable would require the automation not only of 'expert knowledge' but also of common sense and practical reasoning. But this is beyond the state of the art. *In spite of a great deal of work, there hasn't been much progress in automating common sense?*

In terms of these fundamental limitations, AI systems are no different from other computer

systems. What computers do is to carry out, with lightning speed and unparalleled accuracy, rules that a human programmer has coded in advance. What distinguishes AI and expert systems, and gives them the 'flexibility' so touted by the SCI, is that they facilitate more productive interaction of the rules. But they continue to rely on the programmer's ability to state the rules ahead of time.

For a computer system to achieve a level of reliability to make it usable it has to be tested under working conditions. And yet it is an inescapable fact that military systems, especially nuclear systems, cannot be tested in advance, nor can crisis conditions involving the fear and confusion of war, ever be fully simulated.

The article concludes:—
"To cope with the problem of complexity and speed in modern warfare, the Strategic Computing Initiative proposes a quantum leap in computer technology, comparable to the advent of nuclear weapons technology in the 1940's. Ironically the problems arise in part from the very technology that is proposed as a solution. The situation is like that of a debtor who, in order to pay off past debts, has to borrow even larger amounts... a strategy that almost invariably ends in bankruptcy. Past attempts to achieve military superiority by developing new technology, rather than increasing our security, have brought us to the present untenable situation. The push to develop so-called 'intelligent' weapons as a way out of that situation is another futile attempt to find a technological solution for what is, and will remain, a profoundly human political problem."

An Australasian Section of Computer Professionals for Social Responsibility is proposed. For further details contact the VAPS Office, or write direct to: Dr. Graham Wrightson, Department of Computer Science, Victoria University, Wellington, New Zealand.

Values, science and peace: what signs of hope?

"Perhaps the most important direction is that of bringing the unconscious movement toward peace more into human consciousness." KENNETH BOULDING addressed the International Peace Research Association.

With all the diverse views and ideologies that are found in the International Peace Research Association, there are two propositions on which we could all probably agree. One is that the probability of nuclear war is a positive number, though we might disagree as to its size, and that a nuclear war would be the greatest disaster ever to befall the human race, or even the whole planet earth. The second proposition is that we are all deeply committed to the growth of human knowledge through the ethic and the methods of the scientific community, and that this involves a change in the content and structure of human minds in the direction of 'truth' — that is, a greater correspondence with the real world. The real world also contains the minds of all human beings, and changes in these minds change its future. There is also a very large area where the real world is not changed by what we think about it.

War and peace are products of human decision and are therefore profoundly affected by changes in the content of human minds. The hope of avoiding catastrophe, therefore, must rest in the hope of changing the content of human minds toward a greater correspondence with the real world and also toward values which, in some sense, are more mature and more likely to prevent catastrophe. The basic values of the scientific community include a high value placed on curiosity (What is the world really like?), a high value on veracity (on never telling lies), a high value on testing (How do we find out when we are in error?), and an abstention from threat, coming from a belief that people should be persuaded and change their minds only by evidence and not by threat or

by bribery. These values, I am sure, we all believe give hope for survival.

I have described science as 'testable fantasy'. It is the extraordinary capacity of the human mind for creating images of the world that are beyond our immediate experience — for imagining atoms, electrons, and quarks, big bangs and complex models, with defined properties and stable parameters — that makes science possible. Testing, however, is what distinguishes science from other products of the human imagination, such as fiction, myth, and untestable fantasies. The task of the social sciences is to create in human minds images of social systems which go beyond personal experience, and which abstract, in useful ways, from the immense complexity of the world. We cannot hope to have in our minds an image of the four and a quarter billion human beings in their immense diversity and complexity. We can, however, develop simplified images of this complexity.

Systems: threat, exchange, integration.

I have identified three major simplifications. One is the threat system which originates in statements to the effect: 'You do something I want or I'll do something you don't want'. This includes the armed forces of the world, nation-states and national images, the legal system, and so on. Then there is the exchange system, the core of which is economics, which begins with a statement such as 'You do something I want and I'll do something you want'. This is embodied in earning and spending money, in financial and commercial institutions, corporations, and so

on. The third simplification is the integrative system, which involves such questions as perceptions of identity, enmity, nationalism, and religion. It is also an important part of politics, and it perhaps originates with the kind of statement, 'You do something because of what you are and what I am, and how we perceive each other'.

All human organizations, behavior, and relationships involve mixtures of different proportions of these three systems. Military organizations are mainly involved in threat, either in terms of capability of producing 'bads' for those being threatened, or in actually carrying out the threat and destroying those things which the threatened party values. However, unless threat can be legitimated through the integrative system, it is not very effective. Very few people have gotten rich by being bandits or powerful by being terrorists. The tax collector, however, is a legitimated bandit, and a national defense organisation is a legitimated terrorist. Legitimation is an aspect of the integrative system; indeed I have argued that the dynamics of legitimation dominates all other social systems. Unfortunately, it is extremely complex and very little understood.

Exchange dominates business organizations, which survive because they are able to buy goods and labor, transform them into other goods, and sell these products at a price that permits survival. Households, also, are a very important element in the exchange system. They sell labor or products they make, and with this they buy household goods. Even armed forces participate in exchange, though their product is threat. They buy food and clothing for their members, housing, transportation, weapons and so on. Their income, however, is largely derived from taxes, which is a legitimated

Sheer evolutionary pressure — war is not a good means of survival — pushes the human race, first of all, into unstable war interrupted by periods of peace, and then into unstable peace, and finally, I argue, into stable peace.

threat system.

A very important supplement to the exchange system is the system of 'grants' — that is, one-way transfers — such as taxes, gifts, charitable contributions, pensions and unemployment payments, support of individuals within the family, such as children and old people, and so on. This arises partly out of threat and partly out of the integrative structure. On the whole, I pay my taxes out of threat: I support my children or aged parents out of 'love' — that is, because of the integrative structure which unites us. I die for my country or my faith out of a sense of identity with it — that is, integrative structure.

Pathologies of complex systems.

It is a fundamental principle that any complex system can exhibit pathologies — that is, it can get into regions which are perceived as abnormal or unfamiliar, and in most human valuations, as worse than the normal and the familiar. Occasionally the abnormal is perceived as better than the normal, but this is rather rare. In the modern world, war is almost everywhere perceived as a pathology of the threat system of national defense. An interesting question is: When war is perceived as pathological, how do we so easily get into it? We have somewhat the same problem in human health. We get into disease partly by unconscious processes over which we have no control, such as aging and infection, but also we get into it by perverse conscious processes, like smoking and drinking, or even driving and fighting.

Similarly, the economic system exhibits pathologies in the shape of famines, unemployment, maldistributions in wealth or income, persistent poverty, and so on. A good part of these are unconscious, the result of innumerable interactions of decisions, each of which is made in the light of a very limited perception of the environment. Cer-

tainly nobody planned, and very few people wanted, the Great Depression of the 1930's, and Stalin was deliberately kept in ignorance of the catastrophic consequences of the First Collectivisation of agriculture in the Soviet Union.

The most difficult problem in the study of any complex system is the discovery of the most useful and appropriate taxonomies — that is, the subsets into which the system is most usefully divided. Chemistry, for instance, got nowhere until it escaped the false taxonomy of the alchemists into earth, air, fire, and water, which are not elements at all, but hopelessly heterogeneous aggregates. The social sciences, similarly, have been plagued by unrealistic taxonomies: land, labor, and capital, for instance, in economics; class and race in sociology; national and group interests in political science. The taxonomy of war and peace, however, is remarkably clear. Most historians would agree whether two nations were at war or at peace with each other on a given date, although there are some doubtful cases. Perhaps declarations of war and treaties of peace which mark these dates of transition are rarer than they used to be. Even most individual human beings at a particular moment can be classified as to whether they are actively engaged in war or war-making organizations, or are not. Peace, indeed, I would define as everything that is not war, such as ploughing, sowing and reaping; singing and dancing; making music and making love; raising children; earning a living; managing a business; and one could even add being a lawyer or a policeman. For even though the law is part of the threat system, it should be categorized as peace rather than war.

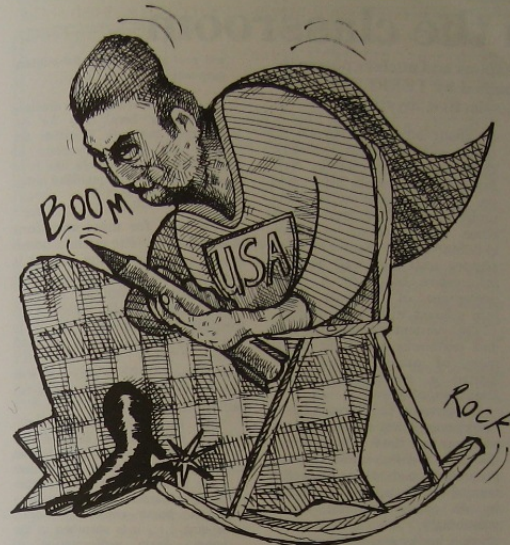
An unconscious movement towards peace.

There is a long and largely unconscious movement in human history toward what might be

called the 'normalization of peace'. There have been times and places in which war has been regarded as normal and most human activities have been focused around it, although even here, in the midst of the longest and most intense wars, most actual human activity has been devoted to raising food, making clothes, building houses, and raising children, which are really the occupations of peace. Even Adam Smith, in *The Wealth of Nations*, says that 'Among the civilized nations of modern Europe . . . not more than one hundredth part of the inhabitants of any country can be employed as soldiers, without ruin to the country that pays the expense of their service' (Modern Library Edition, pp. 657-658). The richer we get, of course, the more we can afford to devote to war, but even in the Second World War the major powers were not able to put more than forty percent of their economies into it. Sheer evolutionary pressure — war is not a good means of survival — pushes the human race, first of all, into unstable war interrupted by periods of peace, then into unstable peace, and finally, I argue, into stable peace.

This is a largely unconscious movement toward peace. It has very little to do with the conscious peace movement. We now have a large triangle of stable peace, with the corners, perhaps, at Australia, Japan, and across North America to Finland. It includes some eighteen countries which have no plans whatever to go to war with each other. According to the principle that *whatever exists must be possible*, it is clear that peace is no longer a utopian dream, but a quite easily achievable condition with very simple requirements. It implies strong taboos on the use of threat, particularly to change frontiers, and the development of alternatives to threat in terms of exchange and integrative structures.

It is an illusion that war has



much to do with 'real' conflict. The taxonomy of conflict, which would divide the human race into three groups (those who are benefitted, those who are injured, and those who are unaffected by any particular act or activity), is virtually unrelated to class, nationality, race, or any of the familiar taxonomies of the human race, simply because of the ecological complexity of the total social system. Defeat is often more profitable than victory, as the Second World War certainly showed. We learn much more from failure than we do from success. Winning fights is no guarantee whatsoever of evolutionary survival. Revolutions often conserve the old much more than they create the new, and so on. The real world is very different from the image of it that most of us have, which is confined to our immediate environment.

Human images of the future.

Where, then, lies hope? Perhaps the most important direction is

that of bringing the unconscious movement toward peace more into human consciousness, particularly among the powerful decision-makers. Both the organizational and the ecological structure of the world produce great inequality in the distribution of power, the power of any one person being defined roughly as the number of other people who are affected by the person's decisions. Most people affect only their immediate environment. A decision of the President of the United States or the chief executive of a multinational corporation may affect the welfare of virtually all the people on the earth. The power of the powerful, however, is strongly limited by their desire to remain powerful; hence, in their decisions they have to take account of the image which they present to those who do not have, but essentially grant them power. Nevertheless, it cannot be denied that some people's decisions have a great

deal more impact on the world than the decisions of others. All decisions, however, involve choice among alternative images of the future according to some system of valuation. The agendas of decision — that is, the images of the future held by powerful people among which their choices are made — are both determined and corrupted by their own power. Nevertheless, the decisions of the powerful are profoundly affected by what might be called the general climate of human images of the future, and of the valuations which are put over these. When this general climate puts a high value on victory and the integrative system is virtually confined to the national state, war is much more likely than it is when the general climate puts more emphasis on exchange, on trade, on negotiation, on compromise, on working things out, and where the integrative system stretches out to what might be called world opinion.

The tasks of peace research.

The contribution of both the peace movement and the peace research movement to the movement toward peace is very complex and little understood. It should certainly be a major priority of the peace research movement to clarify this relationship and to study it very carefully, to look at the whole question of the rise of substitutes for threat in both exchange and integrative structures, to study the whole question of legitimization, to study the question as to how the images of the powerful are acquired.

The principal property of the future is uncertainty, but uncertainty gives us time, although we do not know how much. If the probability of nuclear war is something like one percent per annum (perhaps this is optimistic), there is at least a fifty-fifty chance it will not happen in, say, the next, eighty years. This gives us time to work on changing these probabilities. The field of peace research has never seemed larger or more fruitful than it does at the moment. The more desperate the need, one hopes, the greater will be the response.

Science in the classroom

The discussion of nuclear weapons and nuclear power in school science books is examined by TERRI SEDDON. She finds them fragmentary, selective, mystifying.

As a young Science teacher, I believed that education was a benign and neutral agency, educating (in the best sense of the word) students both intellectually and in the responsibilities of citizenship in a democratic society. How it shatters one's liberal sensibilities to realise that much of contemporary schooling reverses most of this. To learn, in particular, that 'education' is always political, and that it often serves to foil students' efforts to understand the real world and undermines training for democratic responsibilities.

These realisations are in many ways 'old hat'. I reiterate them here because as peace educators we cannot afford to forget that the formal and hidden curriculum of schools frequently counters our efforts to educate for peace. We cannot afford to become submerged in the liberal ideology of education as 'a good thing in itself' and complacently accept and use school curricula and resources as they presently exist. Instead, we must assess the resources available and use them to good effect — to further students' critical understanding of the structural roots of the arms race and the society which gives it birth; to raise political consciousness and to empower those who believe they have no power.

For many people in the community, science teachers have a special responsibility in teaching students about nuclear weapons and the arms race. Science is seen as the school subject which can best provide the facts and technical details about nuclear arms in an unbiased and unemotional way. A quick look at resource and text books used in science classes certainly supports such popular conceptions. But what do students learn from such 'factual', 'unbiased' and 'unemotional' resources? To what extent do such resources educate for peace?

To answer these two questions, I recently looked at the content

of about 50 school science resource and text books, including those commonly used in New South Wales schools. I focussed on books directed at students under the school leaving age when the education of many children ceases. Senior school physics texts may well be very informative but only a small percentage of students come into contact with these sources.

The content of the resource and textbooks and their treatment of nuclear issues highlighted a number of points about school science.

I discovered that most science books completely ignore nuclear weapons and their effects. Some discuss or mention nuclear power generation and other peaceful uses of the atom, but even this is by no means universal. Overwhelmingly, the authors of science books are defining their list of legitimate topics to exclude military nuclear power.

Where such issues are dealt with, they are presented in a very fragmented form. So, in a large number of books the emphasis is just on the 'peaceful atom'. For example, Michelson's (1973) book *Atomic energy for human needs* describes nuclear earth excavation using a bomb more powerful than that dropped on Hiroshima:

"For the first time in history, nuclear explosives were being put to work, not for the terrible destruction of war but in a peacetime use to serve human needs."⁽¹⁾

The effect of this 'peaceful' emphasis is either to deny the link between peaceful and military uses of nuclear power, or to imply that nuclear weapons are an historical aberration of 'normal' science. For example:

"It is unfortunate that the first use of atomic energy was a military one, with the holocausts of Hiroshima and Nagasaki as its trade mark. The dreadful knowledge of its destructiveness tends to obscure the fact that each year decreases the likelihood that the atom

will ever again be used for military purposes."⁽²⁾

"In the past this heat (from uranium fission) has been used for destruction but now scientists are using the peculiar property of uranium and substances like it to make life better for mankind rather than to destroy it."⁽³⁾

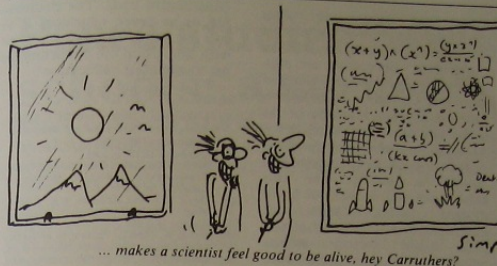
The basis for these assertions is beyond me. The nuclear bomb is not a feature of the past, it is very much of the present, and is ever increasing numbers.

On more specific issues, fragmentary presentation of facts serves to mystify rather than inform. Dean and Edward's book *Basic School Physics* was one of the few to comment on radiation. They state:

"The energy emitted by radioactive substance can cause danger to plants, animals and human beings. Consequently, great care must be taken in handling radioactive substances . . . fallout from atomic bomb explosions occurs as dust . . . it is absorbed in the bones. Again malformation of bones results."⁽⁴⁾

A picture headline states: 'Radiation is an insidious danger'. Such fragmentary details do little to inform our students. Instead, they are more likely to alarm and feed the fear of radiation as a lurking source of arbitrary death and terrible sickness. Radiation becomes a nightmare.

Discussion of nuclear energy is detached from the social context in which science, scientific research and development takes place. As a result it becomes possible to talk of 'peaceful' uses which, in reality, have direct or indirect military application, Michelson, for example, includes portable nuclear generators requested by the US Navy, and nuclear powered submarines which have mapped the Arctic Ocean, in his list of 'peaceful' use of atomic energy. It becomes possible to ignore the military impetus to much scientific research and the extent of funding by the military/industrial complexes; to emphasise the civil advances which are often merely secondary spin-



... makes a scientist feel good to be alive, hey Carruthers?

offs from 'more important' military research; and to forget the approximate one million dollars per minute spent on the military at the expense of social welfare, health, education and third world development.⁽⁵⁾ In only one case was there an attempt to link a discussion of nuclear arms to the social context.⁽⁶⁾ But it went sadly astray, lost in cold war rhetoric and assertions which can hardly promote students critical understanding.

Furthermore the neglect of the social context often extends to neglecting the central role of active people in scientific work. Science is clearly a human activity. But by excluding people from scientific writing, science and scientific devices appear removed from human agency, out of human control. Adler writes, 'a hydrogen bomb can be used only to destroy things'.⁽⁷⁾ But, of course, it was men, women and children that were destroyed at Hiroshima. Bombs are rendered relatively benign when there is no reference to the death and destruction they generate when dropped, nor the threat they pose to mankind, held hostage by superpower 'deterrence'. Or:

"Such a bomb contains two small pieces of uranium well separated. A detonator sets the bomb off by pushing the two pieces together to make a single large piece."⁽⁸⁾

The implication here is that it is detonators, not people, which set off nuclear bombs.

Finally, accounts of nuclear power are usually written in a

factual and unemotional style. This is particularly clear in descriptions of exploding atomic bombs. But one wonders how meaningful it is for students to read;

"When an atomic bomb explodes, a vast amount of energy is released in a tiny fraction of a second. In the bomb, the energy that was locked up in the nuclei of uranium atoms is released when these nuclei are split up."⁽⁹⁾

Or how immediate nuclear bombs are to students, when they are related to the energy release from distant stars.⁽¹⁰⁾ The most graphic description was given by Haber. His book *Our Friend the Atom* is woven in with the tale of the genie and the fisherman:

"But it takes only a tiny fraction of a second for the millions and billions of atoms to split in an explosive atomic chain reaction. They split at the very same time — as human time standards go. Billions and billions of atomic fragments fly apart with a tremendous speed. A white hot body of gas is created whose particles tear around with devastating speed. A heat of millions of degrees is created on the spot. It brings forth a monstrous explosion accompanied by an eye-searing flash. Millions of tons of air are pushed aside; a roaring shock wave hurries in all directions. The billions of splitting atoms combine their bursts of gamma-rays, which penetrate deep air masses. The glowing suddenly expanding gases leap upward into the high sky, and the devastating updraft forms a billowing, whirling cloud that hangs in the sky like a giant mushroom. Behind this awe-inspiring cloud we recognise the terrifying form of the Genie of our fate . . . with eyes

blazing like torches, and fiery smoke whirling above him like the simoom of the desert . . . and his thundering voice promising us death in the most cruel form."⁽¹¹⁾

'Eye-searing flashes', 'roaring shock waves' and cruel death may describe an exploding nuclear bomb well. But it is likened to a monstrous, revengeful genie. The explosion is not the work of man, but a supernatural force against which mere humans have little power. The bomb is mystified, it becomes an unopposable phantom which wreaks nightmare forms of death on weak, insignificant people.

Given these features of science resource and text books, what might students learn about nuclear arms?

My conclusion is simple. Our students get little information about nuclear weaponry despite their significance in the present context of superpower conflict, the arms race, and peace and disarmament initiatives. The information which is available is fragmentary and selectively presented.

The effect is to mystify nuclear weapons making them shadowy nightmare forms which elude rational explanation. They appear independent of human control, seeming arbitrary, revengeful and god-like. Further, the science books counter our efforts towards peace education by hindering students critical understanding of the social roots of the arms race and war. Indeed, the science books may actively promote education for war by breeding a dependence on experts, a kowtowing to authority and a drastic political passivity which erodes the democratic principles on which our society is allegedly based. Clearly, our schools are politicised.

Given this conclusion, it would be easy to dismiss school science resource and text books as hopelessly anti-peace. But to write resources off in this way neglects three crucial points. First, the critical dimension of schooling is the relation between teacher and student. As educators for peace, we can inject meaning into a

"The bomb is mystified, it becomes an unopposable phantom which wreaks nightmare forms of death on weak, insignificant people."

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fragmented formal curriculum and begin to counter the effects of a dis-empowering hidden curriculum. Secondly, as educators for peace we are a limited resource. Certainly, it is important to develop resource books which are more pro-peace. A lot of work has already been done in this respect. But our time and energy is limited. For this reason our aim should not be to discard existing material, but instead to use it to good effect. This might include adding material ourselves, to compensate the deficiencies and to fill the silences we identify. Or it could entail using the materials as a focus for critique so our students learn to see distortions and discuss the covert messages being transmitted. Finally, both resource books and social institutions such as schools are always two-faced and conflicting. They can be used for progressive or

Can SANA be effective from page 15.

in activities of dubious social value, the struggle for a scientific code of ethics within professional organizations and institutions of higher education would do much to raise awareness both among scientists and the general public of the social implications of scientific work. The mobilization of doctors for disarmament derives, at least in part, from their adherence to the Hippocratic Oath which places the preservation of life as a prime duty and gives professional support to those who adhere to it. (4)

If science is to be a real force for good in the world, ethical questions should form part of every scientist's training. Ethical debate could focus discussion on such issues as the determination of research and resource priorities. We live in an era where a substantial majority of newly trained scientists have no existing alternative but to work for defence related industries or other private concerns, and where the dominant motive is the search for profit rather than the satisfaction of human needs. Professional scientists should be identifying socially useful areas of scientific research and should struggle for resources to be made

conservative ends. The challenge for us as peace educators is to see the limits of what we work with and group the opportunities for 'really useful education'.

NOTES:

- (1) Michelsohn, D.R. (1973). *Atomic Energy for Human Needs*. New York: Messner, p. 156.
- (2) Michelsohn 1973: p. 182.
- (3) Stendahl, J. and Hawes, J. (1976). *Exploring with Technology*. Melbourne: Longman, p. 33.
- (4) Dean, K.J. and Edwards, N.E. (1969). *Basic School Physics*. Glasgow: Blackie, p. 123.
- (5) Suter, K. (1983). 'Living in a Warfare State'. *Radical Education Dossier*, p. 19.
- (6) Cooper, R. (1972). *The Nuclear Age*. London: Batsford.
- (7) Adler, I. (1966). *The Wonders of Physics: An Introduction to the Physical World*. New York: Golden Press, p. 152.
- (8) Cull, R.G. and Drake, W.A. (1976). *Investigations in Science 4*. Melbourne: Cheshire, p. 128.
- (9) Koyan, P. (1968). *The Cosmic Power: Foundations of Nuclear Physics*. London, Sampson Low, Marton and Co., p. 85.
- (10) Cull and Drake, 1976: p. 128.
- (11) Haber, H. (1968). *Our Friend the Atom*. New York: Golden Press.

available for these, rather than for destructive ends. If SANA could begin to initiate this project the likelihood of the peace movement achieving its goals would be much enhanced.

References:

- (1) Raymond Williams, 'The Politics of Nuclear Disarmament' in E.P. Thompson (ed.) *Exterminium and Cold War*, Verso Books 1982.
- (2) See Bob Beattie's critique of the Suter Enquiry Report, *SANA Update* July 1984, No. 18, and a further critique in *Peace Studies* July 1984.
- (3) *SANA Update*, No. 19, August 1984, is entirely devoted to the issue of Science and Ethics.
- (4) See *Peace Studies*, May 1984, 'Physicians Against War'.

Red and Green

from page 30.

Footnotes:

1. *Programme of the German Green Party* translated by Hans Fernbach. (London: Heretic Books, 1983).
2. Peter Christoff's review of the electoral options is most helpful: *Flashpoint* (PND Victoria), Vol. 1, No. 1, June 1984.
3. Much of what follows is spelt out at greater length by John Wiseman in 'Questions of Red and Green', *Arena*, (forthcoming).
4. Boris Frankel's *Beyond the State* (London: Macmillan, 1983) and his recent piece in *Arena* 66 (1984), set out the best critical Australian version of this debate.

Reviews have been held over to November issue due to lack of space.

Peace studies in secondary schools: a survey

A census of schools in the Westernport region of Victoria by ALAN RICE and SUE WALLER shows a wide diffusion of peace education, and suggests that obstacles are more imaginary than real.

In mid 1984, as part of our research, we began looking for schools teaching peace education which had not been overwhelmed by an army of peace researchers. Contacting the Peace Education Task Force of the Victorian Education Dept., PND, the Catholic Education Office, VAPS, Teachers for Nuclear Disarmament and like-minded people in universities resulted in a reassessment of our assumptions. We believed that about 10 per cent of schools were involved in peace education of some sort and that most were known to peace educators and activists. In Victoria, there are 414 government and 224 non-government secondary schools. But between us we could name less than 30 involved in peace studies. Explanations of the unpopularity of peace education ranged from the professional conservatism of teachers to the threats posed to school administrators by the political right. Given the validity of the explanations the political implications are clear. Peace educator-activists need to accept that reform will be slow because of teacher resistance, prudent administrators and the power of counter-veiling groups.

There are however no systematic surveys of peace studies in Australian or Victorian schools. Without such knowledge we risk unintentionally empowering opposition forces by building our own obstacles. In this paper we report our findings of a census of secondary schools in one Victorian region.

Method

We chose the Westernport Region because we had no reason to believe any of the 55 secondary schools had incorporated peace education into their curriculum. None of the organisations mentioned above volunteered a Westernport school and when asked directly if they knew what was happening said they had

heard nothing. A phone call to the Regional Office supported these impressions.

We contacted every school - government and non-government - by phone and asked to speak to the vice-principal. In all cases but one we spoke to the principal or the deputy. Each interview began with us giving the names and positions of those working on the project; our place of work and reasons for selecting the school. Permission to ask some brief questions was given in all cases. Each interview began with the question 'Is peace studies included in the curriculum of your school?' We made no attempt to define 'peace studies' and made every effort to avoid introducing definition. All definitions of peace studies suggested by the interviewee were accepted. These include peace studies as a subject, peace themes in subjects and as part of the informal curriculum. Those who responded 'yes' were asked to specify year level and subject. Where pressed for clearer definitions we eventually offered the equally abstract but apparently meaningful synonyms 'peace education' and

'education for peace'. Some respondents were not sure if peace studies was part of the curriculum. These we asked if, to their knowledge, it had been considered by a curriculum committee or school council. Interviews lasted from three to ten minutes.

This economical method of collecting data has two obvious limitations. First by deciding to leave the term 'peace studies' undefined we deprived the census of an opportunity to say something about school based conceptions of peace education. This is true in one sense. Our study tells us nothing of classroom practice, but never could.

It has been known for some time that individuals' reports of their own behaviour are only loosely linked to their actual actions. Individuals, for example, expressing non-racist views can act as racists without a change in beliefs or a twinge of conscience. This gap between reported and actual behaviour has not been bridged by teachers and administrators. Despite this acknowledged limitation the Westernport census sheds light on school based conceptions of the political status of peace studies. If, for example, a large number of administrators were prepared to associate their schools with peace

Table I
Peace Education in Westernport:
All Secondary Schools
(n = 55)

	Number	Per cent
Yes	27	49.1
No	11	20.0
Not Sure	17	30.9
Total:	55	100.00

While these figures are encouraging they are open to misrepresentation particularly by interests ready to assume peace education is concentrated in government schools. The Victorian branch of the Liberal Party, for example, identifies the teacher unions as the major architects behind union based peace education. In one stroke, the Liberal party denies peace studies has broadly based popular support, while the 'problem' of peace becomes restricted to a government school system already troubled by industrial conflict and mediocre academic achievements. Whether peace education is concentrated in government schools is an empirical question. Table II breaks the findings down into government and non-government schools.

education it is difficult to believe that peace studies is an especially risky proposition for administrators and teachers.

The second limitation of the census relates to its accuracy. Schools are large complex institutions. They can employ up to 100 teachers and in some schools teacher professionalism discourages principal and vice-principal from monitoring the school's curriculum. The comparatively high incidence of 'not sure' responses in government schools probably reflects a school authority structure tempered by teacher professionalism. On the other hand, some schools institutionalise leadership ideologies. Here administrators expect and are expected to have a detailed knowledge of the school's curriculum. The low number of 'not sure' responses in non-government schools is possibly due to their more centralised authority structure.

Findings

The classification of an answer to the question, "Is peace studies included in the curriculum of your school?" as 'Yes', 'No', 'Not Sure' is reasonably straightforward. Responses which said peace was covered in a subject, an elective unit, topic(s) in another subject(s) or part of the informal curriculum were grouped together under the heading 'YES'. The 'NO' category consists only of responses which explicitly and usually firmly reject any association with peace education. Some respondents said they thought it was unreasonable for a person in their position (principal,

Table III
Peace Education in Westernport
High, Technical Catholic and Non-Catholic Schools

	Government (n=26)			Non-Government Catholic (n=5) non-Catholic (n=11)				
	No.	%	No.	%	No.	%	No.	
Yes	11	42.3	4	30.8	5	100	7	63.6
No	7	26.9	1	7.7	0	0	3	27.2
Not sure	8	30.8	8	61.5	0	0	1	9.1
Total:	26	100.0	13	100.0	5	100.0	11	99.9

The high support for peace education in the non-government sector is not entirely due to the Catholic schools. Roughly two in every three non-government non-Catholic schools have some type of peace education. The picture for government schools have some type of peace education. The picture for government schools remains less

clear. The large number of 'not sure' responses in the technical sector means we can say little about these schools. Much the same is true of the high schools but if we distribute the 'not sure' equally between 'yes' and 'no' the percentage of government high schools carrying peace studies still trails Catholic and non-Catholic schools.

vice-principal) to have that sort of information at their fingertips. Others simply stated that peace studies may be included in some subjects without them knowing. Both types of responses were classified as "NOT SURE".

Discussion

Let us begin by being quite clear about what the study does not do. It does not

- identify school based conceptions of peace education and the pattern of their distribution.
- tell us which subjects take up peace issues and which do not
- reveal whether peace education is central or peripheral in the

day to day running of the schools.

These are important issues but this knowledge must await further research. Closer to the census, we do not know if Westernport is typical of other Victorian regions or for that matter Australia as a whole. Given the comparatively low cost of this sort of study, we hope answers to these questions are not far off.

The study shows that peace education has diffused more widely than we anticipated. The diffusion is uneven. Peace education is strongest in Catholic schools. Government schools lag behind non-Government non-Catholic schools. In the absence of evidence to the contrary the claim that peace education is concentrated in the government sector is simply false.

The expected obstacles to peace studies are not in fact impediments to the spread of peace studies. Just under one half of all administrators saw no danger in linking their school with peace studies. Administration is not an obstacle to peace studies. The situation is less clear for teachers. We cannot tell from the present study the extent of teacher resistance. We can say, however, that whatever the resistance it has not prevented at least half of the secondary schools from mounting some sort of peace studies. That is, in these schools there are sufficient teachers willing and able to get peace studies into the curriculum. In sum, the obstacles to peace education are more imaginary than real.

Table II
Peace Education in Westernport
Government and Non-Government Schools

	Government (n=39)		non-Government (n=16)	
	No.	%	No.	%
Yes	15	38.5	12	75.0
No	8	20.5	3	18.75
Not sure	16	41.0	1	6.25
Total:	39	100.0	16	100.0

On these figures peace education is almost twice as popular in non-government schools. The size of the difference between the two types of schools is both misleading and exaggerated. The comparatively large number of 'not sure' in the government sector suggests that the figure of 38 per cent underestimates the spread of peace education in these

schools. Similarly, the high incidence in the non-government sector may be due to a Catholic commitment to education for justice courses. Table III explores these possibilities by dividing government schools into technical and high and non-government into Catholic and non-Catholic.

Red and Green after the ALP Conference

If the ALP Conference was a turning point for the peace movement, what lies ahead? RICHARD TANTER reexamines the German Greens.

Carolyn Gale caustic scrutiny of "Petra Kelly and the Greens" (*Peace Studies*, August 1984) is well-timed. The ALP Conference disaster has sent sales of the German Green Party Programme¹ soaring, with good reason. The sordid lakeside spectacle of seedy (and mostly male) power-grubbers destroying the not-all-that-impressive repository of official nuclear resistance was a watershed. All but a few of the left who contributed to the vital conference debates on uranium, the United States bases, and the economy spoke with the foreknowledge of defeat. In that respect, the conference was a turning point in the debate on effective movements for nuclear resistance, a final ritual symbol that the easy part is over.

Depression and anger were leavened, in varying measures, by resignation and contempt; threats of "retaliation" and the small sweetness of imagined revenge were the normal and understandable first response. And yet that appalling and depressing vision of the pathologies of power may not have been all bad. At the very least the question of strategy to translate numbers in the streets into effective and transforming political power is being posed in various forms throughout the movement for the first time.

One set of questions concerns the coming Federal elections: can the movement take the risk of not addressing electoral politics directly, particularly given the possibility that the nuclear Hawkes in Canberra will use the likely win to push Australia further along the nuclear fuel cycle? Enrichment plants look attractive to eyes that can see dollars and votes being mined at Roxby Downs. And so, the slew of electoral options: Nuclear Disarmament Party, write-in campaigns, alignment with the

Democrats, campaign against pro-nuclear Labor candidates, and so on.²

These proposals, and the painful choices they encompass, are all important, but they will prove misleading if taken without thought as to the deeper significance of the July Conference. Elections apart, what matters is the relationship between movements and governing parties, the step from public opinion to the power to deny governments the possibility of acting contrary to public opinion. Even more fundamentally, how do we avoid paralysis by the normalising processes of ALP conferences when faced with the profound threats of what Rudolph Bahro calls the three exterminisms: nuclear war, economic and political oppression of the mass of the world's population by an over-privileged industrial minority, and the destruction of a sustainable biosphere.

Greening Labor?

Not surprisingly, there is much talk of alternatives to the ALP, and the German Green Party is being looked at with greater or lesser detail and care. The debate about the Greens and their relevance to Australia is extremely important, even apart from thoughts of a Green Party as such in Australia.

What is at the heart of the attractiveness of the Greens is their vision of an alternative politics — both in goals and process. The Greens — personified in activists and writers such as Petra Kelly and Rudolph Bahro — have presented virtually the only example of a politics which embraces environmentalists, feminist, peace and socialist concerns in a form that links democratic, empowering organisational process with the end goal. To be sure, the green/red/purple balance

of the Greens has been questioned, both from within and by hostile traditional left critics. Yet, the promise looks all the more attractive after the ALP debacle.

Carolyn Gale's bucketing of the Green Party election programme is all the more important in this context, and a welcome correction. For Gale the Greens' major problems are "with their political efficacy. It is the point of attempted translation of their policies into implementable policy where the Greens go off the rails, chugging happily into the realm of political fantasy." Gale's main example of this, quite properly, is the Greens' economic programme — "not so much a policy as a diatribe".

The problem is not that Gale is wrong about the economic policy — on the contrary — but that she never attempts to pinpoint just what is wrong with the programme other than its alleged "Utopian Luddite" qualities. After all, what the Greens have undeniably shown by their very survival and example is that prevailing definitions of "political realism" inhibit us as much as does real opposition power. Indeed, I imagine Gale's homage to realism would make most Green activists smile generously.

But there are far more important problems with the Green programme that Gale misses, and which are vital for a proper discussion of the relevance of the Greens' vision for Australia³. The two core problems are inter-related. The first is the failure of the Greens to come to grips with a capitalist economic system on a global scale, and the second is a blindness to the role of the state in such a system.

Green economics

Reading the Greens' economic policy is rather like driving through a very small town, blinking and realising you've missed it. It really is very brief. The longest section is on work

and technology, all of which is sensible and desirable, but quite irrelevant unless some thought is given to the pressures towards particular types of technological change that inevitably arise within the present economic system. The simple question the Green policy on work and technology does not face is how will production units — be they large corporations or small "decentralised and survivable production units" — obviate the pressures of price competition from firms at home or abroad which seek to retain the advantages of capital-intensive technology? There are answers to this question, but they take up issues the Greens apparently don't want to think about.

This break in Green thinking is evident throughout the brief economic section of the programme. The concluding section on "Taxation, Currency and Finance" is missing, with the poignant explanation "This section of the programme is still being revised". No doubt. What is said in the remainder of the economic section is important. "The key premise is that those people affected by any decision should make that decision for themselves. What is produced, how and where . . . We are fundamentally against any kind of purely quantitative growth, particularly when this is motivated simply by pure greed for profit." If Marx were alive he would undoubtedly be some kind of eco-socialist (though his feminist credentials may be somewhat tarnished), and these considerations would warm his heart, but make his head hurt.

What is ignored throughout the economic programme is any consideration of just what kind of economy the Greens are seeking to transform. Precisely how does a Green Federal Republic (or any other capitalist or would-be ex-capitalist social organisation) deal with the power vested in holders of capital who, at the very least are able to move the social resources they control as capital off-shore? Less brutally, what balance of carrots and sticks can be invented to induce present holders of economic power to permit either the derogation of their rights or to permit the emergence of a government-

assisted alternative to the whole system? John Wiseman has remarked that the Green programme reads as if an economy can be thought of as a giant Commonwealth Employment Programme.

Green state

Not surprisingly, the second set of problems is closely related. In section after section, the programme emphasises the need for the use of state power — by regulation or economic assistance or incentive — to achieve the goal of an ecologically viable economy meeting global basic human needs on an equitable and genuinely democratic basis. The contradiction of relying on state power to undermine the capitalist state has occurred to many, but apparently not to the Greens.

This break in the Greens' train of political thought is of course connected to the first problem — the lack of recognition of the present economic system and how to move out of it — the famous conundrum of "the transitional programme". Economy and state — the system of private economic power and the enormous powers of centralised administration are very much more closely interwoven than in the recent past. The Greens' failure to think through the problem of their vision of the future derives from their unwillingness to think systematically about either in the present. In fact, I am sure that these problems have been recognised, but they open up questions that cannot yet be dealt with.

Most thinking about the relationship between economy and government (in the widest sense) has been done by Marxist writers⁴ working against the grain of orthodoxy and trying to understand the simultaneous expansion this century of private organisational economic power in the hands of corporations, and of governmental administrative power, which now penetrates into many more areas of life than in the recent past. The Greens' programme is written as if this were a purely incidental development, and not one that is in fact fundamental to the

organisation of global society today. Harsher critics — dare I say realists — would suggest that the most important Green omission concerns the fantastic and largely unrecognised growth in the means of government surveillance and political control.

Red/Green in Australia

My criticisms of the Green programme are not intended to discourage people from reading it. Quite to the contrary, even a brief scanning of its demands, flawed though they may be, shows how shallow and impoverished is most left and environmentalist thinking in this country. What was most appalling about the performance of the ALP was that there was no alternative vision even hinted at, and the "socialism" of the Socialist Left was thin to the point of non-existence. What was missing, and what the Greens in their programme and elsewhere have shown is necessary to think about, is the link between environment, peace, and the economy, and with gender and race. The issues are linked in fact and until that is explicitly recognised, there will be no erosion of the current control of Australian politics by pro-nuclear politicians colluding in the integration of Australia more deeply into a global economic system. Until the links between the causes are seen and acknowledged there will be no viable coalitions between peace and environmental movements, women, aboriginals and organised labour.

For all of their failings, the Greens faced the problem of a pro-alliance, pro-nuclear social democratic government and evolved, from the grass roots, an alternative movement. The ALP Conference will have served well if it induces as much creative political thinking in Australia. Political creativity is rare in Australia, and rarely seen on the left, where hackery is the order of the day. Reproducing the Greens in Australia is neither possible nor desirable, but the debate between red, green and purple will benefit enormously from the Greens' example. We are in their global debt.

continued page 26.

Meeting with the Russians

Congratulations on another good issue. In particular I appreciated Paul Begley's firsthand account of a meeting between the Soviet peace delegation and representatives of VAPS, People for Nuclear Disarmament and Movement Against Uranium Mining (*Peace Studies* September '84). Such reporting of what happens when people try to actually do peace work is still quite rare.

The occasion described was an historic one. For the first time VAPS, PND and MAUM were talking on Australian soil to a delegation of real live Russians. Scholars and activists of a country closely allied with one Superpower, the USA, were talking with three government-sanctioned representatives of the rival Superpower, the Soviet Union. The Russians had come many thousands of kilometres in the name of peace to talk to allies of a leader who describes them as totalitarian and evil. Surely a rare opportunity.

From Paul Begley's account we learn that within 20 minutes one of the Russians is suggesting that VAPS is hypocritical (*Peace Studies* should be called "War Studies", says Genrikh Borovik) and we learn that others then arrived and asked the delegates whether they agreed with their government's policies.

No mucking around. Get their world view, ask them the tough questions about the independent Trust Group in Moscow, challenge them to disagree with their government, find out that "they genuinely appeared unable to talk about nuclear power", and then let "the conversation fizzle out".

If this is how it goes when representatives of Melbourne's

peace movement meet three Russian citizens, can we complain about Reagan and Chernenko not getting a dialogue going? Is there no way forward? Some analysis of what happened this time might increase our chances of improving our "peace talks".

If the Australians indeed believe that Russia is a totalitarian State (and Paul Begley's account indicates that this is what they believe) then the line of questioning used is equivalent to asking, as a first requisite for dialogue, that the visitors get themselves into serious trouble at home. A very difficult way to mutual understanding and cooperation.

Has the new cold war propaganda effectively cut off even leading peace activists from the possibility of dialogue with Russians?

Joaanna Macy in her important book, "Despair and Personal Power in the Nuclear Age" (New Society, Philadelphia, 1983) has a chapter on dealing with differences of opinion and I found it a challenge to my own often woeful behaviour in this area. She suggests we find first the areas of agreement and only then examine differences but examine them boldly at that.

In recent years Macy has been conducting workshops on despair and personal power throughout the US and Europe (although as far as I know not in Russia). She is convinced that "everyone at some level feels distress over the world's future". It follows that "we all have a lot to say to each other once we break through the fears and taboos that keep us silent . . . For this to happen, the art of listening is essential.

I have come to believe that listening is the most powerful tool in peacemaking and any other kind of social change work".

If Macy is right, then we might on a future occasion share with our Russian brothers and sisters our concerns and fears about the survival of our species. Why not tell them about our children and grandchildren and the threat to them? Why not find out if they have any similar feelings? We could tell them of our experiences (or inexperience) of war and peace and ask them about theirs.

Here's hoping that problems such as Paul Begley described, and I have remarked on, will arise again. Era Nordland and the Scandinavian women's peace movement have shown that it is possible to build links with both the official Russian peace movement and the unofficial groups like Trust. But it takes a lot of work as Era remarked when she was here.

Perhaps we need to try the Robert Tavani approach. I worked with Tavani on Dorothy Day's Catholic Worker Farm at Tivoli, north of New York in 1976. When we met up with him later after some months and many miles of travelling he asked me what I had been eating for breakfast while I was away. When I asked him to explain, he told me a story about his Italian grandmother who he used to see only rarely, but whenever she met him, she always opened the conversation by asking him what he had been eating for breakfast.

I suggest the next time VAPS and Co. meet up with a Russian peace delegation, the first item on the agenda be a discussion of what each eats for breakfast.

Val Noone
Fitzroy Vic.



What motivated about 300 people of all ages, including my son, my granddaughter and myself, to camp in the South Australian desert during August and September? The largest uranium mine in the Western World — Roxby Downs.

I recently returned from Roxby, rightly dubbed "Fortress Roxby". Within a 10 km radius fence, called the lease area, are contained the Whenan Shaft, the Pilot Plant and also Olympic Dam Village itself. They are all guarded by Roxby Management Services guards and police, making it easy to argue with the slogan "Uranium creates a police State". However, even these precautions could not keep groups out — on one night alone there were over 100 people in the lease area. Some were leafletting cars and letterboxes, others taking water

samples for testing, some graffitiing the road with anti-uranium slogans and others putting superglue in the gate locks. Generally, decisions to be arrested were previously decided — otherwise, on agreeing to leave, demonstrators were escorted to the main gate.

There was street theatre, a visit from Andamooka school children, medical personnel explaining the risks of mining to miners, trade unionists distributing special leaflets, all this plus the working of the camp, for which tents set aside for information, medical, media and legal matters were erected. Groups were rostered daily for garbage, toilet and water carting duties.

Altogether a busy and eventually, it is to be hoped, a fruitful exercise.

Irene Miller, Beaumaris, Vic.

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The Editors, Social Alternatives, Department of External Studies, University of Queensland, 4067. AUSTRALIA.

The Roxby Downs Blockade got under way, as scheduled, on Sunday, August 19th. Blockaders from every State made their way to a site in the South Australian desert referred to as base camp, a mini-tile village set up about fifteen kilometres south of Whenan Shaft which is the main Roxby mine site.

Blockaders were prevented access to the shaft by the establishment of a ten kilometre radius buffer zone called the lease area. Legislation had been rushed through the South Australian Parliament creating this zone, which meant that actions attempting to gain access to the shaft often involved a night hike to avoid detection.

By the morning of Monday, 20th August about three hundred and fifty blockaders had arrived at Roxby to demonstrate their opposition to the mining industry on environmental, economic, health and land right questions and on the grounds that uranium plays a fundamental part in nuclear war preparations. As the days and weeks passed a broad assortment of people came and went through the camp.

The camp structure was based

The Ambassador's absences

You kindly published my article on "Australia and the Arms Race" in your No. 5 August 1984 issue. It has been drawn to my attention that my reference in that article to the absence from his post of the Ambassador for Disarmament, Richard Butler, could be misinterpreted. I should have made it clear that the Ambassador did not undertake his other activities at his own volition but on direction from the Department of Foreign Affairs.

My criticism was of the many duties allotted to him in addition to his work at the twice yearly Sessions of the Conference on Disarmament in Geneva, as well as the annual Session of the General Assembly in New York, where the First Committee of the United Nations meets to discuss arms control issues and to formulate appropriate resolutions. For instance, the Ambassador's speaking tour

of affinity groups and volunteer staffed service groups. Most people had undergone training in non-violent and consensus decision making and from their training many formed into pre-determined affinity groups. There were five service units: Information, media, medical, services and communications. They maintained the camps survival requirements such as water and also kept the lines of communications with the outside world open. Decisions concerning the whole Camp were put as proposals to special meetings which were held every day for this purpose and for the sharing of information. Affinity groups then discussed the proposals, sent spokespeople to present their views to a further meeting where final decisions were made.

The early actions were for reconnaissance and to test the laws. Actions were normally symbolic and highlighted the reasons for the blockaders' presence, their prime aim being to frustrate and hinder the mining company's progress towards a feasibility study, and also to make the miners and the Australian public generally, aware of the issue.

Silvana Tuccio.

In Australia last June, when he was required to address about a hundred meetings while the Conference on Disarmament was in session in Geneva, was altogether inappropriate, I thought.

Let there be no misunderstanding that, to the best of my knowledge, Ambassador Butler's diversions from his central tasks — namely his Australian speaking tour, his attendance at the Commonwealth Heads of Government Conference in India, his assignments in Paris; and tour of Scandinavian countries — were not on his initiative.

From the above it must be obvious that Mr. Butler's absences were not for purposes of recreation. On the contrary, he has been in properly and unnecessarily overburdened.

By the way, it is a happy coincidence that since I wrote the article in early June, there have been promising improvements in Australia's situation at the Conference on Disarmament, including a firmer stand taken by the Minister for Foreign Affairs himself, Julie Dahlitz

meetings, conferences and events

VICTORIA

MAUM General Meeting. Monday 1st October, 8.00 pm. Environment Centre, 285 Lt. Lonsdale St., Melbourne. (03) 663 1428.

Catholics for Peace — "Nuclear Films". Speaker: Peter Malone MSC. St. John's, Cnr Victoria and Hoddle Sts. East Melbourne. Fri. 5 October, 7.30 pm.

Benalla PND handicraft fair. Invitation to any craftspeople to take part. Articles to be made and a fee of \$12.00 per stall will be charged. On the lake foreshore of the Civic Centre. Sat. 6 October. Contact Helen Salter (057) 62 3990 (ah) or RMB 2135, Benalla 3673.

PND Bush Dance. Prahran PND and Arts Action for Peace, 2.00 pm. Sunday 7 October, "The Abbey", Orrong Rd., Prahran (Cnr Wynyard St.).

Focus on civil disobedience. Screening of "In the King of Prussia". Also discussion with participants from the Roxby blockade. Fitzroy Uniting Church, 124 Napier Street, 8.00 pm. Wed. 10 October. Contact AWD (03) 419 5588.

Contributors

Kenneth Boulding is a distinguished Professor of Economics at the University of Colorado, Boulder. This article was his address at the 10th Conference of the International Peace Research Association at Hungary last year.

Paul Greco is an elder of the Bush Christian Community in Victoria and works on a program with unemployed youth.

Brian Martin is a maths researcher at the Australian National University and is active in the peace and environmental movements.

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Richard Taft is working on a doctoral thesis at Monash University, Victoria and is a former convener of People for Peace-Disarmament in that State.

Tob Sweet-Hin teaches in the Centre for Social and Cultural Studies, Faculty of Education at the University of New England, Armidale, NSW.

Sue Waller is a research assistant in the Faculty of Education at Monash University, Victoria.

Stall and Display. Oakleigh District Environmental Group. At Clayton Community Festival. Any interested people who would like to help in organising or work on the day at the stall contact ODEG — (03) 543 5035 (ah), 13-14 October.

Poets Union — Poems and Music. Readings by Vincent Buckley, Jennifer Strauss and others. Universal Theatre, 19 Victoria St., Fitzroy. For Watkins Benefit Film, \$7.00 and \$2.50 20.30 pm. Sunday 13 October. Contact theatre (03) 419 3777.

Watsonia Peace Camp begins. October 20th. (In co-operation with 'Observe the Base' WA and CANE vigil Qld.). Details PND (03) 663 2846.

CICD 25th anniversary dinner. South Melbourne Town Hall, October 20th (03) 663 3677.

Disarmament Declaration. Signatures in to PND by Oct. 23 for presentation to Federal Parliament on Oct. 30 in Canberra.

Disarmament Week Oct. 21-28. Week of prayer for World peace. One World Week.

Action for Aboriginal Rights Dinner. Guest speaker: Kath Walker. Exhibition of paintings by Trevor Nickolls. Malvern Town Hall, 7.30 pm. Tickets: 419 7600 or 25 6260, 379 1711. BYO.

National Symposium on Peace and Disarmament Education. Sponsored by the Australian Teachers Federation. Enquiries through teacher unions in each State. Melbourne College of Advanced Education, October 26-28. (See advertisement).

24 Hour prayer vigil for peace. St. Josephs, Otter St., Collingwood. Details from Catholics for Peace (03) 67 2167. Begins 12 noon 26th — 12 noon 27th October.

All Faiths Service of the Week of Prayer for World Peace. Hosted this year by the Hindu Society of Victoria, Prahran. Migrant Resource Centre, 24 Victoria St., Windsor, 5.00 pm — 6.15 pm. Saturday 27th October. All welcome.

Environment, Ethics and Ecology 11 Conference. Monash University Graduate School of Environmental Science, October 26-28. (See advertisement).

Medical Aspects of Nuclear War — Public Meeting. Guest speaker: Dr Mark Ivers, 7.30 pm. St. Johns Cnr. Hoddle & Victoria Sts., East Melbourne. Catholics for Peace, Friday 2nd November.

Pax Christi Camp 1984. At "Greyfriars", (03) 419 3448. Nov. 16-18th.

PND General Meeting. Venue to be confirmed. 1.00 pm. Sunday Nov. 18th. 663 2846.

QUEENSLAND

24 Hour vigil and demonstration at Cabarlah Base. Contact CANE

Toowoomba. (In co-operation with 'Observe the Base' WA and Watsonia Peace Camp in Victoria). October 21st.

NEW SOUTH WALES

Launch of Peace Bus. October 21. Contact PND (02) 264 6846.

Local electorate activities for Disarmament Declaration. October 23. Contact PND.

Ecumenical Peace Conference "Future in our hands". 262 Pitt St., Uniting Church Sydney October 26 — 28. Speakers: Fr. Brian Gore, Peter Jones, Nancy Shelley, Margaret Hill, Morris West.

Ordinary Peoples' Peace Seminar. "What can ordinary people do about nuclear disarmament?" November 23 — 25. Fitzroy Falls Conference Centre NSW, Southern Highlands Peace Movement, PO Box Bundanoon NSW 2578. Contacts: Ross Colquhoun (048) 84 4241 or Kit Guyatt (048) 84 4244.

AUSTRALIAN CAPITAL TERRITORY

National presentation in Canberra of Australian Disarmament Declaration signatures. October 30. Those interested in going for presentation and action contact PND in each State: Brisbane — (07) 229 7143. Melbourne — (03) 663 2846. Perth — (09) 321 8309. Sydney — (02) 264 6846.

Horbat — Launceston — People for Peace (08) 223 1210. Adelaide — People for Peace (08) 223 1210.

WESTERN AUSTRALIA

Observe the Base Action RAAF Base (part of SIGINT network) in co-operation with Watsonia Peace Camp in Victoria. October 21. Contact PND (03) 321 8309.

Women for Survival Peace Train to Cockburn Sound. December. For information about the 'Sound Women's Peace Camp' contact Women's Action for Nuclear Disarmament (WAND) (09) 335 7774. PO Box 53, North Fremantle WA 6159.

NEW ZEALAND

National Peace Workshop. Includes Peace Movement New Zealand Annual General Meeting. At Marycrest near Otaki. Contact Horowhenua Action Group for Peace. 12A York St., Levin. October 20-22.

Women's action at Tangimoana. Starting 23 September continuing through October.



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