What is striking about nuclear developments since 1945, both military and electro-power generation, is how few women were and are involved in its scientific, industrial, business and military development and progress, and also in its promotion by state actors, both elected representatives and civil servants. Equally striking is that while these activities are largely male affairs, women are at every level in substantial numbers when the issue is protest and resistance. Women found organizations, take leading roles in social movements, use their professional skills, for example, as scientists, lawyers, journalists, workers within the industry, in ways that contribute to the knowledge base needed by activists, as well as undertake many other myriad tasks that sustain social movements.

The relevance of gender to nuclear developments and their resistance rarely surfaces either in the literature or amongst activists in protest movements. Nuclear issues are characterized by a gender blind approach. There appears to be an assumption of social agreement that transcends gender amongst those who promote and those who challenge nuclear power and nuclear military forces. Obtaining sufficient agreement within protest movements to maintain momentum is a constant major problem. Gender becomes obvious when women organize separately from men, but it is unlikely to surface in mixed organizations and movements. Recognising difference can be disruptive and both activist women and men may ignore the relevance of their gender to their personal involvement and activities and of that of others.

While unusual, sometimes gender can be salient, for example, the Australian, Helen Caldicott, explains in her autobiography the influences that led to anti-nuclear war work (1996). As a medical doctor she had some basic knowledge of the contribution of radiation to genetic disease, she was a mother, had begun reading and speaking on feminism, and in 1971 became aware of French nuclear weapon testing over the Pacific atoll of Moruroa that began in 1966. These apparently diverse stimuli resulted in years of anti-nuclear campaigning, a leadership role in Physicians for Social Responsibility (PSR), the formation of the U.S. women's organisation, WAND (Women's Action for Nuclear Disarmament) and, ultimately, a gendered struggle within PSR in 1983 that resulted in her resignation.

A brief history
Protest and resistance follow nuclear developments, both military and commercial. Major past nuclear protests began with the nuclear bombing of Hiroshima and Nagasaki followed by nuclear bomb tests, subsequent nuclear weapon developments and their deployment. Protest and organizing further expanded with the advent of electro-nuclear
power. While the connection between military nuclear weapon production and electro-nuclear power might be recognised, campaigning issues were directed towards weapons and their control or towards commercial developments. Campaign goals were necessarily specific, and were pursued through beliefs about effective methods. Coalitions of organizations that formed to pursue a common goal would have differing reasons for doing so and severe disagreements could erupt over aims and styles of work. There is both continuity and breaks in nuclear protest over the past 50 years as groups and campaigns formed to respond to specific events and the resulting social movements grew, peaked, declined, to be followed by another wave of protest. But even at the lowest points, some organisations maintain a continuous oppositional presence as a nuclear weapon and war free future represents core values.

Opposition began amongst groups based on values antithetical to nuclear developments. World War I led to the growth of pacifism and, as a result of the struggles for women's rights, the first international women's peace organization, the Women's League for Peace and Freedom, founded in 1915. Since World War II pacifism provides core activists against military nuclear objectives, while ecologists occupy a similar position in relation to electro-nuclear power. Pacifism may be a core value for both religious and secular groups. Ecology too, is not uni-dimensional; it may be understood in relatively narrow or very broad ways. It seems that feminism is the sole route to the recognition of gender based issues and interests in nuclear resistance and protest. As with the first wave of feminism, actions specifically by women began after the advent of the second wave of the feminist movement, although feminism has its factions and not all women are and were drawn to women only protest.

Immediately after World War II there were advocates for the view that peace combined with justice was the way to avoid future wars. While a time of hope, it was also one of continued hostility to the U.S.S.R. by Western nations, a time when support for world government co-existed with support for the arms race. During the early 1950s, this positive atmosphere was eroded in the U.S. by the conflation of liberalism with un-American activities, even communism, spearheaded by the House of Representatives Committee on Un-American Activities chaired by Joseph McCarthy. Communist smear tactics were to be used by successive governments in all the following peace and anti-nuclear movements in the U.S. While the success of this tactic gradually declined, it always deeply affected movement strategies. In the U.K. with the post-war electoral success of the Labour Party even its left wing supported nuclear armament, which undermined effective political intervention for unilateral disarmament. In the U.S. and the U.K. anti-nuclear protest drew on proponents of world government and pacifists, in particular the Society of Friends.

Nuclear bomb testing by the U.S., the U.K. and France led to protest organisations and activities. The dates of these protests varied with those of the bomb tests. In the U.S. radical pacifists had begun direct action protests against nuclear testing at the Nevada test site in the 1950s. SANE, the name used by the National Committee for a Sane Nuclear Policy, began with educational aims focused on conventional politics (Katz, 1986). Older peace organisations, such as the American Friends Service Committee and the Women’s International League for Peace and Freedom, gave support to both
groups. To further nuclear disarmament SANE began with advertisements in the New York Times signed by well-known men and a few women (these needed to be well-known) calling attention to the dangers of nuclear war. SANE tactics also included writing letters, petitions, rallies and demonstrations. The aim was to persuade and, as a progressive organization, to be respectable and effective by meeting U.S. security concerns through the international control of nuclear weaponry.

SANE experienced rapid growth with 150 local committees in 1959, but just as it was on the verge of establishing a significant national presence it began to disintegrate. In 1960 leading members of SANE were called to testify about communist connections before the Senate Internal Security Subcommittee chaired by Senator Dodd. SANE was split and weakened through disagreements on how to respond to this threat to its integrity. ‘Senator Dodd’s attack upon SANE cut drastically into its membership, not merely because the leadership deliberately drove some people out but because large number resigned in protests against what they considered “McCarthyite” tactics among their key board members and sponsors within the organization. (Katz, 1986, p.55) Resignations of individuals, local and student groups within SANE followed from leadership decisions that reflected their fear of both communism and a revival of McCarthyism. While SANE continued in a reduced way during the 1960s, the Vietnam war become the major focus for protest.

Ban the bomb protest successfully began in the U.K. with the imminent nuclear test on Christmas Island in the Pacific in 1957. With the massive growth in interest, the Friends Service Committee’s National Council for the Abolition of Nuclear Weapon Tests quickly merged with the newly formed Campaign for Nuclear Disarmament (CND) (Duff 1991). After the bomb test the focus moved to nuclear weapons in general and withdrawal from NATO. The aims of CND were unilaterist, requiring Britain to renounce the use, production and use by others of nuclear weapons in Britain’s defence. The CND executive and others in the leadership focused primarily on changing Labour Party policy as the means to achieve unilateral disarmament.

CND provided an umbrella for a complex social movement never controlled by its executive with its limited tactical approach and ambivalence towards direct action (Duff 1971). The social movement was too large and diverse for this to be achievable. The CND umbrella provided cover for both traditional political lobbying politics and direct action, most notably through the Committee of 100 led by Bertrand Russell, while individual banners of many peace and political organizations enlivened the annual Easter marches. By 1962 support for CND in Britain was beginning to wane, but it's symbol, the circle with a broken cross within it along with the Easter march, was taken up by protesters of nuclear weapons in 60 countries. At home, to avoid collapse, CND became a membership organization in 1966.

In France the first nuclear bomb test were in Algeria in the Saharan desert between 1960-1966”. With Algerian independence French bomb testing shifted to French Polynesia in the Pacific where it remained until the last tests in the mid-1990s. While the U.S. and the U.K. also tested nuclear weapons in the Pacific, the U.S. transferred all
testing from the Pacific to the Nevada test site and the U.K. bomb tests were limited. The first nuclear bomb test by France was above Moruroa with fallout detected not only in the surrounding islands but in Western Samoa, the Cook Islands and Fiji. The first French hydrogen bomb tests were in 1968 and atmospheric testing continued until 1974, when in response to international protest testing was transferred underground and continued to 1992.

In 1995 the French began nuclear bomb testing again on Moruroa. International condemnation followed with yachts leaving for the bombsite in response to a call from Greenpeace. In a related action Greenpeace announced that a European Peace Flotilla would arrive on the River Seine with almost 35 million signatures in protest against the resumption of testing in the Pacific. The petition was to be hand delivered to President Chirac, but the attempt to do so was forcibly stopped by the French police. There were protests in metropolitan France, the majority of the public did not support the resumption of testing, and French and international scientists called on Chirac to abandon the programme. There was a riot in Tahiti, which was quelled with French Foreign Legion troops, numerous arrests and detentions. New Zealand attempted to use the World Court to stop the tests by reopening their 1973-74 action against French atmospheric testing, but the case was dismissed. The only concession this and other actions achieved from the French state was a reduction from eight to six tests. Lynn Pistol (1995) in Moruroa Blues draws the conclusion that as neither Britain nor the U.S. objected to these tests it suggests the sharing of information. To give some idea of the extent of testing, from the first nuclear test in 1945 in New Mexico there were 2046 nuclear tests at 20 locations around the world by six different nations. This averages out at nearly one test every nine days (Pistoll 1995).

The Polynesians living on the many islands in the Pacific experienced multiple harm. Some were driven from their islands and lived in great poverty in poor conditions in their forced relocations, throughout the region there was an increase in ill health and cancers as a result of radiation exposure and their cultures and daily life were negatively impacted upon by the militarism of occupying U.S., U.K. and French forces. The import of Western ways adversely affected the traditional place and power of women in their communities. Women organized in the Pacific to reclaim their land, to achieve nuclear-free independence from their colonizers and have given us accounts of their survival against great odds (Ishtar 1994, 1998).

Le Hague and Hanford
In France nuclear protest gathered momentum with the State decision in 1974 to expand the electro-nuclear programme as a response to the quadrupuling of oil prices. Unlike the U.S. or the U.K., France was primarily dependent upon imported oil. In the expanding electro-nuclear programme every stage of the nuclear cycle was subject to massive industrialization, from uranium mining to fuel and reactor manufacture to decommissioning. The social root of the protest against this was the political events of May 1968, which linked social revolt, political confrontation and cultural uprising against a bureaucratic and authoritarian centralizing state (Touraine 1983). During the growing protest movement efforts were made to centrally co-ordinate the anti-nuclear actions,
but these were based at power station construction sites and largely independent of each other. In 1977 during the protest at the construction of a power station at Malville, the centrally controlled police killed a demonstrator, which deflated the movement.

While the value placed upon the environment was relevant to the involvement in protest and resistance in the U.S. and the U.K., in France militants were situated in the intersection between the political critique of May 68 and the ecological critique (Touraine 1983). The nuclear issue was chosen for action in order to challenge authoritarian, centralized, technicist conceptions of society offering the possibility of the development of new social aspirations. The nuclear society was seen as more than the continuation of economic growth with its market and consumption orientation, but rather as a result of the conditions under which nuclear energy is produced, nuclear developments would inevitably result in an increasingly centralized and controlled society. The community study of Le Hague confirms this interpretation.

Le Hague, a plutonium processing, nuclear fuel reprocessing, and nuclear waste disposal site on the French Atlantic coast peninsula was one of the protest sites where attempts were made to involve the local population (Zonabend 1993). Efforts to engage the local population in protest prior to the building of Le Hague and its associated nuclear power plant at Flamanville were not very successful given their mistrust of outsiders, and Parisians in particular, and the brutal response of the nationally controlled police at the first sign of public demonstration. The differences between the organization of policing in France, the U.K. and the U.S. raise issues for social movements seeking change in central state policies. At least some local control or oversight of policing is not part of the responsibilities of local or county government in France as it is in the U.K. and the U.S. Lack of local control allows the central state to more easily repress signs of population resistance at an early stage and with sufficient force to restrict the growth of protest.

Prior to the construction of the Le Hague site, the sparse local population was primarily farmers or fishermen where women were wives and mothers. The nuclear developments significantly altered their environment and their lives. Farmland was taken for nuclear work and the coast polluted by radiation discharge into the Atlantic, which undermined the fishing industry. The nuclear plant is the major employer in the region with many new residents, managers, technicians and unskilled workers. These outsiders do not interact significantly with a local population who, prior to the nuclear developments at Le Hague, lived in small relatively isolated communities. Ignoring the outsiders is one attempt to keep their communities alive.

Some locals now work at the plant in jobs divided into those not assigned to radioactive areas, those not directly assigned but may be assigned on occasion and those directly assigned to operations in areas where radioactivity is present. Working directly in radioactive areas includes the repair and maintenance of all machinery and equipment, monitoring radioactivity risk, and undertaking decontamination tasks. Permanent staff at Le Hague is supplemented by sub-contracted labour, largely migrant workers, who undertake basic decontamination tasks involving greater risk of radiation exposure.
Living near or working within the nuclear facility requires a response to the fear of radiation and contamination, achieved in large part by denial. Even after the Chernobyl explosion in Belarus in 1986 and the subsequent pollution of large parts of Europe (Permanent People’s Tribunal 1996), those living on the French nuclear peninsula deny that it could happen there. This survival tactic overlays a deep pessimism, Le Hague is known locally as le poubelle - in English this is a dustbin and in American, a garbage can.

The work at Le Hague is described euphemistically in the training course taken by all new workers as women’s tasks of cleaning, cooking and preparing a soup, while masculine reinterpretation divides the largely male workforce into cautious ‘rentiers’ and the bold ‘kamikazes’. The former observe all the safety regulations while the latter do not always do so. For all male workers directly involved in nuclear processes, it becomes a mark of masculine pride to ‘receive a dose’ viii. In the local communities and amongst women workers at the plant, women’s fear focuses on harm to new life and its creation. Women began to be employed in high risk areas (laboratories, production and monitoring) in 1986 following a change in French law relating to women’s employment. The denial of technological risk by everyone associated with Le Hague strengthens the belief of technocrats in the omnipotence of their technology and the lack of action by politicians to review the safety of local populations (Zonabend 1993).

Another facility with some parallels with Le Hague is Hanford in U.S. Washington State, a little known, but vitally important, military plutonium facility managed by major U.S. industrial companies. Construction began in 1942 in order to manufacture the plutonium for the bomb dropped on Nagasaki. The decision to locate this plutonium producing military facility in a rural area with no large urban populations with their educated professionals and extensive communication networks meant there was little connection with anti-nuclear and anti-war organisers and protest movements during the past 60 years. Hanford was never a bomb test site, (which put the focus on similar areas in Nevada and Utah), or easily identified as an issue of globalisation, nor were electro-nuclear plants planned for downwinder locations which might have generated protest movements. The population numbers east of Hanford remained largely static and, even though many were farmers, connections were not made with radiation damage to the land. When citizen protest finally surfaced, it was tied to health harms experienced by those who lived downwind.

An excellent account of what it means to be a woman living in a nuclear polluted location is the work of Terry Tempest Williams in Refuge: An unnatural history of family and place (1991). She recounts the deaths and cancers of all the women in her family since nuclear bomb testing began in Utah and Nevada. While maternalism may be derided as a sufficient theoretical base for action, when it is your family, your children that are directly affected by radiation induced disease, it becomes sufficient, even without the pain associated with the destruction of the land, the precious desert.
In Washington State the cities are located on the coast, with a workforce heavily involved in military production of weapons and their delivery systems. Military investment began during World War II and after the war Washington State encouraged its continuation. The coastal cities, including the state capital, are unaffected by radiation drift as the winds blow off the Pacific towards Hanford and the rural population beyond. Washington State is in a sense divided into two parts; an urban population on the coast with an educated professional class, the home of Boeing and Microsoft, benefiting from a rapidly expanding local economy. Hanford and those affected by it are a world away in the sparsely populated eastern half of the state where many continue to live on the land. Although Seattle became the site of a major anti-globalisation protest in 1999, the local Washington State issue of Hanford was not on the agenda. (St. Clair 1999).

Alice Stewart, a physician and epidemiologist, became involved in the ongoing study of the effect of radiation exposure of Hanford workers in the 1970s (Greene 1999). This, and other studies she and associates undertook of workers in nuclear installations, established that over time no dose is without health harm. Considerable effort has gone into attempts to discredit this research as nation states attempt to maintain the fiction that an annual exposure of 5 rems will have no adverse effect. In an effort to still growing concern, the U.S. commissioned a thyroid study and gave individual dose estimates to individuals living downwind from Hanford. The court cases brought by ill women and men are now in their 12th year with no sign of resolution. There are many women who have made significant contributions in efforts to obtain information on the work of the Hanford facility and its impact on downwinders, from investigative journalism to attempts to raise safety issues at the Hanford plant to organizing legal cases. As a result, several women were adversely affected professionally and continue to be pursued by those against whose interests they were working.

As academics we may have a special interest in what happened to Alice Stewart and Rosie Bertell. Alice Stewart, a foremost epidemiologist whose first research established the link between x-raying pregnant women and childhood cancer in the 1950s (Greene 1999). This did not result in professional advancement, but rather the loss of her position at Oxford University. She was offered a home as an external researcher at Birmingham University, where she was never a member of staff, always underpaid, students had no access to her, and throughout a long working life she never received appropriate professional or academic recognition. Rosie Bertell (1985; 2000) works in the field of environmental health and, although honoured internationally as was Alice Stewart, lost her academic footing and has never had a steady salary since speaking out in 1973 against building a nuclear power plant in the U.S. in an area next to farms that grew produce used in Gerber baby food (Greene 1999). Experience shows that those who protest or work to expose nuclear developments or to help others can expect institutional opposition.

The second wave of protest
The next wave of nuclear protest in the U.S. began in the late 1970s with the development of nuclear missiles, the proposal to develop the neutron bomb, the SALT II
negotiations and the deployment of Pershing II and Cruise missiles in Europe. SANE participated in the National Nuclear Weapons Freeze Campaign proposed by Randall Forsberg, founder and director of the Institute for Defense and Disarmament Studies, in 1979. This movement, called for a mutual, verifiable freeze on all testing, production and deployment of nuclear weapons. By 1982 nuclear freeze resolutions were passed by 309 New England town meetings, 320 city councils from coast to coast, 56 county councils, one or both houses in eleven state legislatures and 109 national and international organizations, including the UN General Assembly, and had won support from senators and House members (Katz, 1986, p.149). By the mid-1980s the freeze campaign and other peace groups in the U.S. numbered about 5,700 (Caldicott 1996) and SANE was once again on its way to becoming the largest nuclear disarmament organization in the U.S.

In Britain in 1979 CND's membership began again to grow rapidly. CND campaigners in both the first and second wave were largely drawn from the educated middle class in non-commercial occupations in teaching, welfare and creative fields with approximately one-half working in the public sector (Bryne 1988). While approximately one-third were women in the first wave, by the second wave women were half the membership, sharing the same occupations and having attained the same educational levels as men. An Appeal for European Nuclear Disarmament (END) resulted in renewed anti-nuclear activities (Thompson & Smith 1980). In the U.K. local councils declared themselves nuclear free zones.

Although activists within CND were more likely to conceptualise the U.S., rather than the USSR, as a potentially destabilizing influence on world affairs and the primary cause of the arms race, as with first wave CND, the Atlantic Alliance was not a major campaign focus. In the 1980s, while believing the US was more responsible for escalation of nuclear weapons and the arms race, there was no consensus within CND on withdrawal from NATO or the Atlantic Alliance. The moral dimension of CND continued to be a major reason for participation. CND was now a membership organisation showing a high level of cohesion in aims and tactics even though its members also were loyal to other issues, i.e. pacifism, national political parties, trade unions, environmental or international concerns (Bryne 1988). The tactical split in CND amongst those involved between persuasion and direct action continued as did that on aims. CND along with other mixed protest organizations were hostile to women only actions and may have discouraged some women from participating in them.

Greenham Common Peace Camp was set up as a result of the decision in 1979 by NATO to deploy Cruise and Pershing II missiles in Europe. The location of nuclear missiles in Europe was understood by the European peace movement to mean limited nuclear war with the theatre of destruction Europe, while the U.S. and the U.S.S.R. remained unscathed (Katz 1986). Prior organizing activities by small groups of women were part of the reactivation of the peace movement in Europe and the U.S. (Jones 1983). The Greenham Common camp began in 1981 as the base was being prepared to receive cruise missiles and it continued until the last missile was removed and the site decommissioned to be returned to civil society use in 1994. Numbers fluctuated over the twelve and a half years of the camp from many thousands to a few.
The camp drew heavily on feminist values and ideas about organization, process and analysis of patriarchal social relations. As well as drawing in women already committed to feminist ideas and values, it also drew in women whose initial concerns were primarily maternalist. Greenham offered a transformational experience to women through disengagement with mainstream hetero-patriarchial social relations and the development of new identities (Cook & Kirk 1983; Cambridge Women’s Peace Collective 1984; Roseneil 1999). The tactics developed by women were non-violent, while confrontational. Thousands of women were arrested and many injured by men who were soldiers, police and vigilantes in unsuccessful concerted actions to close the camp. Greenham women never attempted to present themselves as ‘respectable’, thereby depriving the State and other opponents of effective oppositional tactics used against other protest movements, including CND and SANE. The action of Greenham women did more than contribute to the removal of Cruise missiles. Sasha Roseneil concludes her study with the following comment on its legacy. ‘Greenham leaves a history of resistance in the late twentieth century which demonstrates women’s agency and offers hope of the ultimate disarmament of patriarchy’ (Roseneil 1995, p.172).

The 21st century
After the mid-1980s once again the movement declined, and today continues with actions against nuclear weapons in space in the U.S., against Trident fleet in the U.K. and through many local action groups. In 1996 the International Court of Justice at the Hague gave an Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons which said that the threat or use of nuclear weapons would be contrary to the rules of international law applicable in armed conflict. It put the burden of proof on the nuclear weapon states to justify how their nuclear weapons could be considered lawful and reminded nuclear weapon states that they had a legal obligation to achieve nuclear disarmament. As a result of this decision, Trident Plowshares created a campaign to challenge the legitimacy of the U.K. nuclear forces, which consists of submarines with a home base in a Scottish loch. Three women entered the loch unobserved, boarded a barge that was the main research laboratory for Trident and threw overboard all the computers and other equipment they could find and, once done, settled down to a packed lunch to await the arrival of the police. The legal arguments to declare the U.K. nuclear forces unlawful were successful in the lower court in Scotland before Sheriff Gimblett, but overturned on appeal through a legal process, the Lord Advocate Reference, brought by the prosecution. Angie Zelter (2001) presents the legal arguments and process in this attempt to gain British state compliance with international law. Trident Plowshares is a mixed organization, but one in which affinity groups undertake independent actions and women play a major role.

When thinking about gender and specifically women in anti-nuclear actions, the feminist view that women are not as deeply embedded in the social system and, therefore, have less to lose by refusing to go along with it and more to gain through personal development or commitment to other life serving values seems very relevant. This is not to suggest that men too, may not undertake the same journey, but they have more to lose as the gender in charge of the nuclear society and therefore, possibly, less to gain.
For the male dominated nuclear states, today's enemy justifying nuclear weaponry and electro-nuclear power is terrorism. The origin of terrorism's militants in the Middle East is seen as a threat to oil supplies. The end of the cold war was thought to have led to the unacceptable reduction in military contracts, which have now been restored and extended in the U.S. All three nations, France, U.K. and the U.S. continue to improve and diversify their nuclear weapons and their delivery systems. In the U.S. the men who were in power in the 1980's have returned with the Bush administration. Again there is talk of evil empires, begun by President Regan and continued by the present President George Bush.

Pam Solo (1988) explored whether the Freeze or any other nuclear citizens' movement can gain power to move from protest to policy. She asked if national security decision-making is susceptible to public opinion? And if so, what kind of organization should the movement have to move from protest to policy? These questions remain relevant. She also explored the more limited questions of impact, great and small, on national security definitions and decision-making. As this movement was active at a time of right wing nuclear military build-up and grandiose plans, it seems that some of their projects were delayed, in particular Star Wars which is now back on the front burner.

The initiative to organise the anti-globalist movement came from a conference in a Mexican village in 1996, 'International Encounter for Humanity and against Neoliberalism' (Zapatistas). The first major appearance of this new movement was in Seattle 1999 (WTO), and subsequently at gatherings of the IMF, the World Bank, general meetings of prime ministers, finance ministers and businessmen of leading nations (Seattle, Goeteborg, Genoa (one death), Davos, New York, Quebec City etc.) The next venue is the meeting of the WTO in Cancun, Mexico. While many diverse organisations participate in the anti-globalisation movement, a focus on the centralised, opaque relations between the military, business, democratic governments, and the government-to-government nuclear business between the U.S., U.K. and France is lacking. The connections are not obvious and deliberately obscured through State secrecy and the management of information.

Another round of protest may be around the corner given U.S. governmental and state support for new electro-nuclear build and the cartel activities of France, U.K. and the U.S. to both expand and control nuclear developments elsewhere in the world. When, and if, this occurs, the relevance of the questions posed by Pam Solo will intensify and it is likely that women with a gendered analysis will be amongst the activists.

---

i This paper explores one aspect of a larger study of nuclear military and electro-power developments in France, the U.K. and the U.S. It does not comprehensively cover the many diverse activities of protest and resistance to nuclear weapon and electro-power developments.

ii The leading figure of the left of the Labour Party, Aneurin Bevan, did not support unilateral disarmament


iv See Pistoll, Lynn (2001) p.25, for French nuclear test sites.
<table>
<thead>
<tr>
<th>Year</th>
<th>Location and Test Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960-66</td>
<td>Algeria: four atmospheric and 13 underground tests</td>
</tr>
<tr>
<td>1966-74</td>
<td>Moruroa and Fangataufa, 44 atmospheric tests</td>
</tr>
<tr>
<td>1975-92</td>
<td>Moruroa and Fangataufa, 143 underground tests</td>
</tr>
<tr>
<td>1995-96</td>
<td>Moruroa and Fangataufa, six underground tests</td>
</tr>
</tbody>
</table>

After the Non-Proliferation Treaty was signed in 1970, the U.S., Britain and France continued to increase their nuclear arsenals. In France the increase is from around 50 to approximately 500 weapons (Pistoll, p. 26).

A vivid description of the actions taken by the peace flotilla is given in Pistoll, Lynn (2001). Ten years previously the French were responsible for bombing the Greenpeace ship, Rainbow Warrior, when docked in New Zealand killing its photographer.

Wellock (1998) provides a detailed history of resistance to concerted attempts to install electro-nuclear facilities along the coast and inland in California between 1958 and 1978. These were resisted with such success through an alliance forged between California state employees and legislators, environmental and other organisations that California, the 6th largest economy in the world and the size of the British Isles, in 2003 has only two working electro-nuclear plants.

Using contract staff for tasks that have higher dose potential avoids permanent staff receiving their annual permitted dose before the year is out.

In France the annual dose is 5 rems for nuclear workers and 0.5 for the population at large. ‘A rem equals 1 rad Q where Q is a quality factor depending upon the organ affected and the different penetrative effects of alpha, beta, and gamma rays, the first being stopped by the skin and the other two passing through the body’ (Zonabend 1993, p.133, fn.3). This international standard is regarded as arbitrary. It is based on Hiroshima survivor data, a non-representative group as those most susceptible to radiation were killed or died later before the study began. The Hanford workers’ study findings were that much lower radiation doses result in cancer and other diseases. Alice Stewart concluded that the international standard-setters have under-estimated the number of cancers, genetic damage, immune system damage, lowered resistance to disease, infection, and heart disease (Greene 1999, p. 143).

For a pictorial account of protest in the 1980’s, see Barber 1984.

In Britain women’s equal entry into university education is relatively recent, beginning with the expansion of higher education in the 1960s.

References


Florence, Mary Sargant; Marshall, Catherine and Ogden, D.K. (1980) Militarism versus Feminism: Writing on women and war, London: Virago. (Militarism versus Feminism was first published by C.K. Ogden and Mary Sargant Florence in1915 by Allen and Unwin).


Solo, Pam (988) From Protest to Policy: Beyond the Freeze to common security, Cambridge, MA: Ballinger.


