

Saxony believed that this would be an ideal site for the establishment of a nuclear industry park with a power station, a nuclear fuel reprocessing plant and final as well as intermediate storage facilities. The region had a very conservative government which would welcome additional income through this industry. The low population density promised little resistance against dangerous industry. It was easily controllable in case of accidents, contaminated winds would blow over the state borders to East Germany (nobody believed that Germany would become one in near future). And it had salt mines at Gorleben which at the time were believed to be suitable for several 10,000 years of storage for highly contaminated and poisonous nuclear waste.

In Germany the whole nuclear industry is highly subsidised by the governments. Legally it only can exist if the final deposit of the waste is guaranteed. Gorleben has been the only site for proposed final storage in West Germany. The exploration of the salt mines therefore was very important for the future of the whole nuclear industry. At the same time Gorleben always had been declared "an exploration of salt mines" and not a final storage, because that would have required public approval which state and industry were afraid not to get.

3. The resistance:

After plans became public, resistance within the population developed slowly and only gained momentum in 1978 when the farmers who feared for their income if contaminating industries were established in their neighbourhood, organised a "March to Hannover" with many tractors and lots of people joining. While they were marching the disaster at the US nuclear power station at Harrisburg happened and the demonstrators got immense support. The chief minister of Lower Saxony had to declare the construction of the nuclear fuel reprocessing plant (the most dangerous facility planned) "politically impossible". In the years following, Bavaria tried to build this plant against resistance in Wackersdorf, but had to abandon this idea too. Now nuclear fuel is reprocessed in France and England,

with a contract saying that Germany has to take back the waste which is produced by the reprocessing: about twenty times the original amount!

The plans to build a nuclear power station were given up too. What remained was the construction of storage facilities at Gorleben. In May 1980 demonstrators squatted in the forest where bores were drilled to find out the most suitable place. A hut village was built and the "Free Republic of Wendland" declared with passports and an own radio station. New methods of basic democracy and communal decision making were developed, experiments in alternative energy and economy started. After four weeks police raided the site with much brutality against a completely nonviolent resistance (people sitting calmly and singing on the central village square) and demolished the village. Still construction began on the site of another bore nearby. Many of the village inhabitants remained in the region and continued their experiments with alternative economy, self-government and sustainable energies. A lot of projects developed and the "Free Republic of Wendland" continued as a future vision already beginning today, rather than a territory.

In 1983 construction of the factory hall planned to be used as intermediate storage was completed. In 1984 a large police force accompanied a first empty CASTOR container for nuclear waste to Gorleben. This CASTOR remained the only one until the mid-nineties. In 1988 the intermediate storage was extended for the construction of a pilot-conditioning plant meant to cut and repack the nuclear fuel and prepare it for final storage. Resistance was led by the "Ini 60" a group of over 60 years old citizens from the region, but also groups of farmers, artisans (carpenters initiative, e.g.), students, doctors, etc. took part.

The organisation and strength of the resistance was tested again in 1992 when a series of medium level waste originating from the Transnuclear Affair was transported to Gorleben. A lot of local groups developed in the region, in most towns and villages people organised

their resistance and telephone chains for emergencies. Outside the region many people asked to be included in the emergency network.

It became clear that resistance would not be able to militarily stop a transport against a large number of police divisions. It would be necessary to make the intention and determination to resist clear beforehand in order to politically prevent a CASTOR transport to Gorleben. Meanwhile the state and local governments had changed to Left-Green coalitions. But promises to scrap the Gorleben plans were not kept by the politicians once they were elected. The resistance had to remind them.

In summer 1994 the first CASTOR was filled in Philippsburg in the south of Germany - industry and central government felt it politically wise to prove that after eleven years of completion the intermediate storage could be used. Resistance on the streets as well as in the courts stopped the transport for nine months until it was brought here on 25 April 1995 under protection of 15,000 police, the largest police action in Germany since the war. Ironically this was just a day before the ninth anniversary of the Chernobyl accident which had contaminated large parts of Europe. Resistance was great, making the political as well as economic price for the transport high.

On 7 and 8 May 1996 a second nuclear waste transport reached Gorleben. Resistance was even stronger which made it "necessary" to deploy a police and para-military force of 19 000 persons. The days before police stated that they are "preparing for war".

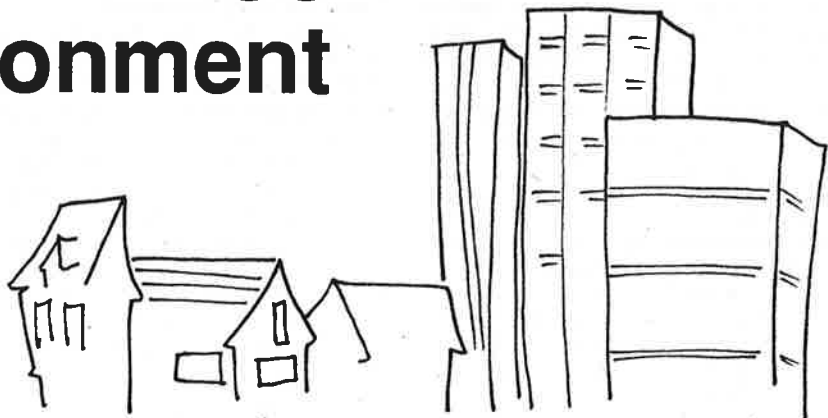
For the last years, Gorleben resistance has developed new ideas for actions of civil disobedience. For example in March 1995 about 1000 resisters unscrewed train tracks on a train line only used for CASTOR transports under the eyes of the police who were informed because many people had published their names with the appeal to take part in this action.

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Nonviolent Struggle and the Built Environment

Introduction

What sorts of buildings and towns are best for aiding a nonviolent resistance against aggression or repression? For this purpose, is it better to have long wide streets or narrow winding lanes? Is it better to have high-rise buildings or a jumble of smaller ones? Is it better to have vast areas of suburbs with occasional shopping centres and industrial parks,



or to have different functions mixed together?

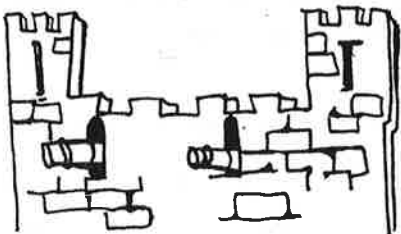
These sorts of questions are infrequently asked either by architects, town planners, or proponents of nonviolence. Yet they are quite important. The built environment, and technology more generally, shapes the ways people perceive the world and interact with each other within their specific culture. Some ways of designing housing, offices and transport systems foster social solidarity, whereas others provoke divisions and alienation. It makes sense to examine different alternatives to see which ones are most suitable for a community wishing to resist domination.

Most advocates of nonviolence have focused on social and psychological factors in the struggle, paying little attention to technology.¹ There has scarcely been a mention of the built environment. Architects mostly are concerned with factors such as function, cost and aesthetics, plus recent concerns such as energy efficiency and access for people with disabilities. There has been no attention to what building designs might best serve nonviolent resistance to aggression.

In this article we make a preliminary attempt to raise the issues. We begin by mentioning some occasions in which military priorities have influenced the built environment. Then we provide a number of examples that suggest the sorts of buildings and towns that would or would not aid nonviolent struggle. A key issue is how to foster the sort of social solidarity that is essential to an effective nonviolent resistance.

Military Influences

Although military applications were not the original motivation behind the development of most of humanity's technologies, military interests adopted, further developed and exploited artifacts that



were perceived as providing some degree of military advantage.

The wheel, often considered the most significant development of early humans, was used to great advantage by the Romans on their chariots, then with the later development of cannons, to move them and their ammunition around the countryside.

The popular stereotype of ancient cities and castles conjures up images of walls, fortresses, and moats; indeed these, and many other, architectural modes of defence were plentiful in the past. Walls and gates prevented or hindered access to castles or cities by invading armies. Moats, usually filled with water but sometimes empty, aided such defence by limiting the use of battering rams and other means of pre firearm attack. Moats, such as that surrounding the Forbidden City palace compound in Beijing, were often built for the protection of specific buildings or small sites. Walls and fortifications, as with Palmanova in Italy, sometimes fringed the greater part of a community.² In doing so, walls (and their designers) affect the size, shape and density of urban development, determine the entrances and exits to communities in peacetime and, as wartime ghettos and the Berlin Wall demonstrated, keep 'enemies' in as well as out. Once developed, the design of towns and castles influenced the further evolution of weaponry.

As time progressed 'wall' designs were expanded, in keeping with new methods of offence (especially with the introduction of gunpowder and cannons) and internal military pressures, to include more sides and bastions, ravelins for mounting cannons, and careful gate placements.³ Further, the focus on military defence had some influence on town location in the first instance, with popular locales being sea or ocean frontage sites or high, hard-to-access areas.

Town layouts and other structures were also duly influenced, in line with such defence and other military requirements. Military commanders and engineers saw to the construction of arsenals and barracks (for both married and single personnel) within town limits. In many cas-

es the centre of town was preferred, supposedly for its security from invaders at the wall. In some cities, such as Palmanova, barracks were built along town perimeters, often for foreign mercenaries or crusaders.⁴

The main city thoroughfares, especially in towns with barracks in the centre, radiated out from the middle of towns to their walls and gates. This provided soldiers and equipment with easy access from their lodgings to points of external attack, or clearways for firing at invaders already within city boundaries.⁵ Such radial-like town road systems did not always come about just with urban growth - as a matter of course - but were often a result of deliberate town planning. For example, town plans by Francesco di Giorgio (1439-1501), a Renaissance architect and military engineer, largely focused on radial traffic schemes and gate placements that aided bastion defence.⁶

The value of railways as a means of transporting large numbers of troops became apparent soon after their development, and some, such as the Russian rail system, "were planned from the beginning by the state, with military purposes exclusively in mind."⁷ Preceding the railways were the vast road systems built by the Romans to facilitate the rapid movement of troops to all parts of their empire. The German autobahns were constructed, prior to WWII, for the same reason. Even the development of the humble Volkswagen, the 'people's car', was initiated with military applications in mind; the original design brief given to Ferdinand Porsche in 1934, was for a vehicle "capable of carrying three men, a machine gun and ammunition."⁸

The German populace believed they were getting an advanced network of roads, along with affordable vehicles to drive upon them; Hitler was getting the infrastructure for the rapid deployment of troops and supplies, along with an industrial facility for the manufacture of military vehicles such as the Kubelwagen (German jeep).

Although military requirements were not necessarily paramount in the design of cities and transport systems, there are

many examples of military influence on urban development with the above being just a few.

Planning for Nonviolent Resistance

Transport systems that can be centrally controlled or easily disabled tend to be most useful for repressive rulers. It is relatively easy to control petroleum refineries and thereby exert control over fuel-based road transport. Electric rail systems depend on power generation. Airports can be commandeered. By contrast, walking and cycling are resilient modes of transport, almost impossible to shut down with only a few troops. Similarly, powered transport is more resilient when sources of power are dispersed, such as local biofuel and microhydro plants. This suggests that town planning that promotes walking and cycling and reduces the need for long distance travel by plane or car increases the capacity for nonviolent struggle.

Transport systems also have an important impact on the capacity for nonviolent struggle through their effect on community solidarity. The automobile is a major problem in this regard, since a dispersed, car-dependent society tends to separate people from each other, putting them in suburbs remote from work, shops and leisure. Freeways are notorious for breaking up communities. Automobility for those with access to cars reduces mobility for those without, causing social inequality and reducing social solidarity. The transport modes most likely to foster a sense of community are those which cater for everyone, including children and the poor. This means walking and low-priced public transport.⁹

In facilitating nonviolent resistance it is desirable that members of a community interact and communicate with each other in a manner that produces a 'sense of community' which also facilitates organisation of their defence. One way in which the built environment is likely to aid this is through the provision of 'meeting places'. A number of public arenas can be meeting places, including sidewalks and pavement cafes, market squares, shopping malls, community centres and town halls, fair and sporting grounds, gardens, parks (especially those

containing water sites), playgrounds, and commons. Though many cities incorporate such places in their layout, the number, location, design, and style of public spaces influence community solidarity.

To achieve this meeting places should be abundant enough to be easily accessible by members of the community, preferably within a short walk by local residents. The provision of meeting places in this way could make high density housing much more enticing. Suburban housing blocks tend to emphasize individuals more than communities. Where space considerations limit housing to high rise apartment buildings, meeting places (similar to office tea or staff common rooms) could also be contained near, and open to, the stairwell of each building floor or level.¹⁰

A preference for higher density housing is echoed by Edmund Fowler when he discusses deconcentrated housing. Higher density housing environments foster neighbour interaction, which can cause tensions and culture clashes, but also can be valuable toward solving social problems. By contrast physically segregated communities lead to diminished social and political skills and responses, and hence reduced civic participation. Contact between people is greater with mixed land use and building age, and short blocks with concentration of use. Under such combination of private and public life, residents tend toward 'looking after their street', and developing networks of trust and confidence. These conditions deter vandalism and similar problems.¹¹ Unfortunately contemporary urban environments are 'justified' by supposedly 'objective' economic indicators, such as household incomes and number of owner-occupied houses, though, Fowler argues, servicing and supplying deconcentrated housing costs more.¹²

Though meeting places may be instrumental toward nonviolent struggle, when they are in the hands of private developers, they may be a hindrance to social action. Owners of enclosed shopping centres may control such things as opening hours, entry and exit locations, who can lease shops, what notices can be put

on public display, and even who uses their centre. Likewise, whole sections of the community can be similarly affected if private developers are given the go-ahead to control walled suburbs or apartment blocks with security entries.¹³ Town planners and other relevant authorities need to keep these points in mind if they wish to use meeting places and town layout to promote community solidarity.

The rise of consumerism and the growing affluence of western nations has enabled vast numbers of people to leave the inner city areas for the perceived peace, security and clean air of the suburbs. Instead of living with the everyday problems encountered in these inner city areas, such as poverty, crime, and pollution, and perhaps doing something about them, many could now afford to simply escape them. The ultimate form of escape is to be able to buy into one of the walled, permanently patrolled security estates which are becoming increasingly prevalent.

Another problem associated with many contemporary meeting places arises out of public space 'misuse' by street gangs and vandals. One possible way to help solve this problem is offered by Colin Ward under the term of 'unmake'. This concept suggests that, instead of providing youths with just traditional meeting places such as playgrounds and parks, more subtle meeting places such as on-purpose, but safe, 'construction sites' or 'adventure playgrounds' are needed to redirect the energies of would-be trouble-makers. The trick to this idea seems to be the unobvious association with conformity and intervention of authority.¹⁴

John Turner argues that a key issue is whether people build, control or manage their own housing. He provides many examples from both rich and poor countries. When housing is centrally planned, specified and built, it is likely to be more expensive, wasteful of resources, hard to adapt and socially inappropriate. Expensive, centrally built housing is vulnerable to vandalism. Centrally controlled housing is more susceptible to takeover by an aggressor. When people choose and manage their own styles of housing, they are likely to be more satisfied with it, even

when it is materially far poorer than centrally provided housing.¹⁵

Autonomy in housing is linked to greater flexibility, which is good for nonviolent struggle. The skills that people develop from building, controlling and managing their own housing provide resilience in the face of attack. People will know what to do in case housing is destroyed or services such as electricity and water are interrupted.

Having a surplus of housing is a good idea for a community wishing to defend itself nonviolently. If some dwellings are destroyed, then there are places for occupants to stay. More importantly, though, a surplus of housing should mean that no one need be homeless. A society that ensures housing for everyone is less likely to be divided socially. Generally speaking, community solidarity is greater when there is greater equality. This applies to housing as much as to anything else.

There are numerous examples of people taking control of their own destinies and creating the type of neighbourhood or community in which they desire to live. Urban renewal programs, formulated and imposed from above, have generally been very expensive and spectacularly unsuccessful. Fowler lists several examples of people living in run down, depressed, inner city areas successfully instigating their own urban renewal programs. These range from the establishment of community gardens to the renovation of derelict buildings - whereby the inhabitants contribute labour rather than capital, which is generally in short supply - to secure an improved standard of living. These cooperative efforts can generate a genuine sense of community. The renewed sense of pride in their environment and themselves reduces crime rates and other social problems.¹⁶

Davis, California provides a good example of a suburban built environment conducive to a sense of community. A 70 acre, 235 unit development has solar-heated homes built in clusters, streets half the conventional width mainly ending in cul-de-sacs, and community gardens including an abundance of fruit trees. "The residents use one-tenth to

one-half the energy of Los Angelenos," have a lower crime rate than surrounding neighbourhoods, more interaction among residents, and the local production of food makes them less reliant "on outside resources and services."¹⁷ These features are a distinct advantage in countering or surviving outside oppression.

Conclusion

People collectively construct the buildings and towns in which they live, and the buildings and towns in turn affect people's perceptions and behaviour. To develop an effective nonviolent resistance to aggression and repression, design of the built environment should be considered.

We have provided a number of examples of the sorts of building design and town planning that seem likely either to hinder or help nonviolent resistance. A key factor is community solidarity. Designs that foster cooperative interaction are the most helpful ones, whether the points of congregation are inside office buildings, in co-housing complexes¹⁸, or at street corners.

Much more thinking, investigation and practical experimentation is needed in this area. A first step is putting nonviolent struggle on the agenda for architects, developers and town planners. Builders, planners, and many others in the community have a wealth of relevant knowledge and experience but have not yet applied their skills to the task of construction for nonviolent struggle.

Proponents of nonviolent action can aid the process by becoming more aware of the role of the built environment, whether this is in studying historical instances of nonviolent struggle, in planning campaigns or in choosing where to meet.

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Footnotes

1. Brian Martin, 'Science for Nonviolent Struggle', Science and Public Policy, Vol. 19, No. 1, February 1992, pp. 55-58.

2. Spiro Kostof, *The City Shaped: Urban Patterns & Meanings Through History* (London: Thames & Hudson, 1991).

3. See, for example, Gerald Burke, *Towns in the Making* (London: Edward Arnold, 1971); and Lewis Mumford, *The City in History: Its Origins, its Transformations, and its Prospects* (England: Penguin Books, 1961).

4. See, for example, Kostof, op. cit.

5. Burke, op. cit.

6. Kostof, op. cit.

7. Maurice Pearton, *The Knowledgeable State: Diplomacy, War and Technology Since 1830* (London: Burnett Books) p. 39.

8. Jonathan Wood, *The Volkswagen Beetle* (Haverfordwest: Shire, 1989) p. 10.

9. Donald Appleyard, *Livable Streets* (Berkeley: University of California Press, 1981); Ivan Illich, *Energy and Equity* (London: Calder and Boyars, 1974); see also Peter W. G. Newman and Jeffrey R. Kenworthy, *Cities and Automobile Dependence* (Brookfield, V.T.: Gower Technical, 1989); and K. H. Schaeffer and Elliot Sclar, *Access for All: Transportation and Urban Growth* (Hammondsworth: Penguin, 1975).

10. Interview with Mark Diesendorf (Department of Geography, Australian National University), 23 January 1996.

11. The introduction of Neighbourhood Watch in many places has tried to capture these same local network advantages, but often, it seems, with little long term success.

12. Edmund P. Fowler, *Building Cities that Work* (Montreal: McGill/Queen's University Press, 1992). Fowler discusses a number of issues along these lines; see also Jane Jacobs, *The Death and Life of Great American Cities* (New York: The Modern Library, 1969).

13. Discussion with Pat Troy (Urban Research Unit, Australian National University), 25 January 1996.

14. Colin Ward, *Connexions: Violence - Its Nature, Causes and Remedies* (England: Penguin Education, 1970). A non architectural approach could be for the community to 'reclaim' their meeting places from gangs by insisting on using them, as the people of Canberra (Australia) are presently hoping to do.

15. John F. C. Turner, *Housing by People: Towards Autonomy in Building Environments* (New York: Pantheon Books, 1977); see also Fowler, op. cit.

16. Fowler, op. cit.

17. Paul Hawken, *The Next Economy* (Sydney: Angus and Robertson, 1984) p. 83.

18. Kathryn McCamant, *Cohousing: A Contemporary Approach to Housing Ourselves* (Berkeley, CA: Habitat Press, 1988).

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