# Civilian Deaths in Wartime

William Eckhardt\* Lentz Peace Research Laboratory

## 1. Introduction

War is usually conceived as a contest between organized groups of combatants, more or less equally armed, engaged in a tournament of skill and strength, in order to determine a winner. Civilians are usually not considered an integral part of this armed contest, since they lack the essential ingredient of arms. Furthermore, the notion of a 'just war', which most sides of most wars consider themselves to be pursuing, precludes the killing of unarmed civilians. For both of these reasons, civilian deaths have usually not been counted as battle deaths by any side in any war — presumably because all sides would be ashamed of causing many such deaths, except possibly by accident, when civilians might happen to get in the way of the armed forces. If only one side killed civilians as well as soldiers, the other side would presumably make this fact well known, in order to turn world opinion against the offending side. Since neither side makes these figures well known, it may be assumed that both sides are equally at fault, as a general rule.

If, however, it were known that civilians were just as likely as soldiers to die in wartime, 'war' would have to be redefined, from being a contest between more or less equal armies, both of whom are well shielded against the other's arms, to a more indiscriminate act of violence in which unarmed civilians are equally at risk as soldiers are.

What is the case? What does the evidence show? Is war a fairly just contest between armed and shielded warriors? Or is it a more indiscriminate act of violence which kills unarmed civilians as well as armed soldiers?

2. Wars and Related Deaths, 1700–1987 Attempts to estimate civilian deaths as well as military deaths in the wars of the past three centuries would suggest that war is in fact more indiscriminate than 'just' in its violence. In these studies, 'war' was defined as 'any armed conflict including one or more governments, and causing the deaths of 1,000 or more people per year'. Following this definition, there were 471 wars during the last three centuries, beginning in 1700. These wars lasted 1145 years, averaging 2.4 vears per war, with almost 400 years of war per century. In all, 101,552,000 deaths resulted from these wars, averaging 216,000 deaths per war. This figure was exaggerated by the two world wars, without which the average number of deaths per war would have been 93,000. A detailed listing of these wars and war-related deaths will be found in Sivard.<sup>1</sup>

There was, to be sure, a great difference in frequencies, durations, and deaths from century to century. There were only 50 wars in the 18th century, 208 in the 19th century, and 213 in the 20 century up to and including 1987. These wars lasted 173 years in the 18th century, averaging 3.5 years per war; 414 years in the 19th century, averaging 2.0 years per war; and 558 years in the 20th century, averaging 2.6 years per war.

<sup>\*</sup> William Eckhardt is Research Director of the Lentz Peace Research Laboratory of St. Louis, Missouri, USA. An earlier version of this paper was published in *The Journal of World Peace*, 1987, and presented at the 29th Annual Convention of the International Studies Association in St. Louis, Missouri, USA, 30 March 1988.

Century	Рор	Nat	War Freq	Years	(Av)	Deaths (1000)	(Av)	Civilian % Deaths
18th	700	23	50	173	(3.5)	6,370	(127)	50 (N=10)
19th	1,000	38	208	414	(2.0)	9,655	(46)	53 (N=88)
20th	2,500	75	213	558	(2.6)	85,527	(402)	50 (N=136)
Total	NA	NA	471	1,145	(2.4)	101,552	(216)	50 (N=234)

Table I. Wars and War-Related Deaths by Centuries, 1700–1987.

*Notes.* Pop = Millions of world population in the middle of each century. Nat = Number of sovereign nations in the world in the middle of each century.<sup>2</sup> (Av) = Average per war. Civilian % deaths were based on those wars where both civilian and military death estimates were available. These data were available for only 234 wars, or 50% of all wars, but these 234 wars included 88 million deaths, or 87% of all deaths (4 million in the 18th century, 5 million in the 19th century, and 79 million in the 20th century).

War-related deaths in the 18th century were about 6 million; 19th century, about 10 million; and in the 20th century, 86 million to date. Table I shows these figures by century in order to facilitate comparisons.

# 3. Wars and Related Deaths by Centuries and by Regions

Table I shows that the number of sovereign nations increased about 3 times from the 18th century to the 20th century, while the world population increased about 3<sup>1</sup>/<sub>2</sub> times. The duration of wars increased about 3 times, so wars lasted no longer in the 20th century than they did in the 18th century, taking into account the number of nations that could go to war. However, the frequency of wars increased about 41/4 times, greater than the increase in either nations or world population; but the greatest rise occurred in war-related deaths, which increased 13<sup>1</sup>/<sub>2</sub> times, or 4 times population and 4<sup>1</sup>/<sub>2</sub> times the number of nations. This last increase was, of course, partly due to World Wars I and II, without which 20th century war-related deaths would be reduced from 86 million to 28 million. On the other hand, even without the world wars, 20th century deaths (up to 1987) were 4<sup>1</sup>/<sub>3</sub> times 18th century deaths, which would still be greater than the increase in nations and people. And this is without counting the war deaths likely to occur during the rest of this century.

It is often said that the 19th century was a

relatively peaceful one; but Table I shows that war-related deaths increased apace with nations and population, making the 19th century as deadly as the 18th century. This myth probably originated from the fact that, although the world as a whole was no more peaceful in the 19th century, Europe was more peaceful (4 million deaths) in the 19th century than it had been (5 million deaths) in the 18th century. However, its 19th century deaths still exceeded those in any other part of the world, as noted at the bottom of Table II, which shows that Europe and the Far East had more wars. lasting more years, with more deadly consequences, than any other geographical region. When deaths from the two world wars were pro-rated between these two regions, Europe moved ahead of the Far East in deadly consequences by 3 times (see the notes at the bottom of Table II).

The civilian percent of war-related deaths was generally about 50%, although this figure varied from place to place and from time to time, as shown in Tables I and II. This figure was most reliable for the 20th century (where it was based on 136 wars), less reliable for the 19th century (88 wars), and least reliable for the 18th century (10 wars). When only those wars with more than 100,000 deaths were considered, which also had estimates of both civilian and military deaths (N = 43), the percentage share of civilian deaths remained 50%. When only those wars with more than

Region	War Freq	Years	(Av)	Deaths (1000s)	(Av)	Civilian % Deaths	Starter % Winning
Europe	113	239	(2.1)	13,299	(118)	49 (N=42)	-45
Far East	96	260	(2.7)	17,179	(179)	54 $(N=47)$	46
Latin America	74	172	(2.3)	2,902	(39)	61(N=34)	42
Middle East	40	63	(1.6)	995	(25)	71(N=29)	45
North America	8	43	(5.4)	717	(90)	75 $(N=3)$	50
Oceania	1	10	(10.0)	60	(60)	83 $(N=1)$	0
Other Africa	35	69	(2.0)	674	(19)	81 $(N=17)$	46
South Asia	44	71	(1.6)	2,692	(61)	77 $(N=27)$	45
Sub-Sahara	58	208	(3.6)	5,008	(86)	69 $(N=32)$	43
World Wars	2	10	(5.0)	58,026	(29,013)	46 (N=2)	0
Total	471	1,145	(2.4)	101,552	(216)	50 (N=234)	44

Table II. Regional War Frequencies, Durations, and Deaths, 1700-1987.

See Notes at the bottom of Table I. Geographical regions excluded data from the two world wars, which are combined in the last row. Almost all of the deaths in World War I occurred in Europe, and 88% of World War II deaths occurred in Europe, most of the rest occurring in the Far East. If these world war deaths were roughly pro-rated between Europe and the Far East, then European deaths would be increased to 66 million and Far Eastern deaths to 21 million. These two regions would then account for 86% of all war-related deaths from 1700 to 1987 (65% in Europe and 21% in the Far East). European and Far Eastern deaths by centuries were as follows: 84% in Europe and 13% in the Far East in the 18th century, 42% in Europe and 26% in the Far East in the 19th century, and 66% in Europe and 21% in the Far East in the 20th century. In all three centuries, most of the war-related deaths occurred in Europe, followed by the Far East. Latin America, South Asia, and Sub-Saharan Africa accounted for only 2% of these deaths. After pro-rating for world war deaths, Europe's civilian % deaths was reduced to 48% and Far Eastern civilian % deaths to 49%.

1 million deaths were considered (N = 14), the civilian share of deaths was 48%: so the size of wars made little or no difference here. Until more reliable data become available, this figure suggests some stability over the centuries and around the world, showing that about half of the people killed during the average war were civilians. This figure also suggests that the average war over the past three centuries has not been very 'just', as far as the killing of unarmed civilians was concerned. And finally, it suggests that anyone planning a war should be planning on half of the deaths caused by that war to be unarmed civilians.

### 4. Wars and Related Deaths by Causes

Table III shows that the causes of war, in the sense of final causes, or human purposes or reasons for going to war, shed some further light on war statistics, including civilian share of war-related deaths. Fighting for territory and independence occurred most frequently and lasted the longest times, but territorial fighting resulted in the most deaths by far (67% of all war-related deaths). On the other hand, territorial wars resulted in the lowest percent of civilians being killed (47%). Ethnic conflicts, including religious causes, killed the most civilians (76%), followed by power struggles (67%), wars of independence (63%), attacks from the Right (58%), and attacks from the Left (51%).

The relatively low percentage share of civilian deaths attributed to territorial deaths may be partly due to my failure to take into full account the millions of deaths caused by the influenza epidemic spread in the wake of World War I. My estimates of civilian deaths during World War I resulted in a percentage share of only 34%. This estimate may be raised by further research.

Cause	War Freq	Years (Av)	Deaths (Av) (1000s)	Civilian % Deaths
Ethnic	33	80 (2.4)	4,132 (125)	76 (N = 24)
Independence	127	349 (2.7)	7,232 (57)	63(N = 76)
Left	73	203 (2.8)	12,503 (171)	51 $(N = 36)$
Power	55	93 (1.7)	3,982 (72)	67(N = 19)
Right	37	100 (2.7)	5,739 (155)	58 $(N = 17)$
Territory	146	320 (2.2)	67,964 (466)	47(N = 62)
Total	471	1,145 (2.4)	101,552 (216)	50 ( <b>N=234)</b>

Table III. Causes of War, 1700-1987.

See Notes at the bottom of Table I. *Ethnic* includes religious conflicts. *Independence* includes wars of liberation. *Left* indicates a government being attacked from the Left. *Power* is relatively free of ideology. *Right* indicates a government being attacked from the Right. *Territory* includes land, labor, capital, and trade.

### 5. Wars and Related Deaths by Types

Table IV shows the relations between war statistics and types of war. Civil wars were most frequent during these three centuries, and they killed the most civilians (69%), followed by colonial wars (65%), imperial wars (59%), and international wars (46%). Although lowest in civilian share of deaths, international wars were by far the most deadly of all types of war: unlike civil, colonial, and imperial wars (where one side had the preponderance of arms), international wars were fought between wellarmed nations (or alliances) on both sides. Consequently, despite the low rate of killing civilians, the large total of deaths (75 million) in international wars resulted in 35 million civilian deaths, while civil wars killed 15 million civilians, and colonial wars and imperial wars taken together killed 3 million civilians. International wars, then, killed twice as many civilians as the other three types taken together.

Although least deadly in armed violence, colonial and imperial wars, by imposing and maintaining a state of structural violence, ended up by killing far more people through hunger and disease than all wars taken together. In the 20th century, for example, structural violence has killed 15 to 19 million people (mostly children) each year.<sup>3</sup> Compared with the 1 million per year killed by armed violence in the 20th century, this ratio shows that structural violence has been at least 15 times more deadly than armed violence in this century. This ratio was probably higher in previous centuries, but we have no reliable estimates of structural violence prior to the 20th century.

### 6. Does It Pay to Start a War?

The last column in Table II shows the

Cause	War Freq	Years (Av)	Deaths (Av) (1000s)	Civilian % Deaths
Imperial	83	182 (2.2)	2,313 ( 28)	59 (N= 36)
Colonial	109	292 (2.7)	2,686 (25)	65 (N = 66)
Civil	188	454 (2.4)	21,164 (113)	69 (N = 92)
International	91	217 (2.4)	75,389 (828)	46 ( <i>N</i> = 40)
Total	471	1,145 (2.4)	101,552 (216)	50 (N=234)

Table IV. Types of War, 1700-1987.

See Notes at the bottom of Table I. *Imperial* refers to the conquest of an inferior power. *Colonial* refers to the conquered colony trying to free itself from imperial control. *Civil* refers to armed conflicts within any nation. *International* refers to armed conflicts between nations or groups of nations more or less equal in strength.

percentage of those starting wars who also won them. Outside of Oceania and the two world wars, where the figure of 0% was rather meaningless because it was based on only 1 and 2 cases respectively, and outside of North America whose 50% was based on a fairly small sample of 8 cases, the rest of the regions of the world ranged from 42% to 46% of those who won the wars that they started. The overall average of 44% suggests that on the average it has not paid to start a war during these past three centuries.

Moreover, in the 18th century, 'starters' won 56% of the wars that they started, as against 48% in the 19th century, and 39% in the 20th century. So it has apparently been getting harder to win the wars that you start. This percentage for the 20th century remained fairly constant until the 1980s, when it dropped to 11%.

Most of the causes of war were losers: Only 25% of those who started a war for independence won it; ethnic (including religious) causes, 30%; Leftist ideology, 34%; Rightist ideology, 35%; politics in general, 38%; and territory, 74%. When the cause was territory, the odds were fairly high in favor of winning, but such high expectations were completely frustrated in both world wars, which were outstanding exceptions to the general rule.

On the other hand, some types were winners: Only 27% of those who started colonial wars of liberation won them: civil wars, 29%; but international wars, 67%; and imperial wars of conquest, 77%. Imperial and international types of war were associated with territorial causes of war, which accounts for the similar odds in these three cases. We should also note that imperial and international wars were started by governments, which were well armed and well organized in general, while civil and colonial wars were started by less well-armed rebels from within and without. Consequently, the starter share of victories could have dropped simply because the number of civil wars increased over these centuries (but colonial wars did not), while the number of imperial and international wars decreased. Or,

Variable	Factor 1	Factor 2	Factor 3	Factor 4	% h2
Civil % freq	92*	33	4	-2	96
Decades	89*	-9	20	-15	87
Frequency	85*	-18	34	2	87
Other cause %	81*	47*	9	-2	89
Imperial %	-57*	-26	53*	-10	68
Intl. % freq	-60*	57*	-31	24	83
Start % win	$-64^{*}$	23	42	-39	79
Territory %	90*	14	24	9	89
Death/war (log)	32	51*	-31	-42	63
Independence %	6	-86*	-45	-5	95
Colonial %	5	-91*	-25	-15	92
Years/war	-6	25	-77*	24	72
Civil % death	30	-15	38	76*	4
Explained var	39%	21%	14%	8%	83%

Table V. Factor Analysis of Causes and Types of War by 29 Decades.

*Notes.* Variable percentages = percentages of war frequencies unless otherwise noted. Explained var = percentage of total variance explained by each factor = sum of factor loadings squared and divided by the number of variables.  $h^2$  = percentage of total variance in each variable explained by all 4 factors = sum of factor loadings squared. Printed values are multiplied by 100 and rounded to the nearest whole number. Values greater than 0.45 (the root mean square of all the values in the matrix) have been flagged by an asterisk. The factor method used was principal components, with prior communality estimates being one. The number of factors was determined by the number of eigenvalues greater than one.

the starter share of victories could have dropped simply because territorial wars decreased over these centuries, while most other causes of wars increased, except for independence.

# 7. Factor Analysis of Wars and Deaths by Decades

Table V shows the results of a factor analysis of 13 variables measured over 29 decades, 1700-1987. The first general (unrotated) factor shows that frequency of wars increased over these decades, as did the percentage of civil wars, and the percentage of war causes other than territory and independence. (These other causes of war - Left, Right, ethnic, and power were grouped together because they were all associated with civil wars.) Territorial causes of war, international and imperial types of war, and starter share of victories were all negatively related to this factor. that is to say, they were all decreasing over these 29 decades, as indicated by their negative loadings. The last five variables in Table V (colonial types, independence causes, deaths/war, years/war, and civilian percentage share of deaths) were not significantly related to this general factor. These results confirm the probability that at least some of the decrease in starters winning wars over this time period can be explained by the increase in civil wars over this period and the decrease in international wars. Starters lost more wars than they won, as a general rule.

# 8. Hunger-Related Deaths in Wartime

There have been some 400 major famines in human history, especially in Asia, particularly in China and India. Famines have been occasional in Europe, and relatively rare in North and South America.

The most general case for the relationship between hunger and war was well stated by former US President D. D. Eisenhower: 'Every gun that is made, every warship launched, every rocket fired signifies, in the final sense, a theft from those who hunger and are not fed, those who are cold and not clothed.'

Most civilian deaths in wartime, at least until the 20th century, have been caused by disease and famine. Disease itself has often been caused and always aggravated by famine, while famine itself has often been caused and always aggravated by war. Throughout the 5000 years of known human history, wars have almost always included the siege of cities and towns inhabited by civilians; and the principal siege weapon was starvation, which was indeed the only weapon against well-fortified cities until the 20th century.

Not only civilians, but also soldiers were more often killed by disease and famine than in battle. For example, most of Napoleon's army retreating from Moscow died from cold and hunger. Plague and typhus deaths have been common among soldiers throughout the modern period of history starting about AD1500. Typhus was called the 'war plague' because it occurred in every modern war up to the mid-1800s. Although soldiers were more often killed by hunger-related diseases than by weapons, this was even more so for civilians, more of whom were killed by famine-related diseases as well as by famine itself.

Although the previous facts relating wars and sieges to famine and hunger and disease may be found in any encyclopedia, estimates of the actual number of deaths due to famine are much harder to come by. During a war, not even the number of soldiers killed is accurately counted except in the wealthiest countries, which can afford to engage in the gathering and analysis of statistics. The number of civilians killed is given even shorter shrift. The distinction between those killed by guns and those killed by famine is a very fine distinction indeed, and one very seldom made. The more people who die in wartime, whether soldiers or civilians, the less accurate is their count likely to be.

The list of hunger-related deaths in wartime, as shown in Table VI, is a very crude and very incomplete record indeed, subject to considerable change by further

War	Dates	Civilian Deaths	Military Deaths	Total Deaths	Civil % Deaths
eloponnesia (5.000 soldiers and	431–404 BC 1 10,000 civilians ki	1() lled by plague	19 in Athens)	29	34
Child Crusade	1212–1212 Idren died marching	_	-	-	-
00 Years' War	1337–1453 348–1349, killed mi		197	197	-
0 Years' War	1618–1648 civilians died from	7,000	1,000	8,000	88
Jungarian Insurrect			43	43	-
panish Succession	1740–1748 ase killed an enorm	_	1,251	1,251	-
lapoleon	1803–1815 liers in Russia died	1,000	1,380	2,380	42
Russ-Khivans	1839–1839	1	4	5	20
aiping Rebel	oops died of disease 1860–1864 ths caused by famir	18,000	2,000	20,000	90
JS Civil	1861–1865 Idiers died from di	_	650	650	-
rus-Aust	1866–1866 al for all recorded of	280	36	316	89
ranc-Prus	1870-1871	62	188 172 soluters	250	25
luss–Turk	nore civilians than s 1877–1878	45	285	330	14
Boer War	d for all recorded c 1899–1902	20	22	42	48
lamibia	d for all recorded c 1903–1908	80	2	82 82	98
ap–Russ	ed; half of the Gern 1904–1905	man army died	130	130	-
(30,000 soldiers di Balkan War	1912–1913	1	82	83	1
Vorld War I	ivilians died from cl 1914–1918	6,518	12,599	19,117	34
urkey	800,000 German ci 1915–1916	1,000	-	1,000	_
JSSR Civil	from famine, massa 1918–1920	500	300	800	63
ligeria	diers killed by famir 1967–1970	1,000	y guns) 1,000	2,000	50
angladesh	m famine and mass 1971–1971	1,000	500	1,500	67
thiopia	m famine and mass 1974–1988	500	46	546	92
ambodia	m famine aggravate 1975–1978	1,500	) 500	2,000	· 75
ndonesia	y famine and massa 1975–1988	90	10	100	90
El Salvador	Timor died from fa 1979–1988	50	15	65	77
(47% total deaths	were from starvation	on of children	under 5)		(co.

Table VI. Crude Estimates of Hunger-Related Deaths in Wartime (in thousands).

.

#### 96 William Eckhardt

Table VI. continued

War	Dates	Civilian Deaths	Military Deaths	Total Deaths	Civil % Deaths
Mozambique (Civilians died from	1981–1988 n famine worsened	350 by civil war)	51	401	87
In the following case established:	es, the pattern of	Siege → Hur	nger → Disease	$e \rightarrow \text{Death se}$	ems fairly wel
Mantua	1796–1797	_	20	20	-
(20,000 Austrian so		ilian informati	on)		
Danzig	1813-1813	6	16	22	27
(6,000 civilians and		diers)			
Torgau	1813–1813	1	30	31	3
(1,000 civilians and	1 30,000 French sol	diers)			
Mayence	1813–1814	3	12	15	20
(3,000 civilians and	12,000 French sol	diers)			
Paris	1870-1871	75	_	75	-
(30,000 civilians die	ed from disease)				
Port Arthur	1904–1904	-	10	10	-
(10,000 Russian sol	ldiers; no civilian i	nformation)			

The data in this Table were obtained from a variety of sources.<sup>5</sup>

research. It is nothing more than a very first approximation to the subject at hand.

In general, whenever cities were besieged, the death rate increased, and the more so the longer the siege lasted.

### 9. Structural Violence

Structural violence means simply those deaths caused by the way wealth and power are distributed in any society or any world, so as to reduce the life chances of those with less money and power.<sup>4</sup> As bad as the behavioral violence associated with war may be, including its deaths from famine as well as by weapons, this is minor compared to the deaths caused by structural violence, which attracts far less attention because of the quietness with which it works. Wars are dramatic events, which attract attention, but the violence of the social structure calls little or no attention to itself. It acts so effortlessly that it often passes as an act of God or Nature, instead of being a social act. It kills people so quietly that no violence seems to be happening at all.

For example, in the United States, racial relations are so arranged (not necessarily by

any conscious conspiracy) that the whiter a person is, the longer he or she is likely to live: in the 20th century, whites have lived 10 years longer than non-whites, on the average. Worldwide, people living in the wealthiest countries have lived 29 years longer than those living in the Third World of Afro-Asia and Latin America. In the world, as in the United States, the whiter we are the longer we are likely to live in the 20th century.

As a result of disparity in wealth resulting in a disparity of life expectancies, some 35% of the deaths in this century have been superfluous, in the sense that they were socially caused rather than being divinely or naturally caused. This is a statistic subject to change by social measures, and indeed the situation has improved in the course of this century. While the surplus deaths amounted to 24 million per year in 1900 (or 47% of all deaths), they have gone down to 14 million per year in 1980 (or 20% of all deaths). These surplus deaths are largely caused by hunger and hunger-related diseases that can be prevented by good food and safe water better distributed than they are today.

In the course of this century, the behavioral violence of wars and revolutions has caused some 86 million deaths, or approximately one million deaths per year, on the average. Structural violence, on the other hand, has caused a total of some 1600 million deaths, or approximately 19 million deaths per year. This means that the structural violence of hunger and preventable disease was some 19 times more deadly than the behavioral violence of war in the 20th century.

On the average, half of the deaths caused by war happened to civilians, only some of whom were killed by famine associated with war. If we assume for the time being that half of the civilian deaths in wartime were caused by famine, then structural violence was responsible for 76 times as many deaths as famine caused among civilians in wartime in this century. Clearly, then, if we are interested in reducing violence, it would pay to concentrate on structural violence. So far as behavioral violence is caused by structural violence, we shall get the added bonus of reducing behavioral violence in the process of reducing structural violence. Indeed, we may not be able to reduce behavioral violence any other way: structural nonviolence may be the only effective way of reducing behavioral violence.

### 10. Summary

We have seen how wars have increased in frequency, duration, and deaths from the 18th to the 20th centuries. The increase in deaths was four times the increase in world population. Europe and the Far East had more wars, lasting more years, with more deadly consequences, than any other geographical region throughout these three centuries. The civilian percentage share of war-related deaths remained at about 50% from century to century. These figures question the myth of wars as more or less 'just' combats between equally armed warriors, as expressed by President Reagan in a Japanese television interview in November 1983: 'Once upon a time we had rules of warfare . . . in which we made sure that

soldiers fought soldiers, but they did not victimize civilians.' That 'once upon a time' was not during the last three centuries, at least. So far as 'innocent' civilians have been killed, there have been very few 'just' wars. Imperial and international wars, both fought largely for territory and other economic causes, killed the most civilians: imperial wars through the establishment of structural violence, and international wars through the intensity of their armed violence. In all cases, hunger and hungerrelated diseases contributed toward the death toll.

These results would suggest that, if we are really interested in justice, a minimum requirement would seem to be the abolition of war as a means of imposing one will upon another. However, non-violent means of achieving the same purpose may never put an end to war. We may have to change the end first, before any change in the means can be meaningful. Non-violence may not be meaningful until the end can be changed from dominance and exploitation toward more equality in human relations. Caring for one another and sharing with one another may be a prerequisite to putting an end to arms and wars. As long as anyinsists on the right to dominate one and exploit others, there may be no end to arms and wars. In short, structural non-violence seems to be the true sine qua non to authentic and effective behavioral non-violence.

### NOTES AND REFERENCES

- 1. Ruth Leger Sivard, *World Military and Social Expenditures* 1987–88 (Washington DC: World Priorities, 1987), pp. 28–31. Some notes on these wars and deaths are given on p. 52.
- J. David Singer & Melvin Small, The Wages of War 1816-1965: A Statistical Handbook (NY: Wiley, 1972), pp. 27, 29.
- 3. William Eckhardt & Gernot Kohler, 'Structural and Armed Violence in the 20th Century: Magnitudes and Trends', *International Interactions*, vol. 6 (1980), no. 4, pp. 347–375. Also see William Eckhardt, 'Structural Violence', *Subject to Change*, vol. 10 (1983), no. 1, pp. 23–26.

- 4. Johan Galtung, 'Violence, Peace, and Peace Research', *Journal of Peace Research*, vol. 6 (1969), no. 3, pp. 167–191.
- See G. Bodart, Losses of Life in Modern Wars (Oxford: Clarendon, 1916); S. Dumas & K. O. Vedel-Petersen, Losses of Life Caused by War (Oxford: Clarendon, 1923); R. E. Dupuy & T. N. Dupuy, The Encyclopedia of Military History from 3500 B.C. to the Present

(NY: Harper & Row, 1986); G. Dyer, Wan (NY: Crown, 1985); H. W. Koch, The Rise of Modern Warfare, 1618–1815 (NY: Hamlyn, 1981); F. Prinzing, Epidemics Resulting from Wars (Oxford: Clarendon, 1916). And many encyclopedias: Academic, Americana, Britannica, Collier's, Funk & Wagnalls, International, World Book, plus their annual Yearbooks of Events when available.