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THE WHITE HOUSE
WASHINGTON

file Nuclear Freeze

Date: 7/28/82

TO: Morton

FROM: *WAYNE H. VALIS* Wayne

☒ For your information

☐ Per our conversation

☐ Other:

I hope the rogues' activities will more than be offset by our troops.

Groups Aiding Candidates Who Favor A-Freeze

Associated Press

Liberal political fund-raising groups say they expect to amass more than $2 million to give to congressional candidates who support a nuclear weapons freeze and to use to defeat those who oppose the idea.

In addition, 14 House members have scheduled a news conference today to announce the formation of the Nuclear Freeze Political Action Committee, whose organizers speak of raising $1 million through rock 'n' roll concerts and mail solicitations.

One pf the groups, the Council for a Livable World, already has delivered $221,500 to 12 Senate candidates. The funds were solicited from a mailing list of 60,000 people who had previously given money in the interest of ending the arms race.

The council's two chief beneficiaries are Rep. Toby Moffett (D-Conn.) who got $28,000, and Rep. Millicent Fenwick (R-N.J.) who got $26,500. Both are nuclear freeze advocates making bids for Senate seats in the November election.

The council expects to raise $400,000 for Senate candidates and $250,000 for House candidates who support a nuclear freeze.

The groups will watch forthcoming congressional roll calls to identify their friends. A House vote on the freeze proposal is expected late this month. Freeze proponents hope the Senate also will be compelled to take a stand.

Records of the Federal Election Commission give these tentative totals for the amounts given the pro-freeze candidates who have gotten the most money:

Moffett, $35,200; Fenwick, $26,500; George McDaniel, a Democrat challenging Sen. Malcolm Wallop (R-Wyo.), $25,000; Sen. Howard M.Metzenbaum (D-Ohio), $23,900; Ted Wilson, a Democrat challenging Sen. Orrin G. Hatch (R-Utah), $23,500; Sen. Paul S. Sarbanes (D-Md.), $23,200; Sen. George J. Mitchell (D-Maine), $23,000; Sen. Donald W. Riegle Jr. (D-Mich.), $17,300; Sen. Jim Sasser (D-Tenn.), $14,600; David Levinson, a Democrat challenging Sen. William V. Roth Jr. (R-Del.), $11,300; and Sen. John H. Chafee (R-R.I.), $11,000.

90p

THE FALKLANDS CRISIS

by Tom Arms

THE HISTORY, GEOGRAPHY, POLITICS & INVASION OF THE FALKLAND ISLANDS

COMPLETE WITH MAPS, DIAGRAMS & DETAILS OF THE ARMED FORCES OF ARGENTINA & THE BRITISH TASK FORCE IN THE SOUTH ATLANTIC

FULL COLOUR ON EVERY PAGE

"We are a democratic Government of a free people, and one which is not prepared to compromise that democracy and that liberty which the British Falkland Islanders regard as their birthright . . . Our diplomacy is backed by strength and we have the resolve to use that strength if necessary." ***Mrs Margaret Thatcher***

"It is not an invasion but the recovery of territory which is ours . . . The Argentine Government had no alternative other than to do what has been done . . . The three commanders-in-chief have only interpreted the sentiment of the Argentine people which has been suppressed for 150 years and is now visible in the streets." ***General Leopoldo Galtieri***

BRITAIN and Argentina are set for war. The immediate cause: the title deeds to the Falkland Islands – 200 windswept islands set 8,000 miles away in the isolated South Atlantic. Home for 1,800 hardy and, until now, almost forgotten British subjects.

Are they worth it? Thousands of lives and billions of pounds could be lost. New and dangerous global relations could emerge, threatening the delicate international balance of power.

The following pages unravel the claims and counter-claims, and explain the passions and unresolved negotiations which stretch from the dawn of colonialism to a twentieth century naval showdown.

British prestige is at stake in the South Atlantic. That prestige is a vital if intangible asset in the complex web of political and trading links upon which Britain depends. To ignore Argentina's blatant aggression would have severe and lasting repercussions.

The weeks and months ahead will be tense. British diplomats will work hard to minimise the damage. The Royal Navy will, if necessary, fight.

Editor: Tom Arms
Pictures Editor: Terry Hewett
Design Editor: George Snow
Sub-Editors: Steve Mann & Sally Payne
Lay-out: Phoebe Creswell-Evans, Nicky Reehal
Diagrams: Duncan Mill & Mavis Ross
Map: Dave Ritchie
Editorial assistant: Wendy Kassabian
Editorial consultants: Harriet J Cohen, Eileen Riley, Stuart Birch, Defence Correspondent Thomson Regional Newspapers

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THE AUTHOR: Tom Arms is an American, educated in Britain and the United States. His first job in journalism was in Washington DC. In 1975 he became the youngest Diplomatic Correspondent in Britain when he joined the London office of Thomson Regional Newspapers, the largest newspaper group in the UK. He is now a freelance foreign affairs writer.

ABOVE: Malvinas or Falklands? HMS *Invincible* steams south to make sure that the 1,800 islanders and not the invading Argentinians decide.

Chapter 1.

MALVINAS OR FALKLANDS?

IT WAS a nasty way to discover a new land – separated from the rest of the fleet, lost in fog and buffeted by gales and high seas.

It was a relief when the lookout spotted the safe haven of islands on 14 August 1592. The ship was the *Desire*. The captain was John Davis of Arctic fame. Both were English. From this first recorded sighting stems Britain's claim to the islands. But ownership, as the world is now discovering,

is a bit more complicated than a simple 'Came, Saw and Claimed' business.

For two short years the islands in the South Atlantic bore the name of their discoverer – Davis' Southern Isles. Then another Englishman, Sir Richard Hawkins, arrived on the scene. He was a good monarchist so he named the islands after the first Queen Elizabeth's virginity. And because he had a vain streak, he stuck his own name on the title, too – Hawkins' Maiden Land.

Sir Richard's travels strengthened the English claim to the islands, but that claim suffered a blow when the Dutch explorer Sebald de Weert sailed past and dubbed them the Sebald Islands.

But neither the Dutchman, Sir Richard nor Captain Davis landed on the islands. That was left to yet another Englishman, John Strong, who in 1690 sailed up the sound which separated the two main islands. He named the dividing water 'Falkland Sound', after the then First Lord of the Admiralty, and British map makers later extended the name to the islands.

Enter the French – great explorers and great colonisers. In 1701 they lodged their claim to the islands with a sighting by the French navigator Gouin de Beauchene and then again in 1711 with a ship commanded by Sieur Brignon. This ship, the *Incarnation*, had set sail from St Malo in Brittany, and so, to commemorate the links with the folks back home, the French dubbed the islands 'Iles Malouines'. Roughly translated, this means the islands of the people of St Malo. The Spanish for the same name is Islas Malvinas, the name on the Argentinian maps of today.

The Dutch decided against becoming involved in a struggle for the motley collection of 200 windswept, treeless and uninhabited islands in the distant South Atlantic. They left it to the British and French, who were at that time busily fighting over the crumbling Spanish Empire.

In the first half of the 18th century neither one of the two great European naval powers was ready to rush off to the South Atlantic and consolidate their claim. Finally, the French moved.

Antoine Louis de Bougainville was a young patriotic nobleman who was angered at the way the British had booted the French out of Canada. So in 1763 he decided to steal a march on the British by colonising the Falkland Islands at the other end of the Western Hemisphere.

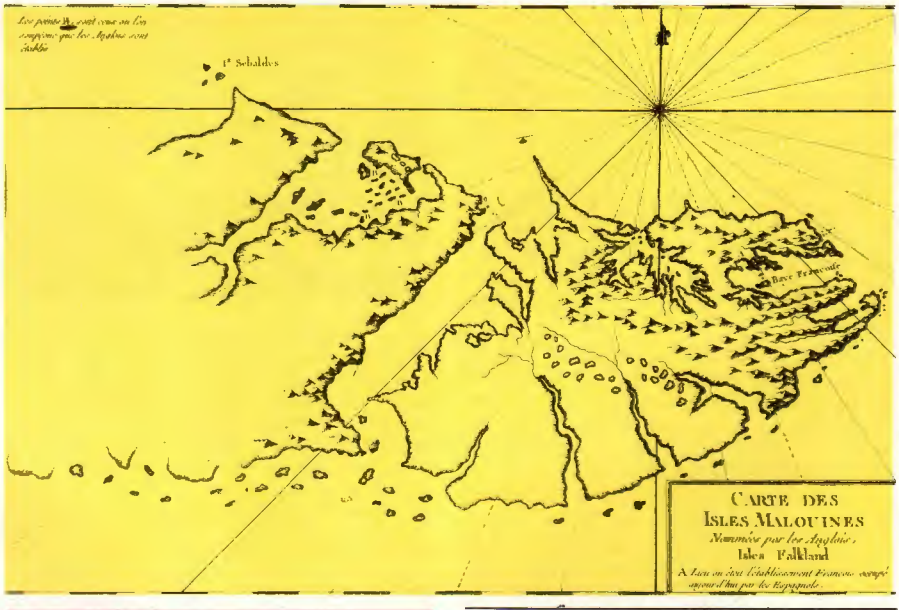
He sank his family fortune into the scheme and, with the blessing of the French court, set sail. He landed on the easternmost of the two main islands and with the help of 28 settlers went about establishing a colony.

In those days nothing spurred the British on faster than a march-stealing operation by the French. They sailed off post-haste to the South Atlantic and the first batch of Britons, under Captain John Byron – affectionately known to his crew as Foulweather Jack – landed just in the New Year in 1765 on the westernmost of the two islands.

He was joined the following year by three British ships under the command of Captain John McBride. So there they sat; the French on the eastern half and the British on the western half, and both laying claim to the whole lot.

Into this stand-off marched the Spanish, claiming quite simply that the islands belonged to neither Britain nor France. They were Spanish by virtue of the 1494 Treaty of Tordesillas with which the Pope divided the world between Spain and Portugal. Britain quite simply threw the claim out of court as inadmissible. It was a Papist-inspired treaty

ABOVE: The first recorded sighting of the Falkland Islands was by Captain John Davis aboard the *Desire* in 1592. His ship's historian John Jane wrote: 'The ninth wee had a sore storme, so that we were constrained to hull, for our sailes were not to indure any force. The 14th wee were driven in among certain isles never before discovered by any known relation, lying fiftie leagues or better from the shore east and northerly from the Streights [Straights of Magellan] in which place, unless it hed pleased God of his wonderful mercie to have ceased the winds, wee must of necessitie have perished.'



ABOVE: Conflicting claims to the Falkland Islands go back a long way, as this 18th century map from the French Maritime Museum shows. Both the French and the British claimed the islands, and this is reflected in the nomenclature used by the map makers.

On top is the French name, 'Isles Malouines', and underneath in smaller letters they recognise the conflicting English claim by mentioning 'Nommees par les Anglois — Isles Falkland'.

When the Spanish bought the islands from the French they kept the French name in the Spanish language: 'Islas Malvinas' — the name on Argentinian maps of today.

LEFT: Viscount Falkland — the islands bear his name.

and they had ceased to have anything to do with Roman pronouncements a long time before.

The French were none too pleased, either. But de Bougainville saw a chance for a quick turnover on his investment and sold his rights to the islands to Spain for the then princely sum of £25,000.

So now it was the Spanish and English staring at each other across Falkland Sound. England was emerging as a global naval power. The islands were ideal as a staging post for the fleet or as a springboard into the Spanish Empire. Spain needed the islands to prevent just that.

The Spanish moved first, and in 1769

ABOVE: British Antarctic explorer Lord Shackleton was buried on the Falkland Islands and this monument raised to his memory. The family maintained strong links with the islands and the present Lord Shackleton wrote a recent economic survey of the Falklands.

threw the British garrison and settlers off the islands. The situation was tense. London newspapers and Parliamentary speeches were full of British honour and integrity, invasions in time of peace and weak claims to sovereignty. Britain and Spain prepared to go to war over the Falkland Islands.

The French saved the day by refusing to support the Spanish. Forced to compromise, the two sides agreed to disagree. The British re-established their garrison on the eastern island and the Spanish stayed on the western island. And both continued to lay claim to the whole lot.

This time the British did not stay long. In 1774 defence cuts forced them to pull the garrison out of the Falkland Islands. But garrison commander Stephen Clayton left behind a lead plaque claiming the islands for Britain.

A year later the Spanish sailed across the sound, destroyed the crumbling British garrison and shipped the plaque to Buenos Aires. In 1806 the plaque was found by British troops who controlled the city for a few weeks and returned to London.

By now the Spanish Empire was falling fast. In 1810 rebellion on the mainland forced the withdrawal of the garrison and the islands returned to their natural state – uninhabited by all but penguins, seals and the giant sea elephants.

One of the main results of the rebellion in South America was the independent United Provinces of the Rio de la Plata – forerunner of modern day Argentina. When Spain left, the new government in Buenos Aires laid claim to all the lands under the former Spanish vice-royalty of the same name. These included not only the Falkland Islands but also present-day Bolivia, Paraguay, Uruguay and parts of Chile.

In 1820, in Buenos Aires, responsibility for the Falkland Islands was given to a prominent businessman, Louis Vernet, who set off to colonise the deserted islands. London protested but at the time did nothing.

But greed led to the downfall of Vernet and Argentinian sovereignty of the islands. Vernet appointed himself Governor and decreed a monopoly for himself in the lucrative seal trade. The Americans, no great respecters of monopolies, ignored the decree and in 1829 the Argentinians seized the worst offender, John Davison, and impounded his ship, the *Harriet*.

Davison escaped from jail in Buenos Aires and reported the outrage against American property to the US Navy corvette, the *Lexington*, which set out for revenge. The island settlement was attacked and sacked. The guns were spiked and buildings burned. And, to add insult to injury, the American commander declared the Falkland Islands free of all government as he sailed away.

Into this confusion in 1830 sailed back the British aboard HM sloop *Clio* and under the command of Capt James Onslow. He re-asserted Britain's claim to the Falklands and ordered what was left of the Argentinian community off the islands. The Argentinians had little choice. They had been left defenceless by the American attack. They departed, protesting loudly as they went.

Still on the island were some settlers and convict labourers. The labourers wanted to leave and, in 1833, led by an ex-convict named Rivero, they rebelled against the island authorities in a bid to return to the mainland. They killed two leading islanders and then fled to the hinterland where they were eventually captured. Rivero has become a folk hero in Argentina, and when Argentinian troops landed in 1982 they were quick to change the name of the capital from Port Stanley to Puerto Rivero.

After 1830 the Argentinians were simply not in a position to do anything about their claim to the islands. To begin with, the British virtually took control of Argentina's foreign policy for the next 100 years. Much of that foreign policy involved trying to hold onto Paraguay, Bolivia and Uruguay with a series of disastrous wars.

Around 1870 the stability which Argentina needed began to materialise, and with it came the immigrants. The Argentine rivalled the United States as a boom haven for Europeans seeking a new life in a new world. Between 1857 and 1937 three and a half million Europeans emigrated to Argentina. The major contributions to this flow were Italy with 44 per cent and Spain with 31 per cent. But they also came from France, Poland, Russia and Germany.

By 1914 the foreign-born population was 30 per cent of the total, and in large cities foreigners outnumbered natives by two to one. The Indians fled to neighbouring countries, leaving only 100,000 behind; and the Negro population, which in 1800 had been more than 10 per cent of the total, disappeared altogether.

The new immigrants retained strong links with the motherland. Spanish was the national language, but if it was spoken it was

ABOVE: In 1771 Britain and Spain prepared to go to war over the Falkland Islands. The thought appalled Samuel Johnson, who wrote ridiculing the prospect of war for 'the empty sound of an ancient title to a Magellanic rock, an island thrown aside from human use, stormy in winter, barren in summer, an island which not even the southern savages have dignified with habitation, where a garrison must be kept in a state that contemplates with envy the exiles of Siberia, of which the expense will be perpetual and the use only occasional, a nest of smugglers in peace, in war a refuge of future buccaneers. . .'

ABOVE: Port Stanley, capital of the Falkland Islands, on a good day. Wind speeds of up to 70 miles an hour are common, and snowfalls have been recorded in every month of the year.

JUAN AND EVA

Juan Domingo Peron and his wife Eva. For better or for worse they created the modern Argentina. Together they for the first time created a nation out of a polyglot immigrant community.

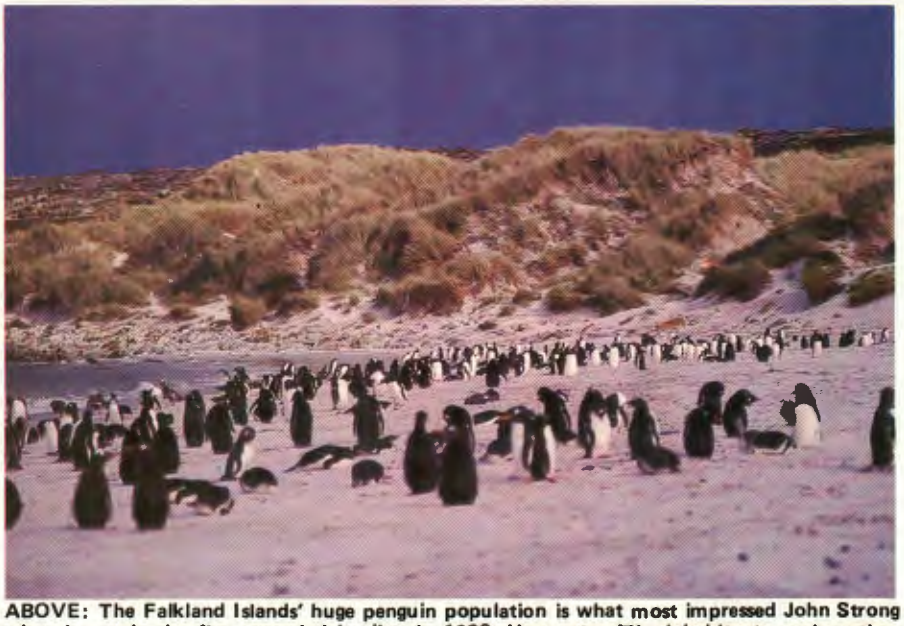
Evita, first a dancer, then an actress, then a mistress, finally became the First Lady of Argentina. She became the idol of the masses and her place in the hearts and minds of her countrymen was ensured by an early death which enshrined her in perpetual youth.

Juan Peron was the son of a lower middle class family. He rose through the military ranks, and a spell as Military Attache in Rome in the 1930s exposed him to Fascism at its height.

His own ideology borrowed from the extreme nationalism of Mussolini and Hitler but also took some of the elements of socialism from Stalin. He managed to completely win over the Argentinian working class and gained the support of both the far left and the far right. Peron's race to industrialise and his grandiose public projects left Argentina with an economic legacy from which it is still reeling, and his extreme nationalism played a role in the Argentinians' claim to the Falkland Islands.

Peron was overthrown in 1955 by democratically minded officers. But from exile in Spain he remained the strongest influence on his native country. Successive rulers tried in vain to quash his supporters in the Peronist Party and to deal with the legacy of economic and political chaos that he left them.

In 1973 Juan Peron returned to power, but died only a year later, leaving his third wife in the Presidential Palace. She was overthrown two years later by the military junta which runs Argentina today.



ABOVE: The Falkland Islands' huge penguin population is what most impressed John Strong when he made the first recorded landing in 1690. He wrote: 'The inhabitants, such as they were, were exceedingly numerous. The penguins (a bird larger than a duck) gave us the first reception. Being mustered in infinite numbers on a rock, upon some of our men landing, they stood, viewed and then seemed to salute them with a great many graceful bows, with the same gestures, equally expressing their curiosity and good breeding. As for other creatures, there were eagles, hawks, which tho' they had long wings, suffered themselves to be taken up by our men. The island, if it were not destitute of wood, would make a noble plantation.'

ABOVE: A research base on the Dependency of South Georgia. Eight thousand miles away, the symbols of home look a shade strange out of their usual setting.

with a strong Italian, French or other accent.

At the pinnacle of this social pyramid of immigrants sat the British. There weren't many of them, but they were among the first and they had the money.

The London banks controlled the Argentine economy. Argentina may have been independent, but it was effectively part of the sprawling British Empire. Its navy was commanded by an Irishman. Its railways were laid, run and owned by Englishmen. Polo, tennis, football and rugby became the national pastimes.

And of all the communities the British were the most closed and arrogant. They opened their Harrods in Buenos Aires, sent their children to English schools and sat in over-stuffed chairs at their Hurlingham Club.

British habits and mannerisms became the habits and mannerisms of rich Argentinians – whatever their origins. Thus arose the joke definition of an Argentinian as an Italian who speaks Spanish and thinks he is English.

The reaction of other Argentinians to the Anglo-Argentinians and the British as whole was mixed. They were respected but not loved. They were envied and imitated, but also resented for their power, money, influence and arrogance.

Into this polyglot, British-dominated, immigrant community in search of its own national identity stepped in 1946 the charismatic General Juan Domingo Peron and his even more charismatic actress-turned-mistress-turned wife, Eva.

Together they tapped the until-then-undiscovered national psyche of Argentina. To do it they combined ideology with a personality cult. The cult was Eva, whose tragically early death enshrined her in perpetual youth. The ideology embraced both the far left and far right behind a policy of rabid nationalism, disastrously expensive state intervention, pellmell industrialisation, nationalisation and social welfare; all designed to win the support of the working class immigrant.

This policy brought Peron into direct conflict with the British bankers and industrialists who controlled the Argentinian economy. So Peron turned on the British. They became the scapegoat for Argentina's ills and, along with the expanding United States, were portrayed as the main obstacle to Argentinian greatness.

Peron revived with a vengeance Argentina's never-relinquished claim to the Falkland Islands. Argentinian maps and history books were redrawn and rewritten so that British pink was erased from the islands, which were designated Argentinian and named Islas Malvinas. Argentinian children were raised in the belief that the islands belonged to them and that 'Los Ingleses' had stolen them.

The claim to the Falkland Islands became an integral part of the national identity and pride which Peron had created. Corruption, maladministration and a crumbling economy led to the Peron's overthrow in 1955. But before he left, his sabre-rattling over the Falklands had at least forced Britain to offer to take the dispute to the International Court of Justice at The Hague.

Even from exile in Spain, Peron remained the dominant influence in Argentinian politics. His successors were judged by their success or, as was the case, repeated failure to fill his shoes and massage the Argentinian pride and ego created by Peron.

In 1972 Peron returned in triumph to Argentina and within the year he was back in the President's Palace. One of the first things the general did on his return to power was reassert the Argentinian claim to the Falkland Islands and he underscored this by insisting that all travellers to the islands have an Argentinian permit.

But, by now, Peron was an old man. He died in 1974 at the age of 78, leaving his third wife, 43-year-old Maria Estela Martinez de Peron, in charge. She was weak and unable to control a crumbling economy and Peronist guerrillas split between the far left and right. Death squads roamed the streets of Buenos Aires. Inflation peaked at 500 per cent a year. There were calls for her resignation or impeachment. Finally, in 1976 Maria Peron was overthrown in a military coup led by General Roberto Videla.

ABOVE: Port Stanley at the height of the British Empire — busy and prosperous.

Chapter 2.
WE'RE BRITISH

ABOVE: British law with all its trappings personifies the islanders' Britishness as the magistrate sits under the Royal Coat of Arms flanked by portraits of the Queen and Prince Philip.

THE FALKLAND ISLANDS are no 'Island in the Sun' paradise. They bear a closer resemblance to the Scottish moors or Outer Hebrides than the Garden of Eden.

The most dominant feature is the wind. It never stops blowing. It averages 17 mph and there are at least four gales a month. The climate is cold all year round. The thermometer has never climbed above 79 degrees Fahrenheit and snowfalls have been recorded in every month.

There are virtually no trees. The wind demolishes anything that grows above grass level. Careful nurturing by dedicated British gardeners did manage to create one small wood near the Governor's residence, only to have it used as cover by invading Argentinians.

The settlers found the islands uninhabited and almost empty of animal life. There were lots of seals, penguins and the rare sea elephant which grows to up to 15 feet in length. There was also a species of fox.

But almost all of the 200 windswept islands, covering 4,700 square miles – roughly the size of Northern Ireland – have one major resource: good thick grass. It was ideal for the cattle brought by the French. So good that by the time the British took over the original few hundred head had increased to an estimated 100,000 wild beasts. The export of their hides was the first big, and lucrative, trade for the British settlers.

In 1851 the islands were virtually bought by a group of British businessmen who formed the Falkland Islands Company. That grass looked good for sheep and they exported them to the South Atlantic, along with settlers to look after them. By 1880 wool had replaced leather and dominated the islands' economy from then onwards.

ABOVE: British marines in training on the Falkland Islands. But when the Argentinians arrived the thin blue line of 79 men was no match for an overwhelming invasion of 1,000.

The Falkland Islands Company continues. It owns about half of the land, and islanders complain that the company's refusal to diversify, invest or experiment has created the stagnant economy which in turn helped create conditions which led the Argentinians to think they could get away with an invasion.

Dominated by wool prices, 8,000 miles from home and controlled by London businessmen, the islands never had a chance to develop properly. But they had their moments of glory. In 1914 the islands were the scene of Britain's brilliant naval victory over the German fleet and in World War II they were a valuable naval base during the Battle of the River Plate.

But the fortunes of the islands were too closely tied to those of the mother country. In the latter part of the nineteenth century and first part of this century, the islands and

LEFT: These London taxis were the official transport for departed Governor Rex Hunt.

the Empire rode together at the crest of the wave. British ships regularly used Port Stanley, and a whaling station was set up on the dependency of the South Georgia Islands 800 miles away.

The population peaked in 1931 at 2,400. Over the years the links with the outside world have gradually eroded and with them have gone the people – frightened of their growing physical isolation, the clamour in Argentina for their land and what they see as disinterest by businessmen and politicians in distant motherland.

Life is not easy on the Falkland Islands of the 'eighties. The normal twentieth century accessories of life that we take for granted are non-existent. There is radio, but no television, and films are old and few and far between. The hospital has only 27 beds, and the level of schooling has dropped dramatically.

There are only 12 miles of paved roads. Travel is by one of two government-owned planes or boat. Since a 1971 Anglo-Argentine agreement the main physical link with the outside world has been a weekly air service operated by the Argentinian air force through Argentina.

Half of the population live in the 'Camp' – the isolated farms and settlements of the hinterland. Not surprisingly, ham radios are thick on the ground. When the Argentinians invaded these radios were the islanders' only link with the outside world, until they were discovered and banned.

The other half of the population live in Port Stanley. There are a few tradesmen, but mainly administrators and scientists. The civil servants administer not only the Falkland Islands but also their dependencies and British Antarctica.

It may be asked why these 1,800 souls have repeatedly stated their determination to stay British. There is no doubt that they have. Every time a British minister has arrived to try to persuade them to do otherwise they have greeted him with Union Jacks and shouted down any suggestions of closer links with Argentina.

To start with, 98 per cent of the islanders are of British stock. They talk, act, walk, dress and look British. Some of them may be sixth generation islanders, but to meet them you would think they came from your typical English town.

In school they are taught British history. They are taught that Britain is their home as clearly as Argentinian children are taught that the Islas Malvinas belong to them.

There are other reasons for their wanting to stay out of the Argentinian orbit. There is no crime, no unemployment, no inflation and a democratic government in the Falkland Islands. In Argentina inflation, crime and unemployment figures are among the world's highest, and the government is far from democratic.

LEFT: They may be 8,000 miles from the UK, but the 1,800 Falkland Islanders battle against the often hostile climate to preserve traditional British values. Here's a display that would not be out of place in any English suburban garden. BELOW: The lighthouse at the entrance to Port Stanley harbour marks the landing point of the invading Argentinian forces.

Chapter 3.
DIPLOMACY

BRITAIN DOES not want the Falkland Islands. They are an anachronism from a now embarrassing colonial past. But at the same time, successive British governments have become wedded to the concept of self-determination for the citizens of their departing colonies.

That means it is up to the people of each land in the once far-flung British Empire to decide for themselves whether they want to stay British, become independent or join forces with another country.

To do otherwise could set off a series of bloody land grabs right round the world. Guatemala, for instance, claims Belize. Spain is after Gibraltar, China is waiting for Hong Kong, and there is of course, the Irish problem. There are also the innumerable small Caribbean islands which could fall prey to their larger neighbours and some French possessions which could suffer the same fate.

Each of these small conflicts could very quickly attract one of the Super Powers; this in turn would drag in the other Super Power, and then a 19th century colonial anachronism would become a twentieth century nightmare.

Most of the British colonies opted for independence. The exceptions are those small territories who are too tiny to develop their own economy or to defend themselves. They cling to the protection of the British Navy, especially if, as in the case of the Falkland Islands, a big neighbour wants to swallow them up.

The problem for these colonies is that the British Navy is not as big and powerful as it once was. The British economy couldn't afford to keep it that way. And the trend is down, not up. In the South Atlantic, for instance, Britain's last naval presence, the survey ship HMS *Endurance*, was due to be withdrawn this year. Notice of her withdrawal almost certainly encouraged the Argentinian invasion.

ABOVE: James Callaghan ordered the British fleet to the South Atlantic in 1977 when Argentina appeared to threaten invasion of the Falkland Islands. The Argentinians backed down. Labour Party leaders claim that if Mrs Thatcher had acted sooner then General Galtieri would have scrapped his 1982 invasion plans in the face of British determination.

So, since 1965 the Falklands policy of successive British governments has been to gradually improve the links between the islands and the Argentine. What Whitehall hopes to see emerge from improved links is a bit hazy. Perhaps Argentina and the Falkland Islanders would become friendly enough for the islanders to agree to a sovereignty swap.

But there are other possibilities – a condominium, a lease-back plan, an EEC-type arrangement, or maybe something totally new and different. But British officials and ministers are convinced that any solution must have the support of the people concerned. If it doesn't, it won't work.

ABOVE: United Nations support for Britain is the strongest diplomatic card she has. It has led to other countries giving their full backing to the UK or, in the case of Latin America, weakening support for Argentina. The Security Council voted 10-1 in favour of the British resolution calling for a withdrawal of Argentinian forces from the Falkland Islands and a peaceful solution to the crisis. Only Panama voted against. It had no veto. China, Spain and the Soviet Union abstained.

The Anglo-Argentine talks on the future of the Falkland Islands were conducted under the umbrella of a 1965 United Nations resolution calling for negotiations and a peaceful solution to the problem. Seventeen years followed with the islanders refusing to consider swapping their Union Jack for the

ABOVE: The charismatic Juan Peron returned to Argentina from long exile in 1972. The following year his hand-picked candidate Dr Hector Campora was elected President. Six weeks later he resigned to make way for his leader Juan Peron. But just over a year later Peron died, leaving behind a country in turmoil.

ABOVE: Maria Peron, the third wife of Juan Peron. She was catapulted into the Presidency in 1974 on Juan Peron's death. The general had hoped to turn his third wife into a second Evita, but she was unable to cope with the violence, inflation and palace power struggles. In 1976 she was overthrown by a military coup.

blue and white banner of Argentina and the impatient Argentinians refusing to talk about anything but total Argentinian sovereignty over the Islas Malvinas – and regularly threatening to use force to get it.

Successive British ministers preached to immovable opinion on both sides of the virtues of a gradual and progressive slide together. In July 1971 there was a breakthrough in this direction when British and Argentinian officials initialled an agreement establishing regular air and sea links between Argentina and the Falkland Islands.

Before this, links between the islands and the outside world centred on a monthly boat run by the Falkland Islands Company between Port Stanley and Montevideo in Uruguay. This was cancelled. The main link became the once-weekly, Argentinian-operated air service.

The Argentinians were responsible for building a temporary airstrip and the British a permanent one. There were also improvements in postal, cable and telex communications between the islands and Argentina and the islanders were made to carry Argentinian identity cards whenever leaving the islands.

The British hoped that this breakthrough would lead to the conditions for a final solution. But to do this they needed a less threatening Argentina and more willing islanders.

In Argentina Peron returned to power in a country torn by economic and political contradictions. More than ever Argentina needed an issue to unite the people and divert their attention from internal problems. The islands were that issue. Argentina became more threatening and as a result the Falkland Islanders became less willing.

At this stage Britain blundered. Up till 1975 it had never promised Argentina that Whitehall would hand over sovereignty to the islands. But neither had it refused to do so at some point in the future, nor had it completely discouraged the Argentinians from thinking that eventually they would regain Las Islas Malvinas.

Then in October 1975 the Foreign Office announced the British Government was dispatching former Labour Minister Lord Shackleton to the island to conduct an economic survey. The Argentinians protested. To them this was a sign that the British would never relinquish sovereignty over the islands. You do not, they argued, spend money on developing land which you intend to give away.

The Argentinians refused to let Shackleton and his scientists fly through Argentina to the islands. So Lord Shackleton went by ship direct from Britain to the islands. The Argentinians interpreted this as a breach of the 1971 agreement and booted out the British Ambassador Derek Ashe. Anglo-Argentine relations grew tense.

In a display of force the Argentinians sent a navy tank landing ship to Port Stanley in January 1976 to unload 50 engineers and equipment to extend the air strip. It was a legitimate exercise, but the size and military nature of the workforce was a clear signal to London that Argentina was prepared to use force.

Then, on 4 February 1976, the Argentinian destroyer *Almirante Storni* fired a shot across the bow of the British research ship *Shackleton* just 80 miles south of the islands. The destroyer tried to arrest the *Shackleton*, claiming it was looking for oil in 'Argentinian waters'. The *Shackleton*, which was on a UN research mission, fled to the safety of Port Stanley, ignoring Argentinian orders to sail to Tierra del Fuego.

But the biggest move of all missed the headlines. In December 1976, 50 Argentinian 'scientists' landed on the otherwise uninhabited island of Southern Thule, 1,200 miles away from Port Stanley but part of the South Sandwich Islands which are a dependency of the Falkland Islands.

Britain protested – but kept the protest quiet. The Argentinians refused to withdraw. Southern Thule, claimed Buenos Aires, was an 'integral part of Argentina'.

Combined with the other incidents, the occupation of Southern Thule pointed to an invasion of the Falkland Islands. If Britain let the scientists stay on Southern Thule then the Argentinian claim to that island and others in the region was implicitly recognised

ABOVE: Lord Shackleton. His report on the Falkland Islands pointed to possible big money from oil and fish.

BONANZA?

The Falkland Islands could be sitting in the middle of an offshore oil bonanza. American geologists reckon that black gold reserves in the surrounding waters could be 20 times those of the North Sea.

The Shackleton Report on the islands' economic prospects refused to put a figure on the oil prospects. That could only be done after test drilling. The Report did admit, however, that the geological formations were right for huge oil deposits around the islands.

The Report also pointed to problems. First of all, cooperation was needed with Argentina for technology, servicing facilities, refineries, pipelines and a whole host of ancillary services that follow the oil industry around the world.

There was also the problem of the weather and sea conditions in the South Atlantic. It is rougher around the Falkland Islands than it is in the North Sea, and special technology would have to be developed to reach the oil.

Some American diplomats believe that the Argentinians' main reason for invading the islands is oil. This seems unlikely, not only because the oil would be difficult and expensive to tap, but also because the Argentinians are already getting enough oil from wells closer to the mainland.

Of more immediate interest to the Argentinians and the islanders are the possibilities for a major fishing industry. The Shackleton Report estimated that there are as many blue whiting around the Falklands as are in all the waters around the British Isles.

But even more interesting is a tiny, high-protein creature called the krill. Lord Shackleton reckoned that this crustacean would become the food of the future. Others think so, too. The Russians, East Europeans, Japanese and Germans are already catching it in large quantities.

Most of their krill-catching trawlers are working in the South Atlantic around the Falkland Islands. Before the Falkland crisis began a record 170 Russian and East European trawlers were krill-fishing in the region. The Shackleton Report estimated that there were as many krill in the region around the Falklands as in the rest of the world's oceans put together.

ABOVE: A British warship steams south with waves breaking over its deck. The seas it will face are some of the roughest in the world.

and Buenos Aires could take it as a signal to move into Port Stanley.

The then Prime Minister James Callaghan dispatched the fleet to the South Atlantic. But he did it secretly and the Argentinians were able to withdraw the scientists without any loss of face. The Labour Party claims that if Mrs Thatcher and Lord Carrington had done the same thing when the Argentinian navy landed scrap metal merchants on South Georgia than the Argentinians would never have invaded the Falkland Islands.

The threatened invasion of 1976–77 stemmed from the British decision to examine the economic prospects of the Falklands Islands. And what glorious prospects they were, too. The Shackleton Report that came out of the survey indicated that Britain was sitting on a potential jackpot in the South Atlantic.

To start with, there was a good chance of oil in the area. A US Geological Survey had reckoned that the offshore oil deposits in the region could be as much as 20 times those of the North Sea, and most of it was to be found around the Falkland Islands and the waters between the islands and the Argentinian mainland.

Lord Shackleton played down the figures in the American report. Predictions like that could not accurately be made without some preliminary drilling tests. But he agreed that the geological formations were right for big oil deposits.

Then there was the question of fish. Lord Shackleton reckoned that there were as many blue whiting in the seas around the Falkland Islands as are found in all UK waters. But Lord Shackleton was particularly interested in a tiny high-protein shrimp-like creature called the krill. The Japanese, Russians and Germans were already catching krill in large quantities, and Lord Shackleton believed that this was the food of the future and that there were more krill in the South Atlantic than in the rest of the world put together.

The Shackleton Report brightened up the economic prospects of the islanders considerably. They started looking forward to oil terminals, refineries, shipping, fish processing plants and a host of ancillary services that would bring the Falkland Islands to life.

There was one problem. Lord Shackleton made it clear that the islands could not develop without the cooperation of Argentina. The equipment and back-up services for oil exploration and exploitation would have to come from Argentina. The same with any future fish industry.

And as long as there was uncertainty over the sovereignty of the islands none of these resources could be exploited. No fishing company would dare start fishing for fear of being stopped by the Argentinian navy and no oil company would think of drilling around the islands for fear of having their oil rig attacked by Argentina.

So, armed with the Shackleton Report, Mr Edward Rowlands, the Foreign Office Minister responsible for Britain's affairs in Latin America, set off in February 1977 for Buenos Aires and Port Stanley.

In Buenos Aires he met Foreign Minister Captain Gualter Allara for talks in 'a constructive atmosphere'. But the Argentinian made it clear there could be no talk of joint economic development of the islands or the seas around them until Britain ceded sovereignty to Argentina.

And in Port Stanley the flag-waving islanders left Mr Rowlands in no doubt of their determination to stay British.

Talks appeared to have reached an impasse when the Conservatives won the 1979 general election. Mrs Thatcher's government seemed more determined to achieve a breakthrough.

Boosting trade was a major element in her foreign policy and Latin America was a major target area. But the Falkland Islands held up the improved trade links that the Government wanted – not only in Argentina, but in the rest of Latin America, too.

Virtually every Latin American country recognised Argentina's claim to the islands,

ABOVE: Foreign Office Minister Ted Rowlands in 1977 tried to persuade the Argentinians to join forces in developing the Falklands. The Argentinians refused to consider it until they were given the deeds to the land. The islanders refused to become Argentinian.

and time and time again British officials and ministers were told that if Britain handed the Falklands over to Argentina it would help to create the right atmosphere for improved trade links throughout Latin America.

Britain's new Minister of State for Latin American Affairs, Richard Luce, tried again for a breakthrough. He dredged up an old idea, refined it a bit and took it to talks in New York in 1981.

The idea was a leaseback proposal. Under this plan Britain would cede sovereignty to the Argentinians but would then lease back the right to administer the islands for a certain number of years – 99 was the figure most often mentioned.

The islanders would remain British subjects and at the end of the lease period the Falkland Islands would be completely Argentinian. Both the islanders and the Argentinians rejected the proposal.

CHRONOLOGY

August 1592: English navigator John Davis discovers Falkland Islands.
1594: Second sighting by another Englishman, Sir Richard Hawkins.
1600: The Dutch navigator Sebald de Weert becomes the third man to spot the islands. Holland never pressed its claim.
1690: The first landing on the islands, by an English crew led by John Strong.
1701: The French explorer Gouin de Beauchene lands and stakes a rival claim for France.
1763: French settlers arrive under leadership of Antoine Louis de Bougainville.
1765-66: British troops arrive and order off the French. Spain claims the islands as part of its South American Empire.
1767: de Bougainville sells his claim to the islands to Spain for £25,000.
1771: Britain and Spain prepare for war over Falkland Islands. It is averted at the last minute.
1774: Defence cuts force withdrawal of British garrison, but a plaque is left behind claiming the islands for King George III.
1810: Spanish garrison withdrawn because of rebellion in South America.
1816: United Provinces of Rio de la Plata — forerunner of modern-day Argentina — founded.
1816-70: Argentinian Civil War and wars with neighbours.
1820: Argentina claims it has inherited sovereignty of the islands from Spain and establishes a settlement.
1830: Americans attack settlement in revenge for arrest of American ship. In the confusion that follows, the British under Captain James Onslow reclaim the islands and order off the Argentinians.
1851: Falkland Islands Company formed.
1857: Three and a half million Europeans start emigrating to Argentina. Britain becomes the dominant power in the country.
1895: Juan Domingo Peron born.
1943: General Peron comes to power.
1955: Britain offers to take dispute over sovereignty of the islands to International Court of Justice. Peron is overthrown.
1965: UN calls for Anglo-Argentine talks on dispute over Falkland Islands.
1966: Talks start.
1968: Islanders form Falkland Islands Emergency Committee to lobby against British handover of the islands to Argentina.
1971: Anglo-Argentine agreement on improved links between islands and Argentina.
1973: Peron returns to power.
1974: Peron dies and his third wife Maria takes over. Argentina racked by guerrilla wars and roaring inflation.
October 1975: Britain announces forthcoming Shackleton Survey on Falkland Islands economic prospects. Argentina objects, expels British Ambassador.
February 1976: Argentinian destroyer fires shot across bows of British survey ship the *Shackleton.*
March 1976: Maria Peron overthrown by military.
December 1976-May 1977: Fifty Argentinian scientists land on Falklands dependency of South Thule and refuse to leave. British fleet secretly ordered to South Atlantic. Argentinians quietly leave.
1977: Shackleton Report says Falkland Islands waters rich in fish and possibly oil, but Argentinian cooperation needed to exploit resources.
February 1977: Foreign Office Minister Ted Rowlands attends talks in Buenos Aires. Told that there can be no economic cooperation unless Britain cedes sovereignty to Falkland Islands; but islanders insist on remaining British.
March 1981: Foreign Office Minister Richard Luce offers lease-back arrangement: sovereignty ceded back to Argentina but leased to Britain for 99 years. Argentina and islanders reject this.
December 1981: General Leopoldo Fortunatao Galtieri comes to power in bloodless palace coup, and starts diplomatic spadework for invasion of Falkland Islands.
January 1982: Argentinian columnist writes of invasion plans.
15 March 1982: Argentinian Navy lands scrap-metal merchants on Falklands dependency of South Georgia. When HMS *Endurance* orders them to leave they refuse to go.
30 March 1982: Lord Carrington warns that Britain will defend the islands.
8.30am, 2 April 1982: Argentina invades the Falkland Islands. Three hours later Governor Rex Hunt orders the 79 British marines to surrender.

ARGENTINA

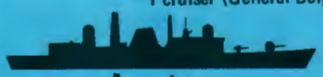
BATTLE


3 A-69 corvettes


4 diesel-powered submarines


1 aircraft carrier (The 25th of May)

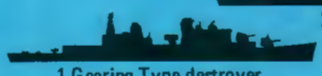

1 cruiser (General Belgrano)

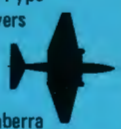


14 light helicopters

2 Type 42 destroyers

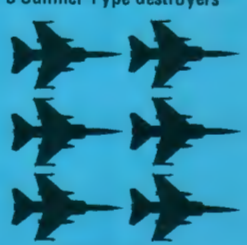

2 Fletcher Type destroyers


1 Gearing Type destroyer


9 Canberra long-range bombers


3 Sumner Type destroyers


68 Skyhawk bombers


43 Mirage fighters


25 armed helicopters


10,000 troops on Falkland Islands (plus tanks, armoured cars, mortar emplacements and shore batteries)

1,000 troops on South Georgia

Not illustrated:
150,000 troops on mainland

SPY AND COMMUNICATIONS SATELLITES

BRAZIL

CHILE

ENTRE RIOS

URUGUAY

MENDOZA

BUENOS AIRES

SAN LUIS

TANDIL (Main fighter base)

MAR DEL PLATA (Submarine base)

PUERTO BELGRANO (Main naval base)

ARGENTINA

TRELEW

COMODORO RIVADAVIA

RIO GALLEGOS

TIERRA DEL FUEGO

USHUAIA

LIMIT OF ARGENTINE LAN

ARGENTINE WAR ZONE

FALKLAND ISLA

BRITISH WAR Z

ELECTRONIC WARFARE TO JAM ARGENTINE COMMUNICATIONS

HARRIER
VTOL supersonic strike planes. Arms include Sidewinder & Harpoon missiles, Aden cannons, electronic warfare pods and cameras.
Strike range 290 miles.

INVINCIBLE

HERMES

Hermes and Invincible each carry 8 Harriers and 9 Sea Kings. Ski jump doubles Harrier payload. Defence includes Seacat and Sea Dart missiles.

Broadsword, Brilliant frigates with Exocet and Seawolf missiles, Mk 46 torpedoes, Lynx helicopter with Mk44 torpedoes.

BROADSWORD

ANTELOPE

F170

PLAN

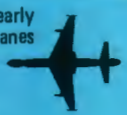
BRITAIN

4 nuclear submarines

2 Type 22 destroyers

2 aircraft carriers (Hermes and Invincible)

3 Nimrod early warning planes



2 assault ships

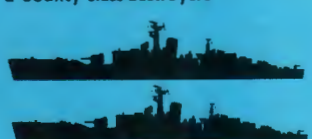
3 Type 21 frigates

3 Type 42 destroyers

32 Sea Harrier VTOL strike planes

2 County class destroyers

Lynx helicopters



18 Sea King helicopters

2 Type 12 frigates

5,000 marines (estimated total, exact figure military secret)

Additional ships not illustrated:

Royal Fleet Auxiliaries:
4 tankers
2 fleet replenishment ships
1 stores support ship
5 landing and logistics ships

Civil ships:
2 troop/hospital ships (Canberra and Uganda)
2 roll-on, roll-off ships
1 maintenance ship
1 freshwater ship
3 salvage tugs
4 deep water trawlers (used as minesweepers)
10 tankers

• ARGENTINA BATTLE PLAN

The first task has already been achieved: invasion and occupation of the Falkland Islands and South Georgia Islands. The next task is to entrench the troops there with tanks, armoured vehicles, mortar emplacements and shore batteries so that they will be difficult to move.

Air superiority must be maintained so that supplies and reinforcements can be flown from the mainland to the airport at Port Stanley.

Argentinian transport planes have been flying into Port Stanley to move as many supplies as possible before the British fleet arrives so that the troops on the islands can withstand a long siege.

At sea, most of the strategy will concentrate on protecting the aircraft carrier *The 25th of May* so that Argentinian strike aircraft can be kept within range of the British Armada. Strategy will centre on maintaining supply lines to troops on the Falkland Islands.

• BRITISH BATTLE PLANS

The Royal Navy must sever the supply lines from the Argentinian mainland to the Falkland Islands. To achieve this, superiority must be won in the air and at sea.

The British forces will probably first try to establish a beachhead on one of the other islands in the region. South Georgia has most often been mentioned. There are an estimated 500 Argentinian troops there.

Once established with a base, additional supplies and reinforcements can be flown in, and the battle for sea and air will begin in earnest. A key target will be the Argentinian's only aircraft carrier. Without it, Argentinian land-based aircraft would have difficulty attacking South Georgia or *Hermes* and *Invincible*.

MISSILES – ROYAL NAVY ONLY

SEAWOLF
Surface to air, close range

SEASLUG
Anti-ship,
anti-aircraft, range 24 miles

BOTH NAVIES

SEACAT
Anti-aircraft, range 3 miles

SIDEWINDER
Air to air, range 2 miles
Also carried by Argentine fighters

SEA DART
Anti-aircraft, range 24 miles

EXOCET
Anti-ship, range 20 miles

At sea, the naval blockade has already started and is being controlled by British nuclear submarines. They will be joined by destroyers, frigates and other submarines to search for the Argentinians' four diesel-powered submarines and the blockade is designed to prevent surface ships from reaching the islands.

The battle in the sky will be fought between Sea Harriers and Argentina's Skyhawks. It will be difficult to win, as the Skyhawks outnumber the Harriers.

With control of the sea and air, the naval force will then try to starve out the Argentinian troops on the islands.

THE FALKLANDS

SOUTH GEORGIA

Chapter 4.
COUNTDOWN

ABOVE: General Leopoldo Fortunatao Galtieri, the new hero of Argentina. But failure in the Falkland Islands could destroy him as quickly as success created him. Galtieri took power in a bloodless palace coup last December. He made his reputation in the 1975-79 war against left-wing guerrillas. He is believed to have decided in December to invade the Falkland Islands this year.

AS HE STOOD on the balcony of the pink presidential palace, tens of thousands of delirious Argentinians below chanted his name.

'Galtieri, Galtieri!' they roared with approval.

Lieut-General Leopoldo Fortunatao Galtieri, Army Chief of Staff and President of Argentina, beamed back and turned from side to side with hands outspread to the crowd.

He was pleased with himself. He had reason to be. He was a national hero. His successful invasion of the Falkland Islands had fulfilled a lifetime dream of all Argentinians and united the country as it had not been united since the heyday of Juan Peron.

Only a week before, the prospects for Leopoldo Galtieri and the ruling military junta he headed were much bleaker. The military had run the country since overthrowing Maria Peron in 1976. For the first five years the gaunt figure of General Jorge Videla ruled. Then General Roberto Viola took the reins for a short nine months in 1981 before being ousted in a bloodless palace coup led by Galtieri in December.

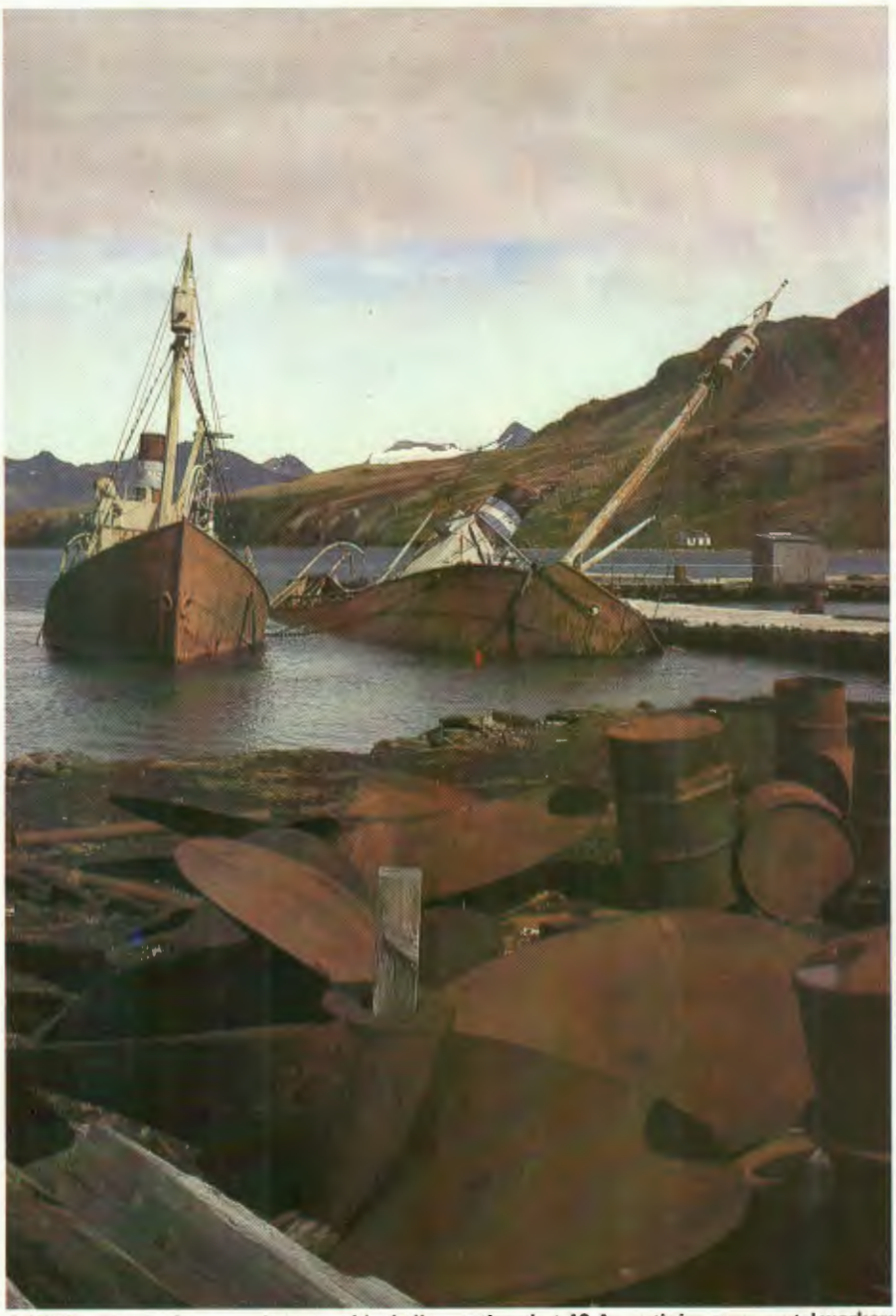
The military had inherited an economic and political disaster from the Perons. The grandiose public projects launched by Juan Peron in the early 'fifties sparked off an inflation run rampant. In 1955 the Argentinian peso stood at five to the dollar. At the end of 1981 you needed 11,000 pesos for every Yanqui dollar.

ABOVE: HMS *Endurance* was Britain's last permanent naval presence in the South Atlantic. The recent decision to withdraw *Endurance* from the region is believed to have encouraged General Galtieri to think Britain would not defend the Falkland Islands if he invaded.

The passions which Peron aroused on the left and right had developed into a bloody guerrilla war between right-wing death squads and left-wing guerrillas called the Montoneros. Both claimed to be the only true Peronists.

The military set out to solve these problems. They stamped on the right and fought a long, no-holds-barred war with the Montoneros. By 1979 it looked as if they had won. But the price was high. According to some estimates up to 15,000 political prisoners simply disappeared into Argentinian jails.

As for the economy, it continued to plummet. In 1981 Argentina had the world's worst inflation – 131 per cent. The gross domestic product plunged by 6.1 per cent.



ABOVE: This is the scrap from an old whaling station that 40 Argentinian scrap-metal workers were after when they landed on South Georgia without visas. When ordered to leave, they refused and raised the Argentinian flag.

ABOVE: The hero of Rhodesia, the villain/ scapegoat of the Falklands. Lord Carrington is recognised as one of the finest Foreign Secretaries Britain has ever had, but a miscalculation on Argentinian intentions cost him his job and Britain the Falkland Islands — and put Britain and Argentina on course for a war.

of the Falkland Islands.

The British were preoccupied with other problems. At home there were three million unemployed Britons and continuing inflation. Defence-wise, Britain was cutting back its fleet and, most significantly, had announced that its last regular patrol vessel in the South Atlantic, HMS *Endurance,* would be withdrawn.

Externally, Lord Carrington had bigger fish to fry. He had solved the Rhodesia problem and was using the prestige gained from that to involve Britain in the more glamorous and vital issues of the Middle East and Afghanistan. On top of that, he had the recurring headache of Britain's contributions to the EEC to occupy his mind and attentions.

President Reagan, reckoned General Galtieri, had been won over by the junta's support for American foreign policy in El Salvador and the offer to protect the South Atlantic from Soviet penetration. The Russians had been won over with Argentinian grain and, besides, they had always supported Argentina's claim to the Falkland Islands.

Latin America also recognised Argentina's claims and the Third World was

There were a record number of bankruptcies, and unemployment was estimated at 13 per cent of the national workforce.

The military was becoming unpopular. Only a week before the invasion thousands of demonstrators converged on the Plaza de Mayo outside the Presidential Palace to protest at the junta's human rights record. Galtieri needed a national cause, to ensure he stayed in power.

A week after the invasion of the Falkland Islands a handful of demonstrators returned to the Plaza to renew their human rights protest. This time they were shouted down by flag-waving, patriotic young Argentinians.

Thousands of other young Argentinians queued outside military recruiting offices to enlist for the fight against the invading British armada. In Cuba, the exiled leadership of the Montoneros pleaded to be allowed to return so that they could join the fight against Britain. Galtieri had found his cause.

Diplomatic sources now believe that General Galtieri decided soon after taking power that the time was ripe for an invasion

ABOVE: Angry mothers demonstrate outside the President's Palace in the Plaza de Mayo, Buenos Aires. Their children are among the estimated 15,000 political prisoners who have 'disappeared' into Argentinian jails since the military took power in 1976. Before the invasion, the 'Mothers of the Plaza' won widespread support during their regular demonstrations. But since the invasion they have been shouted down by patriotic young Argentinians who are more intent on fighting the British Armada than winning human rights.

opposed to colonialism. Britain's friends in Europe posed a problem, but Argentina also had strong links with Spain, Germany and Italy.

Towards the end of January the respected and well-informed Argentinian columnist Yglesias Ruoco dropped a big hint of things to come. Writing in *La Prensa* he predicted a new, urgent, international diplomatic initiative on the islands, after which the world would support the Argentinian government in 'all acts – not exclusive of military acts' to resolve the dispute.

Britain simply did not see the signs in time – or, if it did, the Government believed that talking could forestall an Argentinian military move and a military move by Britain could spark off the very invasion it was designed to prevent.

Galtieri started testing the waters on 15 March when an Argentinian navy ship landed 40 scrap metal workers on the island of South Georgia, one of the Falkland Island dependencies. The men worked for Sergio Davidoff, who had bought the rights to scrap metal from the island's derelict whaling station.

Davidoff had a contract. What he did not have was permission from the British authorities – a visa – to land. The authorities at the island's small settlement at Grytviken demanded that they ask for landing permission or leave.

The Argentinians refused, ran up the Argentinian flag and fired celebratory shots in the air. HMS *Endurance,* not yet withdrawn, was ordered to the island. But instead of evicting the Argentinians, the authorities on board simply repeated the offer to give them visas. Again the Argentinians refused.

ABOVE: Nuclear submarine HMS *Superb*. She was the first to arrive after the invasion and started patrolling a 200-mile war zone around the islands.

ABOVE: Armed and steel-helmeted Argentinian soldier arrests a protester on his way to a demonstration outside the President's palace.

Galtieri clearly interpreted the British response to the South Georgia landing as further proof that the Conservative Government was unable or unwilling to prevent an Argentinian invasion of the Falkland Islands.

He ordered the start of military action which had been planned long before. Under cover of regular joint manoeuvres with the Uruguayan Navy, Argentinian ships moved marines into the South Atlantic. When the signal came from Buenos Aires they broke off from the manoeuvres and steamed full speed ahead for the Falkland Islands.

While the Argentinians moved into the final stages, British intelligence started feeding Whitehall with news of Argentinian military moves. When Lord Carrington and Mrs Thatcher travelled to Brussels for the March 29 EEC summit they 'talked of little else' but the Argentinian threat.

It was decided that Lord Carrington would leave the summit early to return to London. The same day British ships manoeuvring off Gibraltar were ordered to steam towards the Falkland Islands. The nuclear submarine HMS *Superb* was also dispatched to the South Atlantic. Lord Carrington told the House of Lords that if it proved necessary Britain would defend the Falkland Islands.

But despite his fears of Argentinian intentions, Lord Carrington decided that the threat was not imminent enough to delay a long-awaited trip to Israel. So when the Argentinians stormed ashore the British Foreign Secretary was in Israel. His miscalculations cost Lord Carrington his job – and his political career.

At the United Nations, British Ambassador Sir Anthony Parsons claimed that Argentina was about to invade the Falkland Islands. The British Cabinet went into emergency session. President Reagan telephoned General Galtieri and spent 53 minutes trying to change his mind.

At 8.30 in the morning of 2 April 1982, the Falkland Islands were invaded by Argentinian troops.

Chapter 5.
INVASION

ABOVE: British marines are searched and disarmed by Argentinian soldiers.

THE FIRST Argentinians ashore were a handful of frogmen. Their mission: to quietly capture the lighthouse which guarded the entrance to Stanley Harbour. They succeeded.

They were quickly followed by 300 marines, who landed at the Cape seven miles from Port Stanley. The Cape secured, another 400 steamed into Stanley Harbour in landing craft and landed in the town. In addition, more marines and infantrymen were flown in by Sea King helicopters.

Against this force were 79 British marines and the Falkland Islands Home Guard of about 100.

Stands were taken at the lighthouse at Cape Pembroke, at Stanley Airport, and at the marine headquarters, with the toughest and final stand being taken at the Governor's Residence but the hopelessly outnumbered British marines and islanders hadn't a prayer, and three hours after the first landing Governor Rex Hunt ordered his men to surrender.

There was jubilation in Buenos Aires; shame and humiliation in London. Parliament was the scene of angry demands that the 'tin-pot dictatorship' leave British territory. The Opposition Labour Party demanded to know why the Government had not acted sooner and stopped the invasion.

Labour leaders called for the resignations of Defence Secretary John Nott, Foreign Secretary Lord Carrington and Prime Minister Mrs. Thatcher. They got Lord Carrington – probably the finest British Foreign Secretary since the war – along with his deputy Humphrey Atkins and the Minister for Latin American Affairs, Richard Luce.

British defence and diplomatic efforts were thrown into high gear. Mrs Thatcher

RIGHT: Argentinian marines raise their flag Iwo Jima-style over the Falkland Islands.

froze Argentinian assets and ordered the Navy to prepare a fleet for the South Atlantic, and the Queen issued an order allowing the Government to requisition civilian ships. A fleet of 27 ships set sail. These included five requisitioned ships, among them the luxury P&O cruise liner the *Canberra*. In addition to this fleet, four nuclear submarines were dispatched to the South Atlantic.

Britain's first diplomatic effort centred on the United Nations. In the Security Council British Ambassador Sir Anthony Parsons scored a brilliant diplomatic victory with a resolution condemning the Argentinian invasion and calling for a peaceful solution.

Support for the UN resolution and the British position started coming in from all over the world. The French were loud in their condemnation of the Argentinians. So were the rest of the EEC and the White Commonwealth.

Public opinion in the United States very quickly swung behind the United Kingdom, although the Reagan Administration tried to steer a middle course because of Argentina's support for his Latin America policy.

The international support which President Galtieri had depended upon simply failed to materialise. His Foreign Minister, Costas Mendes, responded with the voice of reason. Argentina, he said, was willing to negotiate.

ABOVE: The blue and white Argentinian flag replaces the red, white and blue Union Jack as the symbol of authority and power on the Falkland Islands as they become Islas Malvinas.

But it soon became clear that these negotiations were to exclude the issue of sovereignty. The islands now belonged to Argentina – and that was that.

To underscore this, the Argentinians started flying more troops to the island. Hercules transport aircraft landed at the rate of one an hour, and by the time the British fleet arrived in the area there were up to 10,000 Argentinian troops on the Falkland Islands.

The Argentinians also took the South Georgia Islands, capturing a small platoon of British Marines after a bloody battle, and

ABOVE: The masses of Buenos Aires call for action against Britain as American Secretary of State Alexander Haig meets with General Galtieri to talk peace.

ABOVE: Francis Pym, the new man at the helm of the Foreign Office. Not the most charismatic of figures, but respected on both sides of the House of Commons.

He started off in the present Government as Defence Secretary, but his refusal to cut defence spending brought him into conflict with the Treasury and Mrs Thatcher. He was moved on to become Leader of the Commons.

Within the Conservative Party, Francis Pym is known as a 'Wet' who favours a relaxation of the tight money policy and more public spending.

This Old Etonian has often been mentioned as a future Prime Minister, and many political commentators believe that his move to the Foreign Office will put him next in line for Downing Street should Mrs Thatcher fail in the South Atlantic.

RIGHT: Governor Rex Hunt in full regalia but stripped of his medals as he leaves the Falkland Islands. He has sworn to return and he refused to shake the hand of the Argentinian military commander when he left.

moved Argentinian troops into defensive positions there.

An Argentinian military governor was appointed for the Falkland Islands. He is General Mario Benjamin Menendez; a man who speaks little or no English. The islanders were ordered to drive on the right and threatened with 60 days jail if they showed disrespect to Argentinian symbols of authority – such as the blue and white flag.

But the Argentinians also held out a carrot to the islanders. They promised investment in the islands and some of the luxuries of twentieth century life – such as television.

Some islanders came out and told the press that there were signs that the 1,800 residents were now ready to become Argentinians, and they certainly did not want Britain to invade.

Governor Rex Hunt, now back in London, dismissed these reports. Such islanders, he said, were unrepresentative of the population as a whole, whom he knew were determined to stay British.

And the British government was determined to stick to its policy of self-determination. Mrs Thatcher, too, was prepared to talk – but not until the Argentinians had withdrawn from the islands. The Falkland Islands were British.

To underscore this, Defence Secretary John Nott announced that from dawn on Easter Monday there would be a 200-mile war zone around the Falkland Islands and any Argentinian ship that strayed into those waters would be shot at by a British nuclear submarine.

Into this dangerous impasse stepped the mediator – American Secretary of State Alexander Haig.

ABOVE: A defeated British Marine is marched off hands on head.

RIGHT: An Argentinian soldier doffs his helmet in the church at Port Stanley. On the left the Union Jack still hangs.

Chapter 6.
THE YANKS

PRESIDENT REAGAN had a big problem. He saw before him the nightmare of a shattered American foreign policy in Latin America and in Europe.

Two of his closest allies in both regions were preparing for war against each other, and both were calling for his support. Failure to support either side would have far-reaching consequences.

There was no doubting the special relationship between Britain and America; a shared culture, history and language. They had fought side by side in two world wars and in Korea. They were both members of NATO. Britain was the strongest supporter of America's global foreign policy. The two countries' intelligence services worked hand in glove together and so did their respective defence forces.

On top of that, American public opinion was solidly behind Britain. Americans instinctively distrust military juntas, dislike unprovoked invasions and love Britain.

But then there was no doubting the importance of Argentina in the American scheme of things. The military junta may have been shunned by the Carter Administration for its human rights record, but it was courted by the Reagan Administration for its anti-communist position.

ABOVE: Alexander Haig — Vietnam hero, Nixon aide, NATO Commander and finally US Secretary of State. An intensely ambitious man with presidential aspirations, he is the architect of America's unpopular stand in El Salvador. Argentina's support for the US Latin American policy has forced him to steer a public middle course. Privately he supports Britain, but fears Soviet intervention. Like Carrington, Alexander Haig's political career could collapse in the South Atlantic.

The Reagan Administration, in particular Secretary of State Al Haig, had decided to make a stand against communist penetration in Latin America. It was decided

ABOVE: From luxury liner to troopship. A week before the invasion the *Canberra* was cruising with high-paying passengers. Now she is heading south with marines in full combat gear. The Promenade Deck and ballroom floor are now used for training. Marines have been told to remove boots when walking on the carpets.

***Canberra* was fitted out to take 3000 passengers. But the marines on board her now are not there for luxury, so about 5000 have been squeezed aboard. The exact figure is a military secret.**

Once *Canberra* is in the South Atlantic she will be used as a hospital ship. Workmen sailed with her to convert the liner for her new role as she steamed south.

The *Canberra* is owned by P&O Shipping, who say that passengers who have made advance bookings on the cruise ship have been understanding about cancellations. Most of them will go on the even more luxurious liner *Sea Princess*.

The *Canberra* is captained by Royal Navy Reserve officer Dennis Scott-Masson, who was eager to see Royal Navy service again. Most of the liner's crew also volunteered to stay on for the South Atlantic, including women.

P&O has another cruise ship — the *Uganda* — drafted into the Armada. A party of schoolchildren aboard her for an educational Mediterranean cruise had to cut short their trip of a lifetime so that the *Uganda* could sail to Gibraltar to be fitted out as a second hospital ship.

SOVIET SHADOW

As with most international crisis, the shadow of the Soviet Union looms large in the background. The Argentinians had counted on Soviet support for the invasion.

The Soviet Union had in the past always supported the Argentinian claim to the islands, but Moscow is always careful not to identify itself too closely with aggression. So when the British forced a vote in the United Nations Security Council condemning the Argentinian invasion the Soviet Union disappointed Buenos Aires by only abstaining.

But since then the Russians have made up for their initial reluctance by attacking British colonialism and re-stating their support for Argentina's claims.

And for their part the Argentinians have courted Russian favour by signing an agreement for joint Argentine-Soviet exploitation of oil resources round the Falkland Islands.

The Argentinians have has a long strange relationship with Moscow. The Argentine is a right-wing dictatorship, but when President Carter imposed his grain embargo on the Soviet Union the Argentinians happily stepped in and bailed out the Russians.

The Soviet Union is now Argentina's biggest trading partner. And if the EEC ban on Argentinian imports holds, Buenos Aires will become even more dependent on the Soviet Union.

ABOVE: This is the first and probably last Royal Navy mission for HMS *Invincible*. Britian's newest aircraft carrier has been sold to Australia for £175 million.

She is the first of three new light aircraft carriers built for the Royal Navy by Vickers. The second one, *Illustrious,* is now undergoing sea trials and will soon be commissioned. The Royal Navy has speeded up the final trials because of the Falklands Crisis.

The plan is that *Invincible* will go to Australia when *Illustrious* is commissioned. But the present crisis may delay that.

Invincible carries eight Sea Harriers and about 10 Sea King helicopters. Protection includes Sea Dart missiles. Total length of the *Invincible* is 650 feet. She weighs 19,500 tons with a full load and can reach a top speed of 28 knots.

RIGHT: HMS *Hermes:* The flagship of the British Armada. Normal complement is five Sea Harriers and nine Sea Kings. But extra aircraft have been brought on board.

The *Hermes* is best known for her distinctive ski-jump which makes her look as if she was punched in the bow with a giant fist. But this ski-jump means the versatile Sea Harriers can get up into the sky faster than any plane, and in a battle that could be vital.

With a full load HMS *Hermes* weighs in at 28,700 tons. Protection includes Seacat missiles and top speed is 28 knots.

She is not a young ship. Commission date was 18 November 1959. But HMS *Hermes* has undergone several refits since then.

BELOW RIGHT: Thousands crowded the quayside to watch the armada sail out of Portsmouth harbour with crews and equipment on deck. The Argentinians were meant to see these pictures in the hope that this show of British naval strength and popular support would bring them to the negotiating table.

ABOVE: The pride and joy of the Argentinian Navy and target number one for the Royal Navy. This is the aircraft carrier *Veinticinco de Mayo* or *'25th of May.'*

As long as this floating airport is at sea, British strategy is at risk. It is perhaps ominous for the Argentinians that the *25th of May* spent her first week after the invasion in port with engine trouble.

Ironically, the Argentinian carrier, started life as a British ship – HMS *Venerable* – 40 years ago. After the war she was sold to the Dutch who in 1969 sold her to Argentina.

A total of 455 feet long and weighing 19,896 tons with a full load, *The 25th of May* carries the formidable US-built Skyhawks and the British-built anti-submarine helicopter Sea King.

LEFT: HMS *Broadsword* is one of the Royal Navy's newest destroyers. She is the first of her class and was commissioned in May 1979.

She can carry two Lynx helicopters equipped with Sea Skua air to surface missiles. *Broadsword* is also armed with Sea Wolf and Exocet missiles.

Top speed is 30 knots and fully loaded *Broadsword* weighs in at 4000 tons.

BELOW LEFT: HMS *Coventry* is one of 14 Sheffield class of Type 42 destroyers in the Royal Navy.

Her fully-loaded tonnage is 4100 tons and top speed is 29 knots.

The *Coventry* is designed to provide area air defence for a task force. It has one Lynx helicopter on board with air-to-surface Sea Skua missiles which are particularly effective against fast patrol boats. The Argentinians have reportedly managed to get some of their fast patrol boats past the submarine blockade of the Falkland Islands.

The *Coventry* is also equipped with Sea Dart missiles.

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to make that stand in El Salvador.

The decision was unpopular in Europe and among a number of Latin American countries. The human rights record of the Duarte regime in El Salvador was appalling, and recently an even more right-wing government was elected.

President Reagan, Secretary of State Haig and American foreign policy were up against the wall over El Salvador. Anyone who supported them there was a friend indeed. Argentina gave full support. It even sent military advisers to help in the fight against leftist guerrillas.

On top of that, the military junta offered themselves as a bulwark against Soviet penetration of the vulnerable South Atlantic, making them a vital element in the oft-rumoured American proposal for a South Atlantic Treaty Organisation (SATO) to complement NATO.

Argentina had one more card up its sleeve to show the Americans: the 1947 Rio de Janeiro Treaty of Inter-American Reciprocal Assistance. This treaty is signed by all the states in the Western Hemisphere and binds all the other signatories to come to the assistance of any of them if they are attacked by a country from outside the Western Hemisphere.

The United States does not recognise Argentina's claim to the Falkland Islands, so if Argentina claims that a British counter-invasion of the islands is an attack on Argentinian territory and invokes the Rio Treaty accordingly, the Americans can avoid going to war against Britain.

But the rest of Latin America *does* recognise the Argentinian claim, and, although there is unease about the invasion and larger Argentinian ambitions, some at least would consider themselves bound to support the military junta.

Public opinion and the close transatlantic links would probably swing America closer to Britain. Mrs Thatcher has made it clear that she expects nothing less than full American support. The United States then finds itself lined up with Britain against a Latin America that it is trying to protect from communist penetration.

The openings and opportunities for the Soviet Union in the Western Hemisphere would be enormous and virtually impossible for Moscow to ignore.

It is not surprising that President Reagan quickly declared the Falklands an international crisis and dispatched Mr Haig to London and Buenos Aires to mediate and try to stop an Anglo-Argentine clash which would be disastrous for America.

Shuttling back and forth, Mr Haig put forward a number of ideas to both sides. There was the revived lease-back proposal; the condominium, both Anglo-Argentine and Anglo-American-Argentine; the peacekeeping force with a variety of constituent troops, and a number of other variations on themes.

But each time Haig the mediator put forward an idea it was knocked down by one or the other side. The problem was that Argentina refused to accept anything short of Argentinian sovereignty over the islands, and Britain refused to accept the loss of her sovereignty over the islands and would not seriously negotiate this issue or withdraw her fleet until the Argentinian troops were withdrawn.

It isn't difficult to arouse national passions. A war will do it every time. The trick lies in controlling those passions; in not becoming a hostage of them.

General Galtieri very quickly became a hostage of the national passions he aroused when his troops invaded Las Islas Malvinas. Before the invasion his rule was in trouble. After it, he was a hero. Galtieri's popularity – his mandate to rule – is based almost entirely on the invasion of the islands and Argentinian sovereignty over them.

If General Galtieri withdraws his troops and returns sovereignty over the islands to Britain, then the same national passions which raised him to his pedestal will cast him down.

Mrs Thatcher's political future is also tied to the Falkland Islands. For her, it is a matter of honour and pride. The British Government was caught napping by a 'tin-pot dictator'. As a result it lost one of the finest foreign secretaries Britain has had for a long time.

The Opposition has already loudly called for the resignation of Mr Nott and Mrs Thatcher. Failure to reach an 'honourable' settlement will certainly lose the rising Mr Nott his job, will probably lose the Prime Minister hers as well, and will probably bring about the collapse of the Conservative government.

A war, or a major international crisis, has another consequence. It rapidly polarises opinion. In Britain this polarisation has squeezed out the infant SDP-Liberal Alliance just when it was beginning to walk.

The formerly demoralised Labour Party made big gains with its attack on the Conservative diplomacy, even if the Opposition is split on how to react to the Argentinian invasion. Labour is in its best position since 1979 to win a general election should the Conservative government fall over the Falklands Crisis.

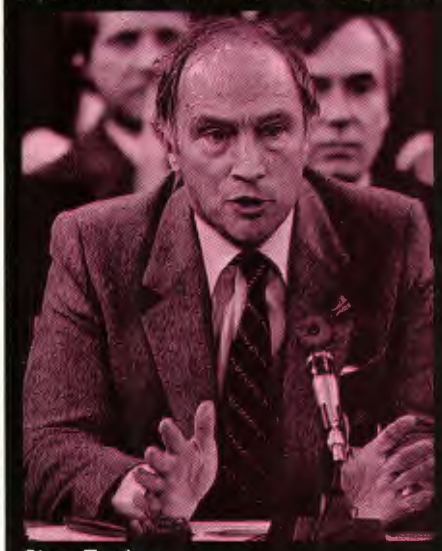
The political future of General Galtieri and Mrs Thatcher depends heavily on the outcome of the Falklands Crisis. So too could the future political direction of their countries.

REST OF THE WORLD

British diplomacy may have failed to stop an invasion, but since then it has done a good job in marshalling world opinion and support behind the British cause.

The biggest win has been Britain's partners in the EEC. After some initial dithering all of the other Nine Governments agreed to impose a ban on Argentinian imports.

This will hit the Argentinians hard. They export about £100 million worth of goods a year to Community countries – over a quarter of their total trade. Some EEC countries such as Italy and Germany are making a big sacrifice with this ban.



Pierre Trudeau

The EEC countries were also among the first to condemn the invasion. France led the way here and they quickly imposed a ban on arms exports to Argentina.

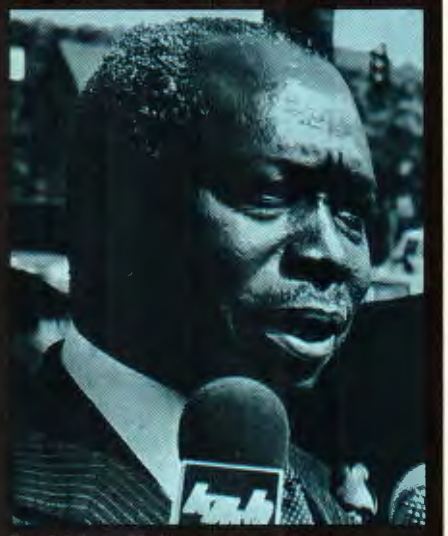
The White Commonwealth also rallied quickly to Britain's side. Canada recalled its Ambassador to Buenos Aires and stopped an arms sale to Argentina. New Zealand and Australia both offered full support to Britain.

The African countries took their lead from Kenya's President Arap Moi, current chairman of the OAU, who registered his deep concern at the invasion and called for a peaceful settlement. The Argentinians had counted on the Africans' loathing of colonies to win them over. But there is a general respect among Britain's former African colonies for Britain's policy of self-determination in shedding former colonies. At the same time, the Argentinian junta's close links with South Africa have tarnished its image in Black Africa.

François Mitterrand

Helmut Schmidt

Latin America is the only region which has supported the Argentinians, although most of the countries made it clear that they disapproved of the use of force.



Daniel Arap Moi

The Latin Americans have a split approach to the problem. They oppose European colonies in the Western Hemisphere. But Peron's attempts to export his ideology to the rest of Latin America and long-standing Argentinian claims elsewhere have left Latin America frightened of anything which encourages Argentinian nationalism and increases the chances of Argentinian hegemony in the region.

Chapter 7.
COUNTING THE COST

THERE IS no doubt about it. Naval experts give the edge to Britain in a naval battle with Argentina in the South Atlantic.

That is not to say that the Argentinians don't have a prayer and the British fleet is without problems. The armada has big problems – the biggest being that it will be 8,000 miles from home.

And the Argentinians have some things going for them. Home with all its fuel, supplies and reinforcements, is only 500 miles away from the Falkland Islands and within reach of their fighter bombers.

In addition, by the time the British fleet arrives in the South Atlantic, there will be up to 15,000 Argentinians entrenched on the Falkland Islands. It will take a lot to move them.

ABOVE: The Argentinian Air Force will be the biggest threat to the Royal Navy. Arrayed against the British will be 68 US-built Skyhawks, 43 Mirage fighters and nine Canberra long-range bombers.

What impresses the naval experts about Britain's chances is the ability of the Royal Navy. It is a first-class professional service, equipped with some of the best fighting equipment of the world. Of particular importance are four Hunter killer nuclear submarines patrolling the 200-mile war zone around the Falkland Islands.

The line-up goes something like this. In the first week, the British fleet had 27 ships and four submarines available. Of these 27 surface vessels there were 12 fighting ships,

ABOVE: Navy pilots aboard HMS *Hermes* go through last-minute exercises with Sea Harriers and Sea Kings as the carrier steams south to the Falklands.

ABOVE: As HMS *Hermes* heads south, Royal Marines go through their exercises for a possible assault landing.

five landing ships, two fleet oil tankers, three supply ships and five requisitioned civilian ships.

The fighting ships include the carriers *Hermes* and *Invincible* equipped with the fast and versatile Harrier jump jet and the Sea King helicopter with its troop-carrying and torpedo-firing capacity.

There is also the assault ship *Fearless*, the light cruisers *Antrim* and *Glamorgan*, the frigates *Arrow*, *Alacrity* and *Antelope*, the 'super' frigates *Broadsword* and *Brilliant* and the landing ships *Sir Galahad*, *Sir Geraint*, *Sir Bedevere*, *Sir Percival* and *Sir Tristram*.

Against this fleet is all of the Argentinian navy – but it is clearly out-classed. There is one 40-year-old British-built aircraft carrier; two 10-year-old and two 40-year-old diesel electric submarines; one 44-year-old ex-American cruiser; nine destroyers, of which only two (British-supplied) are less than 37 years old, and two modern French-built frigates.

But where the Argentinians have the potential to score is with their air power. There are 43 Mirage fighters based near

ABOVE: A Sea King helicopter hovers over the deck of the carrier HMS *Hermes* as she heads for the Falklands. On deck is a Sea Harrier.

Buenos Aires; 68 US-built Skyhawk bombers at San Luis and nine Canberra long-range bombers at Parana. These give the Argentinian air force an air attack range of about 700 miles. And against this force there are only 18 British Sea Harriers.

The most likely course of action for the British fleet is to sink, disable or blockade Argentina's only aircraft carrier; then to keep the fleet either out of or on the outer limits of the Argentinian air force.

But this leaves the British without a vital land base in the region. Its nearest such base is Ascension Island – 3,500 miles away from the Falkland Islands.

ABOVE: The City of London – first casualty of the Falklands Crisis? The Government decision to freeze £2,000 million in Argentinian assets in London has made other countries think twice about depositing their money here. The international status of the City of London is one of Britain's biggest money earners.

ABOVE: Sea Harriers and Sea Kings exercise on the deck of HMS *Hermes* as the carrier steams south. These two aircraft will be the vital air arm of the task force and it will be their job to win and maintain air superiority.

The Sea Kings will have additional tasks. They are equipped with sonar equipment for searching out submarines and are armed with air-to-sea missiles. They could also be used for ferrying troops.

The Sea Harrier is one of Britain's major contributions to the aerospace industry. It is what is known as a VTOL (Vertical Take-Off and Landing) aircraft. It can take off and land straight up and down as if it were a helicopter. This is vital on the deck of an aircraft carrier and, on land, it means that the aircraft needs only a small patch of land, not an expensive airstrip.

The Sea Harrier will be used in straight dogfights with the American-built Skyhawks of the Argentinian Air Force. The Harrier has the advantage, despite being outnumbered. It takes just two minutes to take off and climb to 40,000 feet. At 750mph it would take just six minutes to intercept a Skyhawk 35 miles away. Both planes are equipped with identical heat-seeking Sidewinder missiles, but the Harrier will be an elusive target for the Skyhawk to track down. With its vertical thrust, the Harrier can literally jump out of the path of an attacking Skyhawk.

ABOVE: An excited Costa Mendes, Argentina's Foreign Minister, arrives in Washington to call for support from his fellow Latin Americans. Senor Mendes has had a tough fight on the diplomatic front since Britain won the UN Security Council vote condemning the Argentinian invasion.

So the British fleet is likely to try and establish a beachhead on one of the smaller islands in the region – possibly on South Georgia, where the troubles started and where there is now an Argentinian force, but one not as big as on the Falkland Islands.

On South Georgia, Britain could build an airstrip from which fighter bombers could attack the invasion force on the Falkland Islands and any air transport from the mainland to the islands. At the same time, the nuclear submarines would maintain a naval blockade of the islands.

Such a situation could develop into a naval and economic war of attrition. And, although Britain has its economic problems, it is far better equipped to win such a showdown.

British businessmen and bankers are seriously worried about the effect a clash with Argentina will have on the British economy. Already the City of London's status as a safe financial haven has been severely damaged by the Government order to freeze Argentinian assets.

The pound has also taken a beating on foreign exchange markets, and it looks as if Mrs. Thatcher's anti-inflation policy may be in danger. The government is likely to raise interest rates or taxes to try and save the tight money policy and hold the lid on inflation.

Then there is the cost of the operation. The defence budget this year is £12.5. billion. There is a contingency reserve of £2.4 billion, but that could quickly disappear if there is any fighting.

For instance, a Harrier jump jet costs about £2,000 a day to run, and to fire one tigerfish torpedo is £500,000 worth of equipment lost out of the torpedo tubes. And if the Argentinians are successful in sinking British ships then the cost could quickly run into billions.

However, the possible headaches that Chancellor of the Exchequer Sir Geoffrey Howe could face are nothing like the ones being faced already by Argentinian Economics Minister Roberto Alemann.

He had hoped this year to bring Argentinian inflation to below 100 per cent with a tight money policy à la Thatcher. As part of this he had proposed a 10 per cent defence cut. This is out of the question now.

The invasion and occupation of the Falkland Islands has already cost the Argentinians an estimated £500 million, and Senor Alemann has suspended all foreign exchange transactions to prevent a run on the Argentinian peso.

The Argentinian economy has already been hit by the British success in securing an EEC ban on Argentinian imports. Those imports are worth an estimated £1,000 million a year to Argentina, over a quarter of their total trade.

But the Argentinians do have one final ace up their sleeve. That is the presence of 1,800 British subjects on the Falkland Islands and the large Anglo-Argentine community on the Argentinian mainland. These people are, in effect, hostages. In Argentina there have already been bomb threats against leading Anglo-Argentines, and they fear that if Britain uses force to regain the islands their lives and property will be in danger.

PRINCE ANDREW – the Sailor Prince. The 22-year-old Royal is on HMS *Invincible* as a Sea King helicopter pilot.

He could see action by either ferrying landing troops or searching for and destroying submarines with the Sea King's special sonar equipment and air-launched homing torpedoes.

Andrew followed in the footsteps of his father and elder brother when in 1979 he signed on for 12 years' training and service.

He trained at Dartmouth, Gosport, Portsmouth, RAF Leaming in Yorkshire and RNAS Culdrose in Cornwall. He won his green beret after marine commando training and was named best pilot in his course at Culdrose.

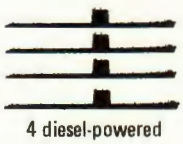
Last September Prince Andrew was promoted from Midshipman to Acting Sub-Lieutenant. On 27 October he joined the A20 squadron aboard HMS *Invincible*.

ABOVE: 'Good luck' from sailors to sailors. These lads are safe ashore for the time being.

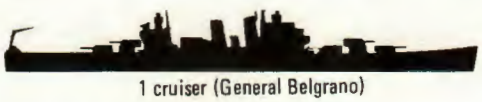
THE FALKLANDS CRISIS

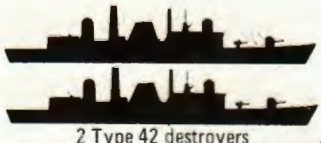
ARGENTINA


3 A-69 corvettes


4 diesel-powered submarines


1 aircraft carrier (The 25th of May)

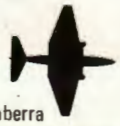

1 cruiser (General Belgrano)


2 Type 42 destroyers


14 light helicopters


2 Fletcher Type destroyers


1 Gearing Type destroyer

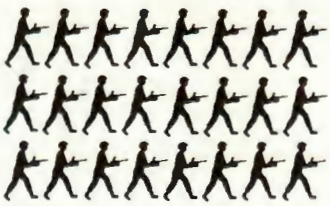

9 Canberra long-range bombers


3 Sumner Type destroyers


43 Mirage fighters


68 Skyhawk bombers


25 armed helicopters


10,000 troops on Falkland Islands (plus tanks, armoured cars, mortar emplacements and shore batteries)

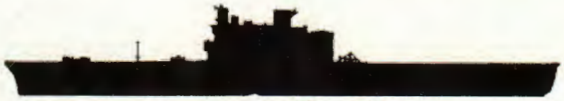

1,000 troops on South Georgia

Not illustrated:
150,000 troops on mainland

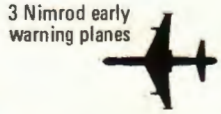
BRITAIN

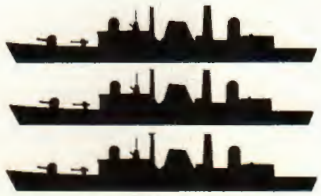

4 nuclear submarines


2 Type 22 destroyers


2 aircraft carriers (Hermes and Invincible)


2 assault ships


3 Nimrod early warning planes

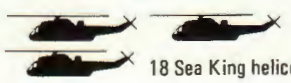

3 Type 42 destroyers


3 Type 21 frigates


32 Sea Harrier VTOL strike planes


2 County class destroyers


Lynx helicopters


18 Sea King helicopters


2 Type 12 frigates


5,000 marines (estimated total, exact figure military secret)

Additional ships not illustrated:

Royal Fleet Auxiliaries:
4 tankers
2 fleet replenishment ships
1 stores support ship
5 landing and logistics ships

Civil ships:
2 troop/hospital ships (Canberra and Uganda)
2 roll-on, roll-off ships
1 maintenance ship
1 freshwater ship
3 salvage tugs
4 deep water trawlers (used as minesweepers)
10 tankers

The Coalition for Peace
Through Security
Fourth Floor
27/31 Whitehall
London SW1A 2BX
Tel.: 01-839 3951

Reference Services
Central Office of Information, London

The Falkland Islands and Dependencies

The Falkland Islands and its Dependencies were illegally invaded and occupied by Argentine military forces in early April. The British Government has no doubt of its sovereignty over the Islands, which have been continuously, peacefully and effectively occupied by Britain since 1833; and, in seeking a solution to the dispute, Britain has emphasised that it will not support any transfer of sovereignty against the wishes of the Falkland Islanders. This paper provides background information on the Falkland Islands and Dependencies together with a brief history of the dispute with Argentina. It was prepared before the Argentine invasion and is issued for general reference purposes.

THE FALKLAND ISLANDS

Situated in the South Atlantic, the Falkland Islands lie about 772 km (480 miles) north-east of Cape Horn. They consist of about 200 islands, the largest being East Falkland and West Falkland, and their total land area is some 12,173 sq km (4,700 sq miles).

The People

The 1980 census showed a population of 1,813 of which 1,360 were born in the Islands and 302 in Britain. Most can trace their origins in the territory back to the nineteenth century. Although rising to a peak of 2,392 in 1931, population has declined ever since. The birth rate per 1,000 in 1980 was 17·25 and the death rate was 4·85 per 1,000. Stanley, the capital, with a population of 1,050 in 1980, is the only town: elsewhere the largest settlement is Goose Green (95 people) on East Falkland. English is the language of the Islanders. There are Anglican, Roman Catholic and Non-conformist churches.

Physical Features

The coastline is deeply indented and affords many good anchorages. There are no inland waters. The surface is generally hilly except in Lafonia, the southern half of East Falkland; the highest points are Mount Usborne (705 m – 2,312 ft) in East Falkland and Mount Adam (700 m – 2,297 ft) in West Falkland. Much of the upland is comparatively bare of vegetation and consists of eroded peat, scree and stone runs – 'rivers' of angular quartzite boulders. Because of the climate there are few trees, the natural vegetation being grassland with some species of heath and dwarf shrubs. Bird and marine mammal life – geese, penguins, seabirds and seals – is diverse and relatively unspoiled. There are no native land mammals.

Climate

The climate is characterised by a narrow temperature range, strong winds, a fairly low rainfall evenly distributed throughout the year and frequent cloud cover. Snow has been recorded in every month of the year except February, but seldom lies for long. Climatic figures for Stanley are:

Mean annual temperature	5·6°C (42°F)
Mean annual wind speed	17 knots
Mean annual rainfall	635 mm (25 inches)
Annual maximum temperature around	21·1°C (70°F)
Annual minimum temperature around	−5·6°C (22°F)
Average annual sunshine	1,640 hours

History

The Falkland Islands were probably first sighted by the English captain John Davis in 1592: other sightings were by Sir John Hawkins in 1594 and the Dutch sailor Sebald de Weert in 1600. The first known landing was in 1690 by Captain John Strong, who gave the Islands their English name after Viscount Falkland, then Treasurer of the Navy. French seal-hunters, who were frequent visitors to the area in the eighteenth century, called the islands 'les Iles Malouines', from the port of St Malo, hence the Spanish designation, las Islas Malvinas.

In 1764 a small French colony, Port Louis, was established by de Bougainville in East Falkland. Three years later the settlement was handed over to Spain on payment of a sum then equal to about £24,000. The Spaniards renamed the settlement Puerto de la Soledad. Meanwhile a British captain, John Byron, had made a comprehensive survey of West Falkland in 1765 and noted the fine anchorage in Saunders Island, which he named Port Egmont. In the following year Byron's subordinate, Captain Macbride, established a British settlement of about a hundred people at Port Egmont. When in 1770 a Spanish force compelled the British settlers to leave, this brought Spain and Britain to the verge of war, but in 1771, after protracted negotiations, the Spaniards handed back Port Egmont to Britain, which re-established the settlement but withdrew it again in 1774 on grounds of economy. The British claim to sovereignty was, however, maintained and, as was then customary, a leaden plaque left, declaring the Falkland Islands to be 'sole right and property' of King George III. The Spanish settlement on East Falkland was withdrawn in 1811.

In 1820 the Buenos Aires Government, which had formally declared its independence of Spain in 1816, sent a ship to the Falkland Islands to proclaim its sovereignty. A settlement was established at Puerto de la Soledad in 1826 under the leadership of Luis Vernet, whom the Buenos Aires Government appointed Governor, despite British protests. Five years later, however, a United States warship, the *Lexington*, destroyed the fort at Soledad as a reprisal for the arrest of three American vessels by Vernet, who was attempting to establish control over sealing in the islands. Captain Silas Duncan, the commander of the *Lexington*, declared the Falklands free of all government and they remained once again without visible authority. In January 1833 a British warship visited the settlement and the British occupation of the Islands was resumed. The Islands were at first put in charge of a naval officer, but in 1841 a civil Lieutenant-Governor was appointed, and in 1843 an Act of the British Parliament put the civil administration on a permanent footing. The Lieutenant-Governor's title was changed to Governor and the first Executive and Legislative Councils were set up in 1845. Although there was a majority of official members in the Legislative Council until 1951, nominated unofficial members played an increasingly important part, and in 1949 members elected by universal adult suffrage were introduced to the Council.

A grant in aid to the settlement was approved in 1841 and continued until 1880. A grant in aid for a mail service continued until 1884-5, since when the territory has been self-supporting. The development of the islands has been closely linked with the growth of the Falklands Islands Company, founded in 1851, which is now the largest landowner and trading company.

Government

The present constitution of the Falkland Islands came into force on 21 November 1977. The government is administered by a Governor assisted by an Executive Council composed of two *ex officio* members, two unofficial members appointed by the Governor and two elected members of the Legislative Council nominated by that Council, and a Legislative Council composed of two *ex officio* members and six elected members.

Elections are by universal adult suffrage, Stanley being represented by three elected members, East and West Falkland by one each, and the other member representing all country districts. In 1977 the voting age was lowered from 21 to 18 years. The last general election took place in 1981.

The Judiciary
The judicial system is administered by a Supreme Court (there is a non-resident Chief Justice), a Magistrates' Court presided over by the senior magistrate, and a court of summary jurisdiction, presided over by a bench of magistrates composed of two or more Justices of the Peace. A Court of Appeal for the territory sits in London.

Defence
The Ministry of Defence maintains a Royal Marine detachment which trains the Falkland Islands Defence Force, a voluntary and part-time local force.

The Economy
The Falklands economy is based almost entirely on sheep farming (about 650,000 sheep). Studies are in hand to improve pastures and methods of sheep farming. Over the past few years the Islands have received substantial aid from Britain for economic development and to build up the dependency's infrastructure.

In 1975 the British Government commissioned an economic study by Lord Shackleton (see p 7) in order to determine the prospects for, and the best means to achieve, the development and diversification of the Islands' economy. The survey team included experts on fisheries, oil and wool, which were regarded as the main areas of potential development. Published in 1976, Lord Shackleton's report recommended a number of major capital projects including the establishment of a tourist industry, the enlargement of the airport, and the development of a fishing industry and offshore oil and gas production.

It is hoped to develop a specialised tourist industry centred around the abundant wild-life. Research has also been carried out into the fishing resources of the territory, for there are stocks of king crab and krill (a small prawn high in protein). Britain recognises that without a political settlement it will be difficult to persuade private enterprise to invest in the Falklands' economy, to declare a 200-mile fishing zone or to explore for or exploit oil.

All land is freehold, except for some 11,370 hectares (28,100 acres) of Crown reserves which can be rented. Most land is divided into a few large farms, and nearly half is owned by the Falkland Islands Company. The Falkland Islands Government has concluded that some of the Islands' large farms can be made more profitable by sub-dividing them and selling the smaller farms to the Islanders and expatriates. One farm is already operating this way and appears to be successful and another is now available for sub-division. No field crops are grown except for a small quantity of oats grown for hay. Most householders grow their own vegetables.

Labour
About half the workforce is employed in sheep farming. In Stanley the largest sources of employment are government and public services, trading and shipping.

The only trade union, the Falkland Islands General Employees Union, has some 500 members. Legislation is in force concerning minimum wages, working conditions, compensation for accidents at work, and providing for arbitration in the unusual event of a labour dispute which cannot be settled by direct negotiation.

Trade
Exports consist almost entirely of wool, hides and skins. The main imports are foodstuffs, manufactured goods, timber and machinery. Most of the external trade of the Falkland Islands is with the United Kingdom; recent trade figures are as follows:

Year	Imports from Britain (£000)	Exports to Britain (£000)
1977	2,387	1,524
1978	2,765	1,499
1979	3,319	2,359
1980	2,846	2,083

Public Finance
Total estimated revenue for 1981-82 is nearly £2·5 million, its main sources being internal revenue (£597,110), posts and telecommunications (£572,942), municipal services (£248,000), investments (£222,010), harbour (£182,800), customs (£180,800) and aviation (£98,244); other revenue amounted to £377,205. Estimated ordinary expenditure was just over £2·4 million, the main items being public works (£598,007 – recurrent and other), aviation (£283,763), posts and telecommunications (£280,316), medical (£269,772), and education (£256,274).

Taxation
Individuals pay a graduated income tax ranging from 22½p in every £ of the first £500 of taxable income to 50p in every £ exceeding £4,500. Companies pay a flat rate of 52p in the £. Import duties are payable on liquor, beer and tobacco.

Agreements are in force with Britain, Denmark, Norway, Switzerland, and the United States under which double taxation is avoided.

Currency and Banking
The currency is local coinage and local £10, £5, £1 and 50p notes which are interchangeable with sterling. Some banking facilities are provided by the Falkland Islands Company, the Stanley Co-operative Society, and the Government Savings Bank. Plans are being made to establish a commercial bank.

Development
In the period from 1976 to 1980 the total amount of British aid was £6·6 million, an average of £735 per head per annum. Several important projects have been financed, notably the electricity power station and the permanent airport at Stanley, opened in 1979. Grants have also been provided towards the costs of constructing a road from Stanley to Darwin, building a secondary school hostel in Stanley, purchasing a land plane and hangar for the internal air service, and rehabilitating plant and establishing storage facilities for the Public Works Department. In 1981 there were 46 professionally or technically qualified people working in the Falkland Islands under the British aid programme, mainly in the education and health services.

Social Welfare

Education
Education is free and compulsory for children between the ages of 5 and 15 years. There is a senior school at Stanley offering secondary education in a limited range of subjects up to the ordinary level of the General Certificate of Education. Because of a recent decision by the Falkland Islands Government to centralise education in Stanley a residential hostel has been built to accommodate pupils from other parts of the territory: the costs are being met from British aid funds. For children wanting to take the advanced level of the General Certificate of Education, the British Government's aid programme finances them in a boarding school in Britain. The few students undertaking higher education courses abroad are also assisted under the British Government's aid programme.

Health
The Government Medical Department is responsible for public health and sanitation in the territory and employs a senior medical officer, two medical officers, a dental officer and ten nursing staff. A flying doctor service is available for outlying farm settlements. The Falkland Islands Government maintains a general hospital at Stanley providing medical, surgical, obstetric

and geriatric care; new X-ray equipment recently installed in the hospital was purchased through funds from Britain.

The commoner ailments in the colony are the common cold, nasopharyngitis, bronchitis, gastro-enteritis and rheumatism in its chronic form.

Social Security

There is a system of family allowances, and two old age pension schemes, one contributory and the other non-contributory, which cover all persons reaching the age of 65.

Libraries

There is a public lending library in Stanley and also a lending library operated by the Education Department. A Camp library scheme provides a postal service designed to bring library facilities to residents outside Stanley.

Communications and Services

A weekly air service links Stanley with southern Argentina. The permanent airfield at Stanley, constructed with the help of British aid funds, opened in 1979 and is designed to take medium-haul aircraft. A small government-owned internal air service (two Beaver float planes and one Islander aircraft) provides the main internal passenger link between Stanley and the rest of the territory, priority being given to medical cases. Other internal transport arrangements are maintained by sea, a commercially owned ship carrying heavy freight and sea mail to the outlying districts and collecting the wool crop. A ship on charter to the Falkland Islands Company makes the round trip to Britain four or five times a year transporting the islands' wool and hide exports, and calls at Mar del Plata in Argentina to pick up freight.

There are about 14 km (8½ miles) of roads in and around Stanley of which almost 9·6 km (6 miles) are macadamised while the remainder consist of rock rubble. Britain is financing the construction of a road between Stanley and Darwin. Unsurfaced tracks connect most settlements on the east and west islands where travellers generally use Land-Rovers, motorcycles or horses, depending on weather conditions. There are about 1,000 motor vehicles in the territory. There are no railways or inland waterways.

Telecommunications

Internal telecommunications and broadcasting are the responsibility of the Posts and Telecommunications Department, whereas external communications are the responsibility of the Cable and Wireless Company. Stanley has a telephone system to which most East Falkland farms are connected, and there is a similar service on West Falkland, centred on Fox Bay. Traffic between the main islands and contact with farms on the smaller islands is by radio telephone. Britain has provided funds to help purchase new and improved transceiver sets. Telephone calls can be made between the territory and Britain, Argentina and most other countries.

Broadcasting and the Press

The Falkland Islands Government runs a broadcasting station at Stanley and there are over 550 radio licence holders. There is also a government-operated wired broadcasting service in Stanley. Periodicals published in the territory, other than the official gazette, are *The Falkland Islands Times* (published monthly), *Penguin News* (monthly) and the *Falkland Islands Journal* (published annually).

Public Utilities

A new electricity power station was completed in the 1970s and supplies power to Stanley. Most farms and settlements have their own private generating plant. A water purification and filtration plant supplies clean water for Stanley. There is scope for wind power generation, hydro-electric and tidal power.

Meteorological Services

Meteorological services for the Falkland Islands are provided by a Government Meteorological Department which has its headquarters in Stanley. The service provides forecasts for shipping and aircraft and undertakes some research into the meteorology of the area.

THE FALKLAND ISLANDS DEPENDENCIES

The Falkland Islands have as dependencies South Georgia, the South Sandwich Islands, the Shag Rocks and Clerke Rocks. South Georgia lies 1,290 km (800 miles) east-south-east of the Falklands, and the South Sandwich Islands some 760 km (470 miles) south-east of South Georgia.

The Dependencies are British dependent territories, but for convenience they are administered by the Falkland Islands Government, which is empowered to legislate for them. A magistrate, who is also the Base Commander of the British Antarctic Survey Station, resides at King Edward Point in South Georgia where there has been a government station since 1909.

The population of South Georgia comprises the staff of the British Antarctic Survey Station at King Edward Point and in 1980 numbered about 20. Sea communications with the island are dependent on Royal Research Ships *Bransfield* and *John Biscoe*. All food is imported and there are no exports.

Those territories south of latitude 60° south which were formerly part of the Falkland Islands Dependencies (the South Orkney Islands, the South Shetland Islands, and the Antarctic Peninsula) together with the sector of the Antarctic continent lying between longitudes 20° and 80° west, were constituted a separate territory in 1962 under the name of British Antarctic Territory. This covers all British territories lying in the area affected by the Antarctic Treaty, which was signed in 1959 and came into force in 1961.

The island of South Georgia has an area of 3,755 sq km (1,450 sq miles) and is some 160 km (100 miles) long with a maximum breadth of 32 km (20 miles). The land is very mountainous, rising to 2,793 m (9,625 ft), the valleys being filled with glaciers, many of which descend to the sea. The climate is not entirely Antarctic, but is very severe, the mountains being largely ice- and snow-covered throughout the year. The only indigenous mammals are seals, but there is a large herd of wild reindeer which were first introduced in 1911.

The South Sandwich Islands consist of a chain of uninhabited, actively volcanic islands some 240 km (150 miles) long. The climate is wholly Antarctic. In the late winter the islands may be surrounded by pack ice. The prevalent westerly storms always make landing difficult.

History

South Georgia was sighted at least twice between 1675 and 1756, but the first landing was that of Captain James Cook in 1775. The South Sandwich Islands were discovered during the same voyage. Thereafter, South Georgia was much visited by sealers of many nationalities, who reaped a rich harvest from the immense number of fur seals and elephant seals which frequented these shores. By 1815, the slaughter of seals had reached such proportions that sealers were beginning to look elsewhere for them.

Whaling began in the twentieth century and grew into a highly specialised industry. The principal development took place in 1903, when C. A. Larsen became the first modern whaling company to establish a shore factory in South Georgia. The industry immediately prospered and continued to expand quickly up to and during the first world war. From the beginning, South Georgia was the most important centre of the industry and shore factories were operated at Grytviken, Leith Harbour, Stromness, Husvik, Godthul and Prince Olaf Harbour. Since the late 1920s increasing use has been made of pelagic factory ships which operate in open ocean throughout the whaling season. After the second world war three shore stations were worked at South Georgia but all shore stations had ceased operations by December 1965. Since then the main economic activity in the Dependencies has been fishing by distant water fishing fleets.

THE DISPUTE WITH ARGENTINA

There is no pressure for independence since the Islanders are united in their wish to remain British despite a claim to sovereignty by Argentina on the grounds that it has succeeded to rights claimed by Spain in the eighteenth century. Successive British Governments have had no

doubt about British sovereignty over the Islands, which have been continuously, peacefully and effectively occupied by Britain since 1833.

The Falkland Islands' position as a non-self-governing territory has been debated by the United Nations. The Islanders' elected representatives have explained the population's wish to retain its association with Britain and not to become independent or associated with any other country. Britain has pointed out that in these circumstances the Argentine claim is contrary to the principle of self-determination.

In 1965 the UN General Assembly approved a resolution inviting Britain and Argentina to hold discussions with a view to finding a peaceful solution to the problem, bearing in mind the interests of the Islanders. Subsequent discussions were pursued between the two Governments through diplomatic channels. In 1969 Argentina offered to discuss a lifting of the ban on direct communications between the mainland and the Islands, and in 1970 special talks opened in London between Argentine and British delegations, the latter including participants from the Falkland Islands. As a result of further talks in 1971 in Buenos Aires, agreements were reached covering air and sea communications, postal services, educational and medical facilities for Falkland Islanders in Buenos Aires, and customs measures.

In 1974 Britain and Argentina signed two further agreements relating to the Falkland Islands: one to facilitate trade and the carriage of goods between the Islands and the mainland, and the other to allow the Argentine state petroleum company to supply the Islands with petroleum products.

The findings of an economic survey of the Islands conducted in 1976 by Lord Shackleton underlined the need for closer co-operation with Argentina. In 1977 the British Government concluded that the time had come to consider whether a new framework of economic and political co-operation with Argentina should be established. After detailed consultation with the Islanders and with Argentina, terms of reference were agreed for British-Argentine negotiations on political relations, including sovereignty, and on economic co-operation in the Falkland Islands, their Dependencies and the south-west Atlantic in general. Parallel working groups were subsequently established to study these two themes in depth, but no progress was made.

A round of wide-ranging but exploratory talks was held with Argentina in April 1980. In February 1981 further talks took place in New York between Argentina and Britain whose delegation included two Falkland Islands' Councillors. Argentina rejected the British proposal for a 'freeze' on the dispute for an agreed period of time during which both sides could co-operate to develop the Islands' resources.

In February 1982 another round of formal talks took place in New York between Argentina and Britain whose delegation again included two Falkland Islands' Councillors. The two sides reaffirmed their resolve to find a solution to the sovereignty dispute and considered in detail an Argentine proposal for procedures to make better progress.

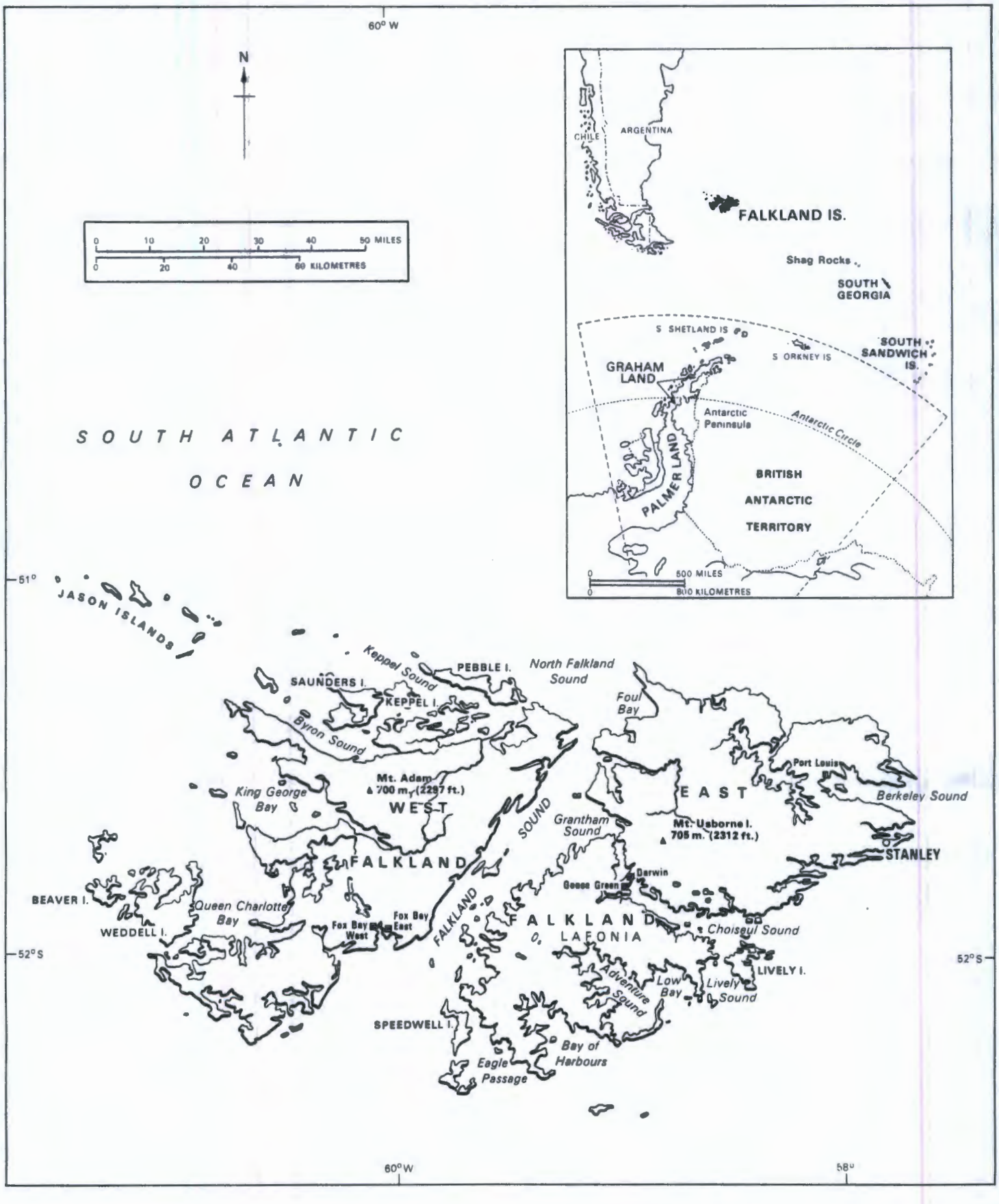
Argentina also claims the Falkland Islands Dependencies. These claims have at different times been based on proximity to Argentina and alleged inheritance of title from Spain. Argentina first claimed South Georgia in 1927 and the South Sandwich Islands in 1948. Britain rejects these claims as being without legal or historical foundation. In 1947, and subsequently, Britain offered to submit the dispute on the Dependencies to the International Court of Justice, and in 1955 the British Government applied unilaterally to the Court for redress against encroachments on British sovereignty in the Dependencies by Argentina and also by Chile. Both countries, however, declined to submit to the Court's jurisdiction in this matter.

FURTHER READING

Information about the Falkland Islands is contained in the annual *Yearbook of the Commonwealth*, published by Her Majesty's Stationery Office (HMSO). The Shackleton Report, *Economic Survey of the Falkland Islands*, was published in two volumes (South America Department, Foreign and Commonwealth Office – £14·50 including postage and packing) in 1976. The second edition of a book by Ian Strange (*The Falkland Islands*, ISBN 0 7153 8133 4, David and Charles, 1981, £8·50) provides an account of the territory's people, geography, history, administration, agriculture and fisheries, communications and natural history.

(*Spanish in preparation*)

THE FALKLAND ISLANDS AND DEPENDENCIES



Coalition for Peace Through Security c/o
Committee to Prevent Nuclear War
413 East Capitol Street, S.E.
Washington, D.C. 20003
(202) 543-1286

May 17, 1982

Mr. Morton Blackwell
Old Executive Office Building
Office of Public Liason
Washington, D.C. 20500

Dear Mr. Blackwell,

I have enclosed some of the materials I received from London recently I thought would be of interest to you. Similar packets of material were distributed to every Congressional office as well as some members of the press.

If I can be of any service or if you know of anyone else who should receive any of these articles please let me know.

Sincerely,

Peter Nassetta

file

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The Flawed Premises Behind a Nuclear Freeze

A dangerous shift has occurred in the public debate over the Reagan Administration's defense planning and spending priorities. Until recently, argument had focused on issues legitimately concerned with national defense, such as the balance between nuclear and conventional emphasis in force structure, whether high technology programs were being over-emphasized at the expense of readiness and force levels, and if the defense industry could efficiently handle an upsurge in production. But the Administration's program is now being attacked on grounds that largely ignore national security considerations. Assertions are being made that it is "unfair" to increase defense spending while social programs are being trimmed, that it is necessary to cut defense spending to help balance the budget, or that the United States is engaged in a mindless arms race that will lead to a global holocaust unless it immediately freezes its nuclear forces at current levels.

The most publicized of these assertions has led to the demand that the United States immediately seek a negotiated freeze of nuclear weapons with the Soviet Union. This demand demonstrates ignorance of over a decade of experience in arms control negotiations with the Soviet Union. It also reflects uncritical acceptance of a series of myths about the role and effects of nuclear weapons. Yet because it exploits anxieties that have been building up among the public since the deterioration of American strength was graphically demonstrated under the Carter Administration, the nuclear freeze movement has been able to gather far more support than might have been expected.

These anxieties are primarily the result of the failure of detente. Three administrations—Nixon, Ford, and Carter —stressed the importance of the detente process in preserving world peace, and hinted darkly at the consequences should domestic opposition blunt their initiatives. Yet it became increasingly obvious throughout the 1970s that detente was not moderating Soviet behavior, that in fact Soviet adventurism was on the increase. SALT in particular failed to live up to the claims made for it, as the Soviet Union continued an unparalleled peacetime military buildup of conventional and nuclear forces.

The idea of a freeze of nuclear weapons superficially is very attractive. By pressing for negotiations with the Soviet Union, it avoids charges of favoring unilateral U.S. disarmament. By not pressing for immediate reductions it sidesteps the critical question of "how much is enough" to assure the security of the United States and its allies. Yet the basic concept of a negotiated freeze, even though it heralds potentially disastrous effects on U.S. foreign and defense policy rests on so many false assumptions.

Officials of the Reagan Administration have admitted the sudden growth of the movement for a nuclear freeze caught them by surprise. Even after several New England townships adopted resolutions endorsing the concept, the Administration failed to react. It was not until Senators Edward Kennedy and Mark Hatfield cosponsored a resolution calling for a bilateral freeze that the Administration was prodded into action.

The Reagan Administration has adopted a strategy of neutralizing the freeze movement by co-opting its rhetoric. For example, in a press conference on March 31st, President Reagan announced his sympathy with the freeze movement's ideals. Although he could not accept an immediate freeze because of the current inferiority of U.S. strategic forces, he hoped that once parity had been established, a freeze followed by force reductions could be negotiated with the Soviet Union. He also endorsed a counter-resolution by Senators Jackson and Warner that advocates a freeze "once parity has been reestablished."

While such tactics may be necessary in the short-run to reduce the impact of the freeze movement on the legislative process, in the long run they could prove counterproductive. What the President must do is counter the tragically mistaken ideas impelling the drive for a nuclear freeze. Key State and Defense Department personnel, as well as informed private citizens, should be mobilized to communicate the President's position. In particular, the flawed premises behind the movement for a nuclear freeze, especially the notions that Mutual Assured Destruction is the only possible strategy in the nuclear era, that we are locked into a spiraling arms race, and that a freeze would lead to international stability, should be clearly and vigorously rebutted.

MUTUAL ASSURED DESTRUCTION

The basic assumption held by proponents of a nuclear freeze is that the only conceivable role for nuclear weapons is to deter a massive attack on the U.S. population by threatening a similar attack on the Soviet Union. This policy is termed "Mutual Assured Destruction (MAD)." Less-informed members of the movement believe that this is the targeting policy of the United States, and can see no motive for any strategic force upgrade other than a mind-

less desire to accumulate weapons. The more sophisticated freeze advocates argue that as a result of uncontrollable escalation and incalculable collateral damage, it is impossible to limit the use of nuclear weapons in any meaningful way. Any talk of doing so is dangerous nonsense that could precipitate the very nuclear conflict it is meant to avoid.

The emphasis MAD advocates place on threatening whole populations with destruction in the name of strategic stability is highlighted by their rejection of any efforts to protect the American public from the effects of a nuclear attack, and their obsession with "overkill." They perceive both civil defense and anti-ballistic missiles as provocative, for a number of reasons:

- such programs would give the American people a false sense of security, and hence remove pressure on the government for meaningful arms control;
- the government could be encouraged into dangerous confrontations with the Soviet Union in the belief that the United States possessed immunity from the worst effects of a nuclear exchange;
- the Soviet Union, feeling threatened by the erosion of its deterrent capability in a crisis, might try to salvage the situation by preemption.

While less-informed members of the freeze movement will talk loosely of there being enough destructive force in the arsenals of the superpowers to kill the earth's population twenty, or forty, or a hundred times over, its more sophisticated members will concede that this is technically inaccurate. But they argue that overkill is a serious problem, that the United States possesses far more nuclear weapons than are needed to kill enough Soviets to deter their leaders. Thus, the notion of gaining military advantage with additional nuclear weapons, much less establishing strategic superiority, strikes them as ludicrous.

The fundamental mistake with MAD is its assumption that targeting populations is desirable to establish deterrence. Deterrence works only when it is backed by a credible threat, and the mutual suicide implicit in MAD does not qualify. In fact, neither the Soviet Union nor the United States has ever made civilian populations its primary target. Both nations have the ability to attack a wide variety of targets, including industry, stockpiles, military installations, communications centers, and command bunkers. In order to effectively deter the Soviet Union, the United States must possess enough warheads to survive a Soviet attack, and enough flexibility to threaten whatever range of targets is necessary to blunt a Soviet military thrust. That the United States possesses thousands of strategic nuclear warheads and has identified tens of thousands of potential targets does not mean that all the weapons would be used in a single, simultaneous strike. It is because the United States cannot predict how much of its force would survive a Soviet attack or what Soviet targets would be the most important to threaten in any specific conflict, that large nuclear forces are deployed.

A SPIRALING ARMS RACE

The second unwarranted assumption nuclear freeze proponents make is that the United States and the Soviet Union are locked into a dangerous, costly, and futile arms race. The theory behind this supposition is that major weapons programs initiated by the United States prompt the Soviet Union to acquire comparable or superior weapons systems. The American military establishment, in turn, analyzes the worst case implications of Soviet reaction. Then it demands still more weapons, often with much greater capabilities than needed. This action/reaction arms race, its proponents go on to argue, is enormously destabilizing because of the tensions produced by the competition, and because of the fears each nation feels about falling behind.

The freeze advocates accept this theory, and fault the Reagan Administration for greatly aggravating this cycle. They are disturbed by what they consider unjustifiable increases in defense spending, and official statements they interpret as indicating the Reagan Administration has few inhibitions against rapidly escalating to the use of nuclear weapons in the event of a conventional war. They also fear that the U.S. is planning a first strike, and see as evidence the procurement of weapons systems such as the B-1 bomber, MX missile, Pershing II medium range missile, ground-launched cruise missiles, and additional numbers and types of warheads.

What is remarkable about this arms race model is that the trend it describes is the exact opposite of what is now underway. The pattern instead, as shown in the chart below, has been a steady decline in the U.S. strategic nuclear force, especially in survivability and total force levels, in contrast to a massive increase in Soviet strategic forces aimed at achieving a preemptive capability. When making charges about the United States engaging in an arms race, or about the Reagan Administration "accelerating the arms race," freeze advocates ignore:

- The United States froze the ceiling of its deployment of strategic nuclear launch vehicles in 1967. Since then, their numbers have declined substantially, mostly as a result of aging B-52 bombers being retired from service, but also in the ICBM and submarine forces. Meanwhile, the Soviet Union has massively increased its forces in both numbers and kinds of systems.

Unilateral Cutbacks in U.S. Strategic Forces Since 1975*

1983 (planned)	54 Titan II missile launchers scheduled for deactivation
1981	Planned MX deployment of 200 missiles halved—no basing mode chosen
1980-81	10 Polaris submarines with 160 SLBMs deactivated
1977-82	Trident submarine construction cut back and delayed; Trident II missile development postponed
1977-81	ALCM, GLCM, SLCM production delayed and cut back
1979	400 Hound Dog cruise missiles deactivated
1978	SRAM production line closed
1978	Minuteman III ICBM production line closed—100 missiles cancelled
1977	250 B-1s cancelled. (In 1981 the decision was partially reversed, with 100 B-1Bs ordered.)
1975	Single U.S. ABM site deactivated.

*Since 1967 the number of strategic launchers has steadily declined due to attrition. The above chart does not include the much larger number of tactical nuclear weapons that have also been cut back or dismantled.

• The United States deliberately halted its plans for an ABM system, destroying the one site authorized by the SALT I treaty in 1975 after a continual reduction in the planned scope of the system since 1967. This was largely a result of a U.S. desire not to "generate an arms race in strategic defense weaponry." This has not been matched by Soviet restraint—in addition to maintaining a full-fledged ABM system around Moscow they also test air defense missiles in conjunction with ABM radars.

• In the one area where the United States has not frozen its strategic forces—technical improvements—the results have been to *decrease* their destructiveness. As a result of advances in weapons accuracy and miniaturization, as well as the development of MIRVs, the megatonnage and estimated collateral damage of the U.S. has declined dramatically. Furthermore, the United States has used this technology to switch to warheads of smaller yield, an act of restraint unmatched by the Soviet Union.

• The Reagan Administration has *not* accelerated either spending or deployment of strategic forces, and in fact is under criticism from many strategic analysts for failing to take steps to reduce the vulnerability of U.S. land-based strategic weapons. Its decision to procure 100 B-1B bombers is more than counterbalanced by its decision to half the purchase of MX ICBMs as planned by the Carter Administration without adopting a basing mode.

• Numbers of warheads, the *one* index of strategic force which the United States has not frozen, increased almost totally as a result of the introduction of MIRVing in the 1970s. Claims that the Reagan Administration intends to add thousands of new warheads are bogus—it also intends to retire thousands, leaving a net increase only of several hundred. Statements that the United States and the Soviet Union are at parity in warheads ignores the fact that figures on Soviet warheads are estimates which take no account of concealed or rapidly reloadable missiles.

• Far from engaging in "worst-case" analysis, the United States has tended to strongly *underestimate* Soviet strategic force levels and spending since 1962.

In short, the contention that the United States and the Soviet Union are trapped in a spiraling arms race, and that the Reagan Administration will add impetus to this action/reaction cycle by a destabilizing build-up is utterly false.

A FREEZE WOULD BE STABILIZING

The third major premise of the freeze advocates is that a negotiated nuclear freeze would be stabilizing. It would, in their view, break the mindless arms race cycle, which has already taken the number of nuclear weapons to a meaninglessly high level. It would also restore reason to the international order by demonstrating to the non-aligned nations that the superpowers were capable of responsible behavior, and eliminate the pressure on Third World nations to acquire nuclear weapons of their own. Finally, it would be far easier to verify than the SALT II treaty, since *any* construction of nuclear weapons or launchers would be a clear violation.

In fact, a nuclear freeze would favor the Soviets, be enormously destabilizing, and impossible to verify. A bilateral freeze would do nothing about the massive Soviet heavy ICBMs—SS-18s and SS-19s—which are clearly designed for a preemptive attack on U.S. strategic forces. It would also make it impossible to redeploy existing U.S. forces in a survivable basing mode, or to replace inaccurate, high yield weapons with smaller devices to minimize collateral damage and fallout.

Freezing U.S. nuclear forces into a permanently inferior position would do nothing to increase international stability. Japan and Western European nations, which for years have been sheltered under the U.S. nuclear umbrella, would be forced to reevaluate the possibility of acquiring nuclear weapons of their own. Nations such as Iraq, Argentina, Pakistan, India, and South Africa, all of which have launched major drives to acquire independent nuclear capabilities, would not be at all inspired by a "freeze" to abandon these efforts. If the freeze advocates are truly concerned about the spread of nuclear weapons technology, they would be better advised to put their energies into securing better nuclear export controls.

Moreover, a freeze would be completely unverifiable and unenforceable. The Soviet Union has repeatedly demonstrated that it cannot be trusted to conform to arms control agreements, and that in the face of the most conclusive evidence, it will simply deny all charges. Its development of biological weapons, as evidenced by the anthrax epidemic at Sverdlovsk; its use of "yellow rain" and other chemical and biological weapons to subdue guerrilla movements in Laos, South Yemen, and Afghanistan; and its continual violation of the SALT I and the signed but as yet unratified SALT II treaties have clearly shown that even when violations are detected, compliance is impossible to enforce. Beyond this, playing on American desires for arms control is a potent propaganda tool for the Soviet Union; it certainly contributed to the unilateral U.S. disarmaments of the 1970s. The Soviet press and the actions of its representatives in the United States indicates that the Soviet Union hopes to exploit the move for a nuclear freeze in the same manner.

CONCLUSION

A bilateral freeze of nuclear weapons is clearly undesirable. It would be unverifiable, destabilizing, and would condemn the United States to a permanently inferior position. Moreover, the hysteria the movement has generated blinds its advocates to the benefits of American possession of nuclear weapons. For thirty-seven years there has been no war between the superpowers, in spite of all manner of crises and confrontations. The extended deterrence provided by nuclear weapons has allowed the United States to preserve not only its own security but also that of its allies without having to match the universal military service or 15 percent or more of gross national product the Soviet Union annually invests into its military machine. It has redressed an enormous inbalance in conventional forces, negating the at least four-to-one advantage the Soviet Union retains in firepower.

The present uneasiness in the United States can be directly traced to the Soviet Union's effort to eliminate extended deterrence by obtaining a preemptive capability, and to misrepresentations of the Reagan Administration's plans to forestall this. It is this point that President Reagan and his Administration must convey to the public. This cannot be done by expressing sympathy with the notion of a freeze, or by promising future symmetrical reductions that the Soviet Union will not agree to in any event. It can only be done by a vigorous effort to expose the fallacious principles on which the drive for a freeze rests.

Insiders Report
Tracking the Issues through Congress

Hot Air and the Freeze

The organization of "Ground Zero" rallies and initiatives for a nuclear freeze has triggered a rash of anti-nuclear and anti-defense rhetoric from Congress. But significantly, actual congressional action has focused upon which of two competing resolutions calling for negotiations with the Soviets leading to a nuclear freeze should be adopted. In the precarious months before the November elections, Congress is not eager to be perceived as either anti-freeze or anti-Administration.

Congressional response to the nuclear freeze campaign began on March 10th, when Senators Edward Kennedy and Mark Hatfield cosponsored a resolution that called upon both the United States and Soviet Union to "pursue a complete halt to the nuclear weapons race." The superpowers are to achieve a mutual and verifiable freeze that would cover the testing, production, and deployment of nuclear weapons. Once this has been accomplished, they are to undertake verifiable reductions in total weapons levels. This resolution was introduced in the House of Representatives by Representative Edward Markey. On the day of its introduction seventeen senators and 122 members of the House of Representatives cosponsored the resolution.

This resolution sparked an immediate response from the Administration. On March 11th, Assistant Secretary of State Richard Burt, Director of Politico-Military Affairs made a strong statement expressing sympathy for "the spirit that motivates the freeze efforts." However, he cited a "number of compelling facts against a freeze":

- *The United States would be frozen into a position of military disadvantage and dangerous vulnerability.* Soviet military investment, in the face of over a decade of U.S. "substantial restraint," has produced generations of new ICBMs that directly threaten the U.S. deterrent, and IRBMs that give the Soviet Union an overwhelming advantage in this category of weapons.
- *Negotiation of a good START agreement depends upon a strategic modernization program to give the U.S. delegation credibility.* By killing the modernization program, the freeze would end any chance of achieving negotiated Soviet reductions.
- *The U.S. is engaged in intermediate nuclear force talks that would go far beyond a freeze.* The U.S. goal in Geneva is the "total elimination of land-based, intermediate-range missiles." Abandoning the "two-track" approach of deployment and negotiation would eliminate the incentive for the Soviet Union to agree to the "zero option."

Behind the scenes, key supporters of the President drafted a rival resolution that also called for the United States and the Soviet Union to agree to a freeze of nuclear weapons. However, this was to occur only after the United States had first reached "parity" in nuclear weapons with the Soviet Union, and then the two powers had agreed to substantial reductions. Sponsored by Senators Henry Jackson and John Warner, the bipartisan resolution was introduced on March 30th. Co-sponsored by no less than 62 more Senators, it reaffirmed a senatorial consensus established in 1972, when the Jackson Amendment to the SALT I treaty mandated that future arms control agreements could not place the United States in a numerically inferior position. The Senate Foreign Relations Committee has scheduled hearings on the resolutions, beginning May 11th.

Efforts to get a similar mandate from the House of Representatives have floundered over the fact that no less than four competing freeze resolutions have been introduced: Markey's version of the Kennedy-Hatfield Amendment, two variations of the Warner-Jackson Amendment, and a resolution sponsored by Rep. Albert Gore calling for elimination of those strategic forces which threaten the nuclear deterrent of the other superpower. Senate insiders point out that Gore's proposal is similar to the "March 1977" Carter SALT II package, which was immediately vetoed by the Soviet Union, and to Nixon's SALT Option C, which met a similar fate. No hearings have been scheduled on the House freeze resolutions.

At a March 31st press conference, President Reagan commended the Warner-Jackson resolution. He stated that in view of the "definite margin of superiority" possessed by the Soviet Union, it would be "disadvantageous—in fact, even dangerous" for the United States to agree to freeze nuclear forces at existing levels. The President's concession that the Soviet Union possessed strategic superiority touched off a storm of controversy. Senators Jackson and Moynihan both contended that "in the aggregate" U.S. forces were not inferior, as the United States still possessed a significant second-strike capability, although they did express concern over both trends, and the heavy Soviet ICBMs. Other critics of the Adminstration's defense policy were less restrained, Senator Kennedy calling the President's proposal "voodoo arms control." Interestingly enough, Kennedy's criticism of the Administration's strategic forces arms control policy, with a buildup to parity before establishing an agreement, directly contradicted his attack on the Administration's intermediate nuclear forces arms control policy, the "zero option," which demands Soviet reductions without a corresponding American buildup.

In sum, the nuclear freeze movement has not touched Congress very deeply. However, this could easily change. The Administration's budget request for the Federal Emergency Management Agency, which handles civil defense, was heavily cut by the Senate Armed Services Committee. In justifying this move, the committee members used arguments directly traceable to the freeze movement. The Administration thus far has done a good job of containing pro-freeze sentiment on Capitol hill. But additional actions are needed unless it is willing to risk having it spread to other strategic programs as the funding debate heats up before the November election.

Checklist of Issues coming before Congress

✔ Watch For:

The Falklands and the D-5: Congressional advocates of strategic nuclear force modernization have begun to worry about a possible side effect of the Falkland Islands dispute between Britain and Argentina. Early this year, the Royal Navy had made the difficult decision to procure the Trident D-5 missile to modernize their ballistic missile submarine force. To do so within the fiscal limits set by Parliament, the Royal Navy was forced to schedule the deactivation of a significant portion of its surface fleet, including the carrier *Invincible*. The need for conventional forces demonstrated by the Falkland crisis could lead Britain to reverse its decision. This could threaten U.S. procurement of the missile, whose unit cost was expected to greatly decrease following the British purchase. The missile plays an important role in the Reagan Administration's strategic modernization program, owing to its greater range, payload, and accuracy.

SS-16s: The Evans and Novak column "Soviet Freeze Warning" has prompted a somewhat confused reaction from the Reagan Administration. According to the article, the Soviet Union has "fully deployed" 200 SS-16 mobile ICBMs in violation of SALT II. Although the treaty is unratified, and the President campaigned against it in 1980, he has pledged to abide by its terms so long as the Soviets do likewise. State Department spokesman Dean Fisher provided the official Administration response that "intelligence information does not support" these allegations. When asked if this statement was supported by the entire Administration, Fisher responded "I am not aware that there is any disagreement" among the various agencies. He did not mention that several agencies, including the Arms Control and Disarmament Agency, had not even been consulted. The careful wording of the denial supports reports by Hill and Administration insiders that although the Evans and Novak column contained a number of important factual errors, in the main it was correct. If so, it would challenge any lingering hopes about the reliability of the Soviet Union as a treaty signatory.

Ambassador Quota System: A bill introduced by Senator Charles Mathias (R-MD) to amend the Foreign Service Act of 1980 (S.1886) could weaken the President's control over foreign policy by giving still more autonomy to the Department of State bureaucracy. The bill would amend the Foreign Service Act to read:

> At any time, not less than 85 per centum of the total number of positions of chiefs of mission which are occupied shall be held by career members of the (Foreign) Service.

Although as of October 1980 71 percent of U.S. ambassadors were career Foreign Service Officers, the Constitution makes it clear that an ambassador is the personal representative of the President, outranking even the Secretary of State while in the country to which he is accredited. Thus passage of this amendment could become a constitutional issue. Similar bills have been introduced twice in a decade. The Foreign Service Act of 1974 as originally introduced included a clause requiring 80 percent of all ambassadors to be career Foreign Service Officers, which was dropped in committee. In 1976 Senator Mathias tried to amend this Act to require 75 percent of ambassadors to be FSOs. The bill has been referred to the Foreign Relations Committee for hearings which were held on April 28.

Plutonium Gap?: The Department of Energy (DOE) has been warning for the past year that, beginning in 1989, it will be unable to produce enough plutonium to meet projected nuclear weapons requirements. Yet it still does not have an approved plan to meet this gap. DOE's preferred program is the Special Isotope Separation project (SIS), which would provide the needed plutonium by reprocessing spent commercial reactor fuel. This policy of linking civilian and military uses of atomic power has sparked opposition from both environmental groups and the power utilities, and prompted Senate approval of an amendment to the Atomic Energy Act which would prohibit use of civilian spent reactor fuel in any military program. The House of Representatives is expected also to approve the amendment. An alternative solution proposed by DOE is construction of a replacement reactor using an advanced design. Both SIS and the replacement reactor proposals seem to be inappropriate responses to the problem of a plutonium gap, for even with funding ranging from two to three billion dollars per installation, the first would not be on line until 1992 at the earliest. Some critics have charged that DOE is playing with national security in order to receive additional appropriations for advanced reactor and isotope separation research. They point out that a less costly and more timely solution would be to duplicate one of the two production reactor designs now in use, each of which has more than a thirty-year proven life span.

El Salvador: On April 27th the Senate Foreign Relations Committee began hearings on two bills designed to prompt negotiations and prevent the use of American military forces in El Salvador. Senate Joint Resolution 144, sponsored by Senator Paul Tsongas (D-Massachusetts) would urge the U.S. Government to adopt a policy of encouraging all parties to the conflict to begin unconditional negotiations leading to a settlement and free elections in El Salvador. (The bill makes no reference to the elections which have already been held or to the refusal of the left to participate.) Senate Bill 2179, sponsored by Senator Robert Byrd (D-West Virginia), would amend the War Powers Act to prohibit the use of U.S. military forces in El Salvador except for the protection or evacuation of U.S. citizens. Byrd has submitted this amendment in the face of strong Adminstration denial that it intends to send troops to El Salvador.

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National Security Record, Edwin J. Feulner, Jr., Publisher; William C. Green, Editor. The Heritage Foundation, 513 C Street, N.E., Washington, D.C. 20002; (202) 546-4400. CABLE: HERITAGE WASHDC: TELEX: 440235. Subscription rate—$25/year. Nothing herein is to be construed as necessarily reflecting the views of The Heritage Foundation or as an attempt to aid or hinder the passage of any bill before Congress. Reproduction is granted provided that proper attribution is given. ISSN #0162-3206.

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U.S. Was Unilaterally "Frozen" In 1970's

NUCLEAR "FREEZE" WOULD BAR AMERICAN DEFENSE COMEBACK

By George F. Will

I note with regret, but not amazement, that those who are advocating a mutual U.S.-Soviet "freeze" of nuclear arsenals are not like Albert Einstein, who said: "Everything should be made as simple as possible, but not simpler." Simplicity makes the freeze proposal politically attractive, and irresponsible.

In the 1970s, while the Soviets raced ahead, America unilaterally practiced a semi-freeze. It deployed multiple warheads (MIRVs) on some existing missiles, but deployed not a single new ICBM. America deployed not a single new submarine-launched ballistic missile (SLBM) in the 1970s.

Applied to intermediate-range missiles in Europe, the freeze proposal is the Soviet negotiating position: accept the Soviet's 300 SS20s and permit no comparable U.S. missiles. Furthermore, if their general superiority in offensive systems were secured by a freeze, the Soviets could further refine their destabilizing counter-force capabilities.

For example, a freeze would prohibit new SLBMs but not new attack submarines that hunt SLBM submarines. These could eventually give the Soviets a destabilizing capability for destroying the U.S. sea-based deterrent.

A freeze would kill the B1 bomber, but would not inhibit the air defenses by which the Soviets degrade the effectiveness of America's ancient B52s. To try to preserve even a shadow of this leg of the strategic triad, America would have to spend heavily. The B52's "escape time" (the time it takes to get out of range of nuclear effects from incoming missiles) is inferior to the B1's and inadequate to the threat of Soviet SLBMs off the U.S. coast. Therefore, B52s would have to be rebuilt for better escape capability and would have to be more dispersed (B52s can use fewer airfields than B1s, so airfield modernizations would be necessary) at prohibitive cost.

The budgetary impact of a freeze would be modest. Strategic programs—weapons, command, control, communications—account for just 15 percent of the defense budget. The freeze would prevent some procurements, but would make other spending necessary to ameliorate the freeze's destabilizing effects.

(The freeze proposal makes it timely to note that some aspects of existing arms-control agreements are destabilizing. The ban on missile defenses [ABMs] is one example. Another is the ban on new silos. This prevents, for example, deploying any of our permitted number of ICBMs on the south sides of mesas. Given the inherent limits on ballistic missile trajectories, such basing would make America's land-based deterrent more survivable, and the world safer.)

The proposed freeze would extend to "testing, production and further deployment of nuclear warheads, missiles and other delivery systems." But proponents cannot explain how they will provide for verification of, say, a freeze prohibiting improved yields of warheads, or improved throw-weights of missiles, or even new missiles. How, for example, will they verify whether new Soviet cruise missiles are nuclear-armed ? Such verification is beyond the capability of our national technical means, and the Soviets will not permit the necessary on-site inspection.

George F. Will was born in 1941 in Champagne, Illinois. He is a graduate of Trinity College and Oxford University and received a Ph.D. at Princeton University.

A former teacher of political philosophy at Michigan State University and the University of Toronto, Mr. Will served on the staff of Senator Gordon Allott of Colorado from 1970-1972. He went on to be the assistant editor of *National Review* and, in 1974, began a syndicated newspaper column which today appears in more than 300 newspapers. A contributing editor of *Newsweek*, Will is a regular member of Agronsky and Co. as well as ABC-TVs "This Week with David Brinkley".

The freeze proposal illustrates the dangerous asymmetry inherent in U.S.-Soviet arms negotiations. Such seductively simple panaceas pander to the widespread desire to believe that there can be an easy, cheap escape from the dangers posed by modern physics and the modern Soviet state. In the only superpower where public opinion matters, the freeze proposal will undermine support for modernization of strategic weapons. The argument will be: any new U.S. program will "provoke" the Soviets to reject a freeze.

But the Soviets are serious about arms limitations only when America's ongoing programs compel Soviet seriousness. The Soviets rejected the idea of limits on defensive systems—until the Nixon administration won congressional approval for ABMs. Then the Soviets reversed themselves. However, the fact that congressional support for the ABM was so fragile (a one-vote margin in the Senate) encouraged the Nixon administration to accept a destabilizing result in SALT I: a temporary (five-year) and ineffective restraint on offensive systems, but, effectively, a ban in perpetuity on ABMs.

Proponents of a freeze advertise it as a first step toward President Reagan's more ambitious goal of reductions in force levels. But were the Soviets to agree to a freeze, it would remove the only incentive—ongoing U.S. programs—for the Soviets to negotiate reductions.

The freeze proposal is popular with many who supported, and served in, the previous administration. That administration wasted four precious years killing and retarding U.S. strategic programs, and—not coincidentally—negotiating arms control agreements so imbalanced and porous that a Democratic-controlled Senate would not ratify them. The freeze proposal is another example of posturing and wasted motion that the world can ill afford.

Wrong Route to Peace

Across Western Europe, pacifist passions are on the rise. Marchers have hit the streets in large numbers in some capitals to protest measures taken by their own governments in their own defense.

The demonstrations are well-meant. They are understandable in the context of the deep-seated yearning of all people for a peaceful world.

Yet the new outcries are disturbing on both sides of the Atlantic. For they represent a turning away from reality. They reflect a welling up of isolationist sentiments that pose potential danger to the alliance, anchored by the U.S., which has kept Western Europe free and secure for upwards of three decades.

Many Europeans are aroused, in particular, by the proposed deployment of new breeds of U.S.-built missiles on European soil to modernize NATO's nuclear forces, an upgrading made necessary by Soviet deployment of improved missiles.

There's an irony about the new palpitations being expressed in the streets and salons of Europe. It was pointed up in a recent late-night TV talk show in England, with the audience participating. Two politicians were discussing the NATO missile deployment when a young man rose from the audience and asked: "Why are we protesting? We were the ones who asked the Americans to send the missiles over to protect us from the Russian missiles that are already there. The Americans didn't insist. We asked."

Yes, the Europeans did ask, back in the late '70s. Now, in a turnabout, some of them are calling for unilateral nuclear disarmament. They seem to feel that if Western Europe lowers its nuclear defenses, then the Soviets, in their inherent goodness, will dismantle all the missiles they're emplacing and targeting at capitals and other key sites in the West. The notion seems to be that weakened resolve by the West will somehow cause the Soviets to lose their expansionist appetite.

That is a barren dream, a mythical vision. It flies against all the evidence of the Soviets' unslackened determination, backed by a military buildup of gargantuan dimensions, to exploit every opportunity to extend their military and political influence around the world, wherever and whenever they can. The Soviets' opportunism can be likened to that of a hotel burglar who skulks along the corridors at night, checking doorknobs, ready to enter any room he finds unlocked. The West must keep its doors locked.

Unilateral arms reduction is appeasement. It could be suicidal. Arms reduction surely is a cherished goal. But it must be *bilateral.* It must consist of specific, fair, verifiable measures growing out of negotiations between the two sides.

In a perfect world, there would be no nuclear weapons at all. In the real world, nuclear weapons exist. So long as they do, the best way of reducing the risk that they'll be used against you is to make certain that any nation considering their use is dissuaded from doing so by the knowledge that you are capable of striking back in kind.

That's deterrence. It has been at the heart of Western security since the end of World War II. Its validity remains unassailable today. But its continued efficacy is now being threatened by a misguided movement on the part of some in Europe who quiver in the face of the potent, ever-growing military machine to the east.

They envisage a neutral Europe, with military ties to neither of the superpowers. What they do not see, or are blinded to, is a neutral Europe becoming a neutered Europe.

TIME

Nation

APR 5 1982

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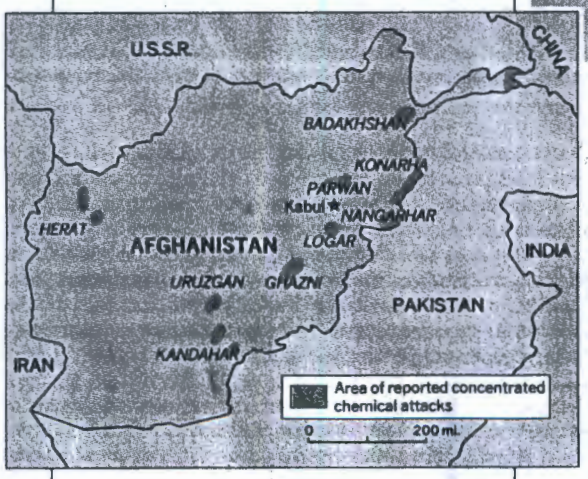
A Rain of Terror in Asia

The U.S. documents its charges of Soviet chemical warfare

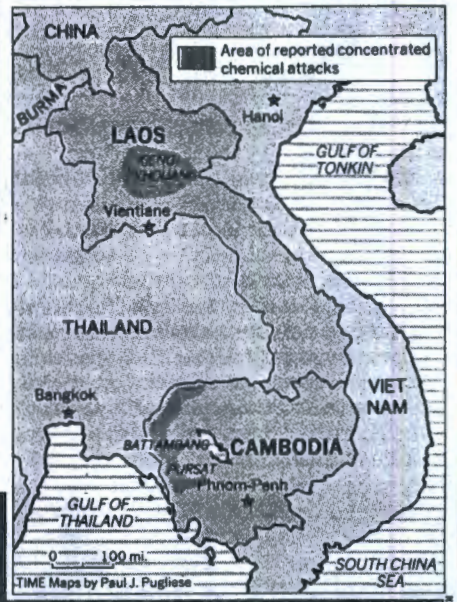
Midmorning on Oct. 10, 1980, a plane flew low over the foothills of the Khao Khouy Mountains in southern Laos. As it passed above the village of Long Sa, the craft began trailing plumes of reddish-yellow gas. Villagers enveloped in the falling mist felt dustlike particles landing on their skin. The air smelled of burning peppers. Ma Hear, who saw the mist fall on the village from a protected lean-to on a nearby hill, recalled that within minutes many of Long Sa's 1,000 residents fell ill. Itchy rashes, followed by tiny blisters, appeared on their skin. Their vision blurred, and the villagers felt dizzy and began gasping for breath. Farmers caught in open fields vomited blood. Although most of Long Sa's villagers recovered from the attack, Ma Hear told doctors in a Thailand refugee camp that 40 people died, including his wife and daughter.

The "yellow rain" that fell on Long Sa is the focus of a bitter dispute between the U.S. and the Soviet Union. Since last fall, Administration officials have accused the Soviet Union and its allies of violating the Geneva Protocol of 1925 and the 1972 Biological and Toxin Weapons Convention—both treaties have been signed by Moscow—by engaging in chemical warfare. "With every passing day," charged Secretary of State Alexander Haig in February, "we get more incontrovertible evidence of the use of mycotoxins [fungal poisons] in Afghanistan, Laos and Kampuchea [Cambodia] . . . There is no question in our minds that such weapons have been and are continuing to be used."



Responding to numerous requests from Congress for documentation of these charges, the Administration last week released a 32-page summary of its evidence, prepared by the State Department and based in part on secret Pentagon and CIA reports. The document charged that since 1975, the Soviets and their allies have launched at least 432 chemical attacks in Indochina and Afghanistan, killing more than 10,000 people. The chemicals involved include nerve gas, mustard gas, lewisite and mycotoxins.

At a press briefing, Deputy Secretary of State Walter Stoessel said that the summary was based on examinations of physical evidence, including environmental samples, as well as the testimony of eyewitnesses to yellow-rain attacks, journalists and doctors treating refugees. Said Stoessel of the use of these chemicals in Indochina: "Thousands have been killed or severely injured. Thousands have also been driven from their homeland by the use of these agents." As for Afghanistan, he added, Soviet forces have used a variety of lethal and nonlethal chemical weapons against rebel forces since the invasion in December 1979.



KEYSTONE—SAMAA/LIAISON

Hmong Refugee May Xiong describes effect of chemical attacks on eyes and chest

A smell of burning peppers, then gasps for breath and vomited blood.

The Soviet Union has consistently denied its involvement in chemical warfare. The Soviet news agency TASS denounced the State Department report as "dirty lies," and pointedly noted that the U.S. had used poisonous herbicides (including the controversial Agent Orange) during the Viet Nam War. The Soviets have also accused the U.S. of supplying Afghan rebels with chemical weapons and of preparing to use them against Cuba and the rebels in El Salvador.

The most mysterious and dreaded of the chemicals that the U.S. accuses the Soviets and their allies of using are the mycotoxins, specifically a class known as trichothecenes. These poisons carry such names as nivalenol, deoxynivalenol and T_2. Little is known about trichothecenes, but they apparently cause the deterioration and death of cells in bone marrow, lymph nodes, intestines and other organs, and the rupture of blood vessels. They also interfere with the blood's ability to clot. When sprayed in a mist that is usually yellow but can be red or white, they are said to kill plants, animals and people with frightening speed. According to May Xiong, 29, a Hmong refugee in Thailand who witnessed a score of gas attacks: "Nothing survives yellow rain."

The first reports on the use of the toxins in Indochina began circulating in 1976, when members of the Hmong tribes, which had fought with U.S. forces in the Indochina conflict, fled their Laotian highland villages for Thailand. At first, their bizarre stories were not taken

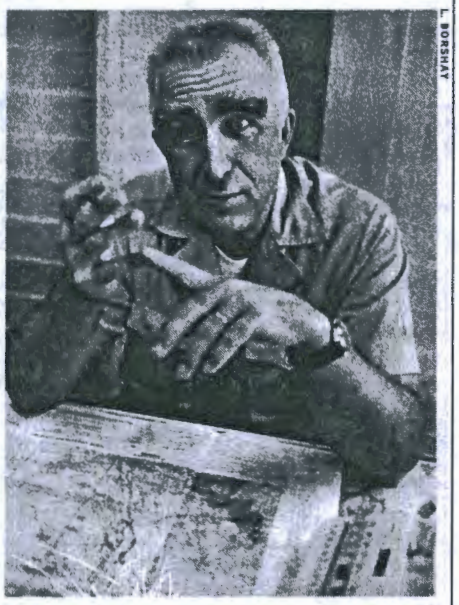
seriously. But at least one listener was struck by the consistency of these tales: Dr. Amos Townsend, 51, a retired Air Force colonel who served at Fort Detrick, Md., when it was the U.S. Army's biological-warfare research center. "I knew the Hmong were not lying to me," says Townsend, who is now with an International Rescue Committee team helping refugees in Thailand. "There were so many stories, each slightly different, but all describing similar incidents." Later, refugees fleeing Cambodia began telling almost identical stories. In 1979, a U.S. medical team was sent to a Hmong refugee camp in Thailand to investigate the charges. It concluded that two or three chemicals, including a mysterious lethal gas, were being used against the tribe.

Last September the U.S. announced that a leaf and twig dusted with yellow powder, which had been retrieved by Thai forces from a Cambodian village shortly after a gas attack, contained high levels of three trichothecenes. Townsend collected another telling set of samples in October during a four-day trip to a Cambodian hospital that was tending victims of a reported yellow-rain attack. He drew blood from nine survivors of the assault, which had occurred four weeks earlier, as well as from four people who had never been exposed to yellow rain. Traces of a metabolite of T_2 were found in the blood of two of the victims. Townsend last month made three more trips to the Thai-Cambodian border to collect blood samples from survivors of chemical assaults that occurred in February and March.

The State Department report contends that only the Soviet Union—and certainly not its Indochinese allies—has the capacity to mass-produce the toxins. The U.S.S.R. has a long familiarity with mycotoxins. During World War II, thousands of Soviet citizens died, apparently after eating food made from improperly harvested grain. The presumed reason: fungus growing on the grain had produced trichothecenes. Soviet technical literature contains extensive studies of the toxins, including how to produce them on a large scale, and the Soviets are said to use the chemicals as insecticides and antifungus agents. Says a State Department official: "To produce them by the hundreds of pounds for spraying out of airplanes requires a major pharmaceutical facility."

But why would the Soviets use these deadly weapons? According to Richard Burt, director of the State Department's Bureau of Politico-Military Affairs, "chemicals were the most effective way" of removing enemies from contested territory. Argues Burt: "The Soviets teach in their chemical-warfare school that lethal chemical weapons are acceptable and effective in putting down resistance in a local war, particularly when it looks like you've got them on the run."

The U.S. formally asked the United Nations to investigate its yellow-rain charges; last November the U.N. sent an eight-member team to interview refugees in Thailand. The team was denied visas to Laos and Viet Nam and for complex diplomatic reasons did not try to make on-site inspections in Cambodia. Not surprisingly, the hamstrung investigation found no evidence to "prove or disprove the allegations." Even so, the U.N. team reported that refugee accounts "could suggest a possible use of some sort of chemical-warfare agents" and recommended that the inquiry continue. The team visited Afghan refugee camps in Pakistan in February, and will issue a new report in the fall.



L. BORSHAY

Yellow-rain investigator Dr. Amos Townsend
So many stories of similar incidents.

Some congressional critics are more than satisfied by the State Department report. Says Congressman Jim Leach, Republican from Iowa: "The previous statements on the subject were sufficient to indict but not to convict. On the basis of the new report, I think any jury would convict."

World reaction to the U.S. charges has been curiously muted, in part because of the Administration's frequent overstatements. Says Gregory A. Flynn, of the Paris-based Atlantic Institute for International Affairs: "What happened with that [purported Nicaraguan guerrilla in El Salvador] brought up to Washington is bound to affect the world's interpretation of this latest report." Concedes Leach: "The U.S. is not too credible any more in the eyes of some [foreign] governments. They think we suffer from an anti-Soviet paranoia."

Some U.S. scientists, too, argue that the case is not yet conclusive. Employing a peculiarly exact figure that recalled the illusory body counts of the Viet Nam War, the State Department study alleged that at least 6,504 had been killed by chemical attacks in Laos. Asked how that precise number could be confirmed without autopsies, a spokesman for the department answered that the figure was meant merely to show the number of deaths that it had corroborated by outside evidence.

Scientists also take issue with the report's argument that only large-scale industry, on the Soviet model, can mass-produce the toxins. Argues Biochemist James Bamburg of Colorado State University: "You can do it in your basement or a converted dog kennel." What most concerns scientific skeptics is that the physical samples, the crux of the Government's case, are few in number and have been gathered in haphazard fashion. Notes Ecologist Arthur Westing of Hampshire College, who chaired a panel on chemical weapons at a January meeting of the American Association for the Advancement of Science: "You don't know if they have been doctored or if they were brought over sloppily and fungus simply developed on them naturally."

Whether or not that is true, there is ample and indisputable evidence that the Soviet Union does have a massive investment in chemical warfare. According to the Pentagon, the Soviets have 100,000 personnel in the program and 14 active chemical factories. By contrast, the U.S. military has only 5,000 people assigned to chemical warfare and no active production facility. Manufacture of chemical weapons ceased in 1969. The U.S. has a stockpile of 700,000 rounds of nerve gas, but most of these weapons, says Deputy Under Secretary of Defense James P. Wade Jr., are "unserviceable and unreliable."

President Reagan wants to resume production of chemical weapons, which he has called "essential to the national interest." His new defense budget calls for $123 million to be spent on rebuilding and maintaining the U.S. chemical arsenal. The Pentagon plans to produce so-called binary weapons, in which the ingredients of deadly nerve gas are kept in separate compartments of bombs or shells. They combine to form a lethal mixture only after being fired, thus making handling safer.

Some military experts on Capitol Hill are dubious about allotting money for chemical warfare. Democratic Senator Gary Hart of Colorado has introduced legislation to ban money for the new weapons, arguing that they "would constitute a mindless escalation of the arms race." The Administration believes, however, that replenishing its chemical-weapons stock could force the Soviets into serious negotiations on a chemical-arms ban. If a mutually acceptable verification system could be worked out, said U.S. Disarmament Negotiator Louis Fields Jr. at talks in Geneva last week, the U.S. would "terminate our binary program promptly and eagerly." ***—By Anastasia Toufexis. Reported by Victoria Butler/Bangkok and Bruce W. Nelan/Washington, with other bureaus***

Asian Refugees: Death in the Night

By William Kucewicz

SANTA ANA, Calif.—In 1976 Yang Ying started a new life in this Los Angeles suburb. He and his family fled their besieged native village in the hills of Laos, and were lucky enough to be among the 50,000 fellow members of the Hmong tribe to be admitted to the security of the U.S. With the help of a local Hmong community group, he learned English, acquired a trade in electronic component assembly and got a job.

On Friday evening Dec. 12, 1980, Mr. Yang returned from work, ate dinner with his extended family in their small two-family house and took his two young children for a short stroll. For the rest of the evening, he sat around the table talking with his father and brother and went to bed about midnight. Around 4 o'clock in the morning his wife awoke to the sounds of her husband gagging and gasping for air. She called his father and brother, and someone called an ambulance. But within minutes Mr. Yang, at the age of 25, was dead.

Mr. Yang's relatives say he had been in perfect health until the day he died; he had never even been in a hospital. An autopsy by the Orange County coroner could not determine the cause of death other than to say his heart failed. To this day no one knows what caused Mr. Yang's untimely death.

But whatever killed Mr. Yang has reached epidemic proportions among young, male Hmong refugees here. At the end of 1981, the U.S. government Centers for Disease Control in Atlanta had recorded 39 cases of "sudden, unexpected, nocturnal deaths." Of these, 26 were Hmong, eight others Laotian, four Vietnamese and one Cambodian. Only one was a woman. In addition to the 39, seven new "suspected" cases have been reported so far this year. The CDC calculates that during the last year the death rate for young Laotian males was 87 per 100,000, comparable to the sum of the four leading causes of natural death among U.S. men of similar age.

Unable to Identify a Cause

"This is a strange and fascinating occurrence," says Dr. Anthony Contazerro of the University of California Medical School in San Diego, which runs a referral program for Southeast Asian refugees. There have been at least seven cases of nocturnal deaths in the San Diego area, but neither the coroner's office nor doctors at the Medical Center have been able to identify a cause.

In December the Centers for Disease Control published an initial study, concluding "the deaths reported here share several features that suggest they may constitute a distinct syndrome. They occurred at night or in the early morning hours during sleep and involved mostly young, apparently healthy men who had no premonitory symptoms. Descriptions of the terminal events suggested that the transition from apparent health to death occurred within minutes."

The only publicly suggested cause for the deaths has been that the men were frightened to death by nightmares. Similar deaths have been reported among young Japanese and Filipinos in their own countries, and witnesses have sometimes interpreted the terminal groans as signs of terrifying dreams. However, the CDC report says "careful questioning of the witnesses in the United States indicated that the terminal sounds were those that are often heard following cardiac arrest."

The CDC report concludes that the heart's natural pacemaker mechanism has suddenly failed for some mysterious reason. "The abruptness of the deaths reported here is compatible with cardiac dysrhythmia, but the underlying mechanism remains unclear." As close as it comes to an explanation is the speculation "there might be a genetic or an acquired disorder predisposing these persons to sudden death."

What the report does not mention is the fact that the Hmong in Laos have been primary victims of biological toxin weapons, commonly called "yellow rain."

> • *The report does not mention the fact that the Hmong in Laos have been primary victims of biological toxin weapons, commonly called 'yellow rain.'*

These hill tribe people, many of whom fought alongside the U.S. in the Vietnam war, have been a traditional center of resistance to the Communists in Southeast Asia. After the fall of Laos, the Communist Pathet Lao tried to resettle the Hmong in the more controllable lowlands. Those Hmong villages that resisted were attacked. Since 1975 the Hmong have been fleeing across the border into Thailand and telling stories to anyone who cared to listen about "yellow rain." This yellowish powder, dropped over villages and fields by Communist aircraft, causes blistering of the skin, vomiting and massive hemorrhaging, with the victim often choking to death on his own blood.

The U.S. government and independent analysts have confirmed the use of "yellow rain" by Soviet-backed troops in Southeast Asia. According to a still classified Special National Intelligence Estimate, the U.S. now has communications intelligence that shows direct Soviet involvement in the use of these obscene weapons which are supposed to be banned under international law. Secretary of State Alexander Haig said recently that the estimates of noncombatant casualties from these weapons range in the "scores of thousands."

Tests of "yellow rain" samples have identified the killer as mycotoxins of the trichothecene group, which are poisons produced naturally by fungus on grains. Most natural outbreaks of this toxin have occurred in the Soviet Union, though some cases have been reported in the U.S. and Japan. Scientific studies continue on the effects of these mycotoxins on laboratory animals. Little is known, however, about the long-term effects on man of low-level exposure to these fungal poisons.

Many of the Hmong are convinced that the current sudden death syndrome is somehow connected to the use of these toxins or other poisons in Southeast Asia. "This never happened to our people before. Never. We've never seen anything like it in the past," says Xeuvang Vangyi, executive director of Lao Family Community Inc., which runs resettlement and training centers in Los Angeles and more than a dozen other cities in the U.S.

"We've complained already to CDC to check" into a possible connection between "yellow rain" and the sudden deaths, says Gen. Vang Pao, who led the Hmong troops in the Vietnam war. He is now president of the Lao Family organization and is also considered chief spokesman for Hmong refugees. But CDC "won't or can't do anything to help that proof for the people," he adds.

"It's something we've looked into" as a possible cause, explains Dr. Roy Baron, an epidemiologist in charge of CDC's study of these sudden deaths. However, "in the preliminary reports of the manner of death, nothing suggested toxic substances should be proposed" as a likely cause, he adds. The center interviewed families of 25 of the 39 victims of this sudden death syndrome. "Only one had a history of definite exposure (to yellow rain), and two might have. This is a similar proportion of the control group" of young refugees now being monitored, Dr. Baron says.

The Hmong here complain, however, that they can't be sure they have never been exposed to "yellow rain." They explain that the trek out of the hills of Laos to refugee camps in Thailand takes weeks of walking through unfamiliar territory that may have been previously contaminated. If not yellow rain, they add, other poisons are also being used in Asia. They tell of cases of persons becoming ill and even dying from tainted water, salt, meat, noodles and other foodstuffs. Mr. Vangyi speaks of one case of poisoned salt sold to fleeing refugees by the Pathet Lao; the salt, he says, caused the rotting away of these persons' lips, gums and the roofs of their mouths to expose the nasal cavity.

The Hmong here also talk of "green eggs." Khang Yong Chue, who now lives in Santa Ana, says that in the rainy season of 1978 he saw aircraft drop bluish-green egg-like objects in and around his village of Ban Pha Honei in Laos. Rain and water on the ground caused the shells of these "eggs" to evaporate and to expose a "very black" core which gave off noxious fumes, he says. Some villagers who breathed the fumes had stomach aches, diarrhea, loss of sight and bloody vomit. He says he saw seven persons die in 24 hours to three days later.

Both Mr. Khang and his wife a year earlier had been attacked by yellow rain; he is still crippled because the substance got on his legs and his wife is partially blind because she looked up at the aircraft

during the attack and got the yellow powder in her eyes. Neither has been examined by government medical specialists seeking information on the effects of mycotoxins.

Dr. Baron of the CDC says he has been urged to study mycotoxins specifically not only by Hmong leaders, but by Congressman Jim Leach, who has raised the "yellow rain" issue, and Jane Hamilton-Merritt, whose Reader's Digest articles were among the first to depict the plight of the Hmong. But, Dr. Baron says, "I'm not working in that direction."

Instead, the CDC study is concentrating on looking for some clue in the medical records and tissues of the dead. The center is having an outside specialist conduct a detailed examination of the electrical conduction systems of the hearts of six sudden death victims. Dr. Baron says that one thing is known, "Their coronary arteries are sparkling clear," which rules out the typical cause of heart attacks. He says the exams hope to find some "defect" in the conduction systems that may "predispose" refugees to cardiac arrest.

Scientists Don't Understand

The CDC's initial report disappointed not only the Hmong. The San Diego doctors were "waiting with bated breath," Dr. Contazerro says, but found it "very shallow." Yet in a sense the CDC is doing what epidemiological institutions do; it certainly was not established to study biological warfare. And there is no particular "medical evidence" to connect the nocturnal deaths and trichothecene toxins. Scientists do not yet understand the mechanisms by which these toxins produce their acute symptoms, let alone what the long-term effects might be.

Yet in trying to learn whether the obvious possibility is being explored, the striking thing is a lack of vigor and urgency throughout the U.S. government. Trichothecenes go unmentioned in the CDC report, though the nightmare hypothesis is discussed. A high State Department office dealing with "yellow rain" has heard vaguely of nocturnal deaths, but is surprised that they predominantly involve Hmong. The Food and Drug Administration's top expert on mycotoxins has not been consulted. Imagine if those nocturnal deaths occurred among "Agent Orange" veterans.

Surely it is a stunning coincidence that the mysterious nocturnal deaths are occurring among the same people attacked by "yellow rain," and started to be reported about the same time the attacks were. Any connection would be fraught with medical, ecological, diplomatic and military significance. Surely there must be some way for the U.S. government to focus some research directly on the trichothecene hypothesis. No one took the Hmong seriously when they first started to tell of the horror of "yellow rain," and now no one is taking them seriously when they say why their relatives here are dying in the night.

Mr. Kucewicz is a member of the Journal's editorial page staff.

THE WALL STREET JOURNAL

March 11, 1982

Yellow Rain: Gaining Speed

WALL STREET JOURNAL

March 11, 1982

For six months now we have been exhorting all and sundry to give the yellow rain attacks in Southeast Asia the attention they deserve. So we are relieved to observe that the issue is finally gaining speed. MAR 11 1982

Most important, we sense a considerable change in attitude by the U.S. government, which we have repeatedly criticized for not taking its own beliefs to their logical conclusion. The government had stated that the Hmong and other Asian peoples were being attacked by toxin weapons banned by the 1972 Biological Weapons Convention, and which beyond any reasonable doubt come from the Soviet Union. If this is true, we argued, it must be taken as a serious and urgent issue, to be raised in every public and international forum.

In the last few weeks, U.S. representatives have done precisely that. A Special National Intelligence Estimate was prepared, dealing with the large volume of refugee reports on toxin warfare and adding such crucial information as communications intelligence linking the Soviets to the weapons. This seems to have pulled the government together.

For instance, Secretary of State Haig on Feb. 14 made his first statement of any substance on yellow rain since he initially raised the mycotoxin issue in Berlin last September. Asked on ABC about being "beaten up" on the issue by this newspaper and others, he responded strongly that every day there was more "incontrovertible" evidence, and that "scores of thousands" of non-combatants had been killed by the ugly weapons.

This has been but one of a number of official statements in the last few weeks. Richard Burt, director of politico-military affairs at State, told a European disarmament conference of an East German military manual that discusses toxin weapons at length, as if they are a normal part of the Warsaw Pact arsenal. Deputy Secretary of State Walter Stoessel told a Senate Committee this week that since 1979 at least 3,000 Afghans have been killed by poison gas. There are indications that the agents used include the mycotoxins. (Chemical agents violate the 1925 Geneva protocol, while biological agents and toxins are covered by the 1972 convention.)

We particularly liked the statement by Ambassador Max Kampelman, chairman of the U.S. delegation to the Madrid Conference on the Helsinki agreement. He went beyond most State Department spokesmen in noting that the disarmament agreements had been "seriously and deliberately that "the realization that even in this area the Soviet Union operates without restraint affects our confidence in any agreement signed by the Soviet Union."

This renewed government attention parallels and stimulates a growing public concern. The University of Toledo Law School held a conference on the implications of yellow rain for international law. W. Hays Parks, of the Army Judge Advocate General's office noted, "There has been only one successful arms control agreement in U.S. history—the Rush-Bagot Agreement of 1817 between Great Britain and the United States, which limited naval power on the Great Lakes."

The Asia Society held a meeting in New York this week. Gary Crocker of the State Department said that medical evidence suggests that mycotoxins may have been used in Yemen in the 1960s, and by now are used by Soviet proxy forces routinely in certain military missions. "The Soviets have passed the point of experimentation."

Last week Hodding Carter's "Inside Story" on PBS explored the question of why such a significant story has not received wider coverage in the U.S. press; we hope that editors everywhere ponder the issue. But the press is also starting to pick up the new concern. The Stoessel testimony made headlines, and The Washington Post carried a story from a correspondent in Cambodia reporting that the Khmer Rouge say Vietnamese troops used gas on them as recently as Feb. 13.

All of this coverage is welcome. For our part, we certainly think that "yellow rain" is one of the most significant stories of the year. The biological weapons convention was signed in 1972, in the bloom of detente, and all the while the Soviets were conspiring to commit a massive violation. This says things about the character of their leadership that casts shadows far beyond the immediate issue.

It remains to be seen whether even now the government sees the issue in this full context, though Ambassador Kampelman certainly comes close. The cynics are saying that the renewed interest in "yellow rain" is only a lobbying campaign for the administration's proposals for binary chemical weapons, a more modern and safer deterrent. Such doubts are likely to persist until we hear President Reagan himself on the issue. There is talk of his making a new defense speech, and this certainly would be an appropriate moment to make clear that deep concern over yellow rain is a pressing and permanent part of his

WALL STREET JOURNAL

MAR 24 1982

On the Agenda

The State Department's workmanlike compilation of the evidence of chemical and biological warfare in Southeast Asia was delivered Monday, and received by the press without the withering skepticism that has recently stifled debate. It would seem that "yellow rain" is now firmly established on the national agenda.

The thrust of State's report—the mass of refugee testimony, the activity of the Soviet chemical warfare program, the identification of trichothecene toxins as the latest horror weapon—is already well-known to followers of these columns. But the report and associated briefings did clear up some of the remaining confusions.

One of these concerned the medical evidence. The symptoms reported from "yellow rain" generally fit those of trichothecene poisoning. But the medical literature and animal experiments suggest that the symptoms do not develop immediately. There are no previous reports of sudden massive hemorrhage, leaving victims choking to death on their own blood. Yet this is what the Hmong refugees report, and in our opinion they have earned the right to be believed.

Even if frightened refugees exaggerated the immediacy of the hemorrhage, of course, their kinfolk are just as dead, and the biological weapons convention just as shattered. There is also the possibility that the chemicals are mixed with other poisons, and with solvents that speed absorption and the onset of symptoms. But most simply of all, the clinical experience and animal experiments with trichothecenes concern ingestion, not inhalation.

Trichothecenes have been considered a public health and veterinary problem in moldy grains, so test animals were fed toxins, and developed gastric bleeding. At least outside of the Soviet Union, no one saw any reason to test the effects of breathing the hemorrhage-producing agent into the lungs. But inhalation experiments are now being run at the U.S. Army Medical Research Institute of Infectious Diseases. At Monday's briefing, Sharon Watson, a toxicologist, reported that the tests have produced the same effects reported by the Hmong.

The State Department report also adds a mass of detail on Soviet complicity in the chemical and biological attacks. It provides numerous dates and locations of Soviet military inspections of chemical arsenals in Laos and the training of Vietnamese and select Laotian troops in chemical warfare. Hmong refugees and Communist defectors also tell of Soviet advisers preparing chemical weapons and even participating in attacks. It says Lao Communist or Soviet medical teams have entered attack zones to conduct body counts and to perform autopsies.

Evidence of shipments of these chemical and toxin weapons to Vietnam from the Soviet Union dates back as far as 1975, when a Soviet ship sank in the Black Sea. It was bound for Vietnam with a cargo of military equipment. A Soviet captain of a diving support ship, which was trying to raise the sunken vessel, said that his divers came in contact with toxic chemicals and became very ill. A special Soviet salvage team was brought in, but its divers also became ill, and a special military team took over. It took three years to raise the ship, unload the chemicals and scrap the vessel.

Another incident occurred in July, 1981, when a Soviet shipment of wooden crates filled with canisters was unloaded at the port of Ho Chi Minh City. Some Vietnamese soldiers were pilfering the crates, looking for food and valuables, and one soldier tried to open a canister. Security forces isolated the area and said the canisters contained a deadly toxic substance from the USSR. The wooden crates, each weighing about 100 kilograms, were loaded on military trucks and taken under special guard to the Long Binh storage depot.

The State Department's latest report, along with the hundreds of pages of earlier reports, testimony and scientific evidence, leave room for only one conclusion: The Soviet Union is actively engaged in chemical and biological warfare in Southeast Asia and Afghanistan. There is not much point in dwelling any longer on the supposed medical and scientific inconsistencies or to decry a supposed dearth of evidence. It's time to turn attention to the question, what do we do about this? What policies are most likely to bring these heinous activities to a halt? What can we do to protect our own troops from such warfare? What does this mean for other negotiations with the Soviet Union? How do we adjust our thinking on what kind of an adversary we face?

The Heritage Foundation Backgrounder

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MOSCOW'S POISON WAR: MOUNTING EVIDENCE OF BATTLEFIELD ATROCITIES

INTRODUCTION

From the battlefields of Laos, Kampuchea and Afghanistan, grisly evidence mounts of the systematic use of universally condemned methods of warfare. There the Soviet Union and its proxies are waging a clandestine war of chemical terror against the political and ethnic groups that have refused to be subdued by conventional arms. In exasperation, Soviet-backed forces have turned to a poisoned earth policy designed to drive indigenous nationalists and anti-communist guerrillas in Laos, Kampuchea and Afghanistan from their homeland sanctuaries. The result: thousands of men, women and children have been indiscriminately slaughtered in what could become, if unchecked, a brutal poison holocaust.

At first, there were only scattered stories of chemical atrocities and they were disbelieved and generally ignored. But the reports persisted and damning proof mounted. In recent months, the evidence has become irrefutable and stands as an indictment of the Soviet Union for crimes against humanity.

MYSTERIOUS DEATH CLOUDS

In 1976, terror-stricken refugees began streaming out of Laos carrying news of a gruesome new addition to the arsenal of the Soviet bloc. They told of a poisonous yellow cloud that they called "Yellow Rain" because small particles in the cloud made sounds like raindrops as they settled on the roofs of their huts and on the surrounding fields. The mysterious yellow poison, delivered by aerial bombing and artillery attacks, inflicted bizarre and grievous injuries on the victims, often resulting in quick, painful death. Direct exposure to the clouds caused breathing difficulties, extreme irritation of the eyes, skin, nose, throat and lungs. Small, hard blisters formed over

exposed body surfaces. This was accompanied by coughing of blood-tinged material, choking, dizziness, multiple hemorrhaging of mucous membranes, vomiting massive quantities of blood, the seeping of blood from eyes, ears and nose, convulsions, and death. All this happened within hours, sometimes minutes. Shortly after death, the skin turned black.

Villagers less exposed to the poisonous cloud reportedly took longer to develop the symptoms and had some chance of surviving. Many of these, however, died after a prolonged and agonizing struggle with grotesque maladies: terrible skin blistering, chest pains, inflammation of the eyes, nose, throat and breathing passages, nausea, vertigo, bloody diarrhea, massive hemorrhaging throughout the body but especially the lungs, the spewing of blood from all body orifices, neurological spasms and shock. So many different vital organs and bodily functions were damaged that it was difficult to determine the precise cause of the victim's death. So ghastly was the spectacle that one expert described the victims as "walking hemorrhages" who literally drowned in their own blood.

The poison clouds also killed livestock and damaged crops and vegetation. Plants contaminated by the powdery residue developed numerous scorched blotches about one millimeter in diameter scattered over the surfaces of the exposed leaves. These distinctive marks did not resemble the after-effects of any known chemical weapon, herbicide or plant pathogen.

Initial reports of "Yellow Rain" were confined to the Hmong tribal areas in central Laos. Later, tales of similar chemical attacks began trickling in from Cambodian refugees in Thailand and Afghan refugees in Pakistan. The descriptions they gave were remarkably similar -- particularly so because these refugees had very limited medical knowledge and were separated from each other by vast geographical and cultural differences. Each of these technologically unsophisticated peoples described the results of the poison in terms of their own experience and cultural backgrounds. The Kampucheans, for instance, reported that the victims in their death throes "were jerking like fish when you take them out of the water"; the Afghans recounted scenes of compatriots "jerking like dogs with broken backs." The similarity of these persistent reports of unusual medical symptoms, coming from rural peoples with minimal contact with the outside world as well as each other, made it impossible to discount such statements as inventions of opponents of the local regime. Not only did the flood of refugees fleeing the affected areas provide similar accounts of appalling deaths, but the doctors treating survivors in field hospitals and relief camps thousands of miles apart recognized similar after-effects: hoarse voices, vision impairment, weakness, lung disorders and skin lesions.

THE SEARCH FOR THE SMOKING GUN

In fall 1979, the Pentagon dispatched an army medical team to Thailand to verify rumors of chemical warfare in neighboring Laos and Kampuchea. After extensive interviews with refugees who had witnessed attacks, Dr. Charles Lewis, the head of the medical team and chief of dermatology at the Brooke Army Medical Center in San Antonio, Texas, identified three basic sets of symptoms produced by "Yellow Rain": 1) skin burns and burns to the eyes, nose and throat; 2) spasms and convulsions; and 3) massive hemorrhaging. Lewis concluded that at least two or possibly three different chemical agents were involved: a vesicant or blistering agent that caused the burns, a nerve agent that caused the convulsions and an unknown agent that produced the hemorrhaging.

The medical team was given a sample of the yellow substance left behind in one attack but experts were unable to detect any known chemical agent. They did discover, however, a chemical "surfactant" called lauryl sulfonate, commonly used in liquid soaps and detergents to facilitate penetration of surfaces to be cleaned. While army doctors were unable to identify the specific agent or agents being used, they returned to the U.S. totally convinced that chemical attacks were in fact taking place. There could be no other explanation for the numerous accounts of "Yellow Rain" or the presence of lauryl sulfonate at the site of one attack.

These findings, however, evidently were not welcome by the Carter Administration. It soft-pedaled the issue of chemical warfare in Southeast Asia apparently because it did not want to irritate the Soviets, with whom the U.S. was negotiating an arms control agreement. The State Department adopted what, in retrospect, was an overly-cautious, non-committal stance. It did not want to raise the issue without absolute proof and this was inordinately difficult to obtain. While the intelligence community was extremely interested in the reports, it wished to verify them covertly to avoid alerting the Soviets that their actions had been detected. The issue may well have faded were it not for the determined efforts of a number of individuals horrified by the use of battlefield poisons: Representative Jim Leach (R-Iowa), who focused congressional attention on the issue; journalist Sterling Seagrave, author of Yellow Rain, the most complete published account of Soviet and Soviet-sponsored chemical warfare operations; and Jane Hamilton-Merritt, an expert on the Hmong hill tribes and author of "Gas Warfare in Laos" (Reader's Digest, October 1980) and "Tragic Legacy from Laos" (Reader's Digest, August 1981). Among the organizations which have brought the matter to public attention are the Committee for a Free Afghanistan, Freedom House and the International Rescue Committee.

Since taking office, the Reagan Administration has proved less concerned than its predecessor about "upsetting" the Soviets. The new team in the White House pushed hard to obtain irrefutable evidence of illegal chemical warfare activities. Solid evidence

was elusive because the attacks were in remote locations deep within communist-controlled territory and the attackers seemed to be taking special precautions by using Napalm to destroy residue of the chemical attacks. Survivors understandably had not thought of gathering physical evidence of the attack while their comrades writhed nearby in their terrible terminal agony. Nor could survivors be expected to risk contamination to acquire evidence. Some who did attempt to collect proof and transport it out of the war zone died from exposure to the evidence that they were carrying. Others lacked the strength for the long trek to a friendly border after exposure to the toxic agents. Moreover, by the time that word of an attack had filtered into a friendly country, the evidence at the site of the attack typically would have been dissipated by the heavy rains in Southeast Asia, the storms and snows in Afghanistan and other natural processes. Producing a corpse was nearly impossible because of the problems with transporting it through enemy lines and the speed of body decomposition in Southeast Asian jungles. In Afghanistan, moreover, any attempt to use the corpse as evidence would conflict with the Moslem custom of burying the deceased on the day of death.

THE SMOKING GUN: TRICOTHECENE MYCOTOXINS

Despite the difficulty of securing physical evidence of chemical attacks and the arduous, time-consuming task of identifying the mysterious chemical agent, Washington finally has solved the five-year-old riddle of ""Yellow Rain." Secretary of State Alexander Haig announced on September 13, 1981, that the United States has identified the critical lethal agent as a compound composed of three tricothecene mycotoxins[1] -- poisonous substances produced by the fusarium fungus. These mycotoxins were found at the site of a "Yellow Rain" attack in levels up to twenty times greater than they occur in nature. These mycotoxins are a perfect fit for "Yellow Rain"; they produce all the symptoms of poisoning reported and do not produce any symptoms not reported.

The first State Department announcements were based on one sample of lethal powder taken from a leaf at the site of an alleged chemical attack. Findings based on such evidence were open to criticism because they lacked the important negative controls of the testing process that could have provided information about the tricothecene levels of uncontaminated vegetation outside the immediate area of the attack. However, legitimate doubts about the validity of the findings subsequently were erased in early November when three new samples were tested. One of the new samples was water taken from the same Kampuchean

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[1] The substances were identified as Nivalenol, Deoxynivalenol, and T-2 toxin. All three produced similar symptoms but differ in the degree of severity; while Nivalenol was a stronger hemorrhagic, Deoxynivalenol induced harsher vomiting and T-2 had greater skin irritative effects.

village which provided the first evidence. The two other new samples came from separate chemical attack sites in Laos. Two of the three had even higher tricothecene levels than the first. Specimens of uncontaminated background soil and vegetation from the areas confirmed that the identified mycotoxins do not occur naturally in the affected areas.

At a Senate Foreign Relations Committee hearing on November 10, Richard Burt, Director of the State Department's Bureau of Politico-Military Affairs, testified that "Yellow Rain's" mysterious lethal agent had been conclusively identified: "We now have a smoking gun. We now have four separate pieces of physical evidence. We may soon have more as, I regret to say, chemical attacks have been reported in Laos and Kampuchea within the last month....Anyone who conducts his own inquiry will come to the same conclusions we have."

THE SOVIET CONNECTION

There is more than a smoking gun. There is strong evidence that it is Soviet-made and Soviet-supplied. Equally damning is the evidence that Soviet advisors in Southeast Asia may be involved in the use of the terror-weapon and that Soviet troops in Afghanistan undoubtedly are. "Yellow Rain" and other chemical weapons are being delivered by Soviet-made aircraft, rockets and artillery. Members of the U.S.S.R. Chemical Corps are present in large numbers in Afghanistan and have been reported in Laos, where they may be gauging the battlefield effectiveness of chemical delivery techniques and toxic munitions.[2]

Although Moscow seems for the most part to leave the actual chemical attacks to its Vietnamese, Kampuchean and Pathet Lao allies, there are reports that the Soviets also have taken part directly in the attacks. Hmong tribesmen have seen "roundeye" pilots in the slow, low-flying AN2 aircraft -- Soviet biplanes used as crop-dusters in the U.S.S.R. -- that drop the "Yellow Rain" over Laos. A Vietnamese defector says that he observed two Soviet advisors fire a round of chemical munitions at Khmer Rouge guerrillas inside Kampuchea.[3]

Soviet technical support personnel participate actively in the operations of the chemical warfare logistical infrastructure in Laos, Vietnam and to some extent Kampuchea. Independent intelligence sources confirm that a seven-member team of Soviet chemical warfare specialists visited the Laotian cities of Pekse and Seno to inspect chemical weapons after chemical attacks in

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2 For example, see the State Department's compendium, "Reports of the Use of Chemical Weapons in Afghanistan, Laos and Kampuchea," Summer 1980, p. 43.

3 Reported in Bangkok Post article reprinted in FBIS, Daily Report, Asia and the Pacific, September 25, 1981, p. J1.

1978.[4] Thai military intelligence and American radio monitors have recorded and translated radio conversations of Russian officers giving instructions for shipment of chemical warheads from a chemical munitions depot in Laos up a highway toward Phu Bia Mountain, the Hmong stronghold that has been the target of repeated chemical attacks for over five years. Another radio intercept recorded an exchange about a high-ranking Soviet general touring several chemical munitions depots.[5]

While the Vietnamese have had some chemical warfare units for some two decades and are capable of conducting chemical operations, it is extremely doubtful -- if not impossible -- that they could produce the large quantities of mycotoxins that are being dumped on villages and fields in Southeast Asia. Not only does Indochina lack large-scale biological fermentation facilities, but the four chemical warfare depots already identified in the area are known (through radio intercepts) to be receiving chemical munitions from the Soviet Union.[6]

Among the world's communist states, only the Soviet Union possesses the industrial facilities and chemical warfare research, testing and production capabilities needed to produce large amounts of mycotoxin in a form that could be used effectively as a weapon.

The combination of tricothecene mycotoxins identified in the "Yellow Rain" samples does not occur naturally in plants native to the jungles of Southeast Asia. The fusarium fungus producing these mycotoxins thrives on grain and bread exposed to cold, wet climates and exists throughout much of the U.S.S.R., where historically it has posed a serious threat to the Russian food supply. Large-scale epidemics of what the Russians have called "staggering sickness" (above all, a bleeding disease) repeatedly have broken out in the Ukraine, Soviet Central Asia, the Urals and Siberia due to the contamination of the Russian grain stores by potent mycotoxins. In 1944, up to thirty percent of the population of the Orenburg district in Siberia were stricken by the poison and an estimated ten percent of the population -- almost thirty thousand people -- reportedly died.

Soviet scientists began studying the disease intensively in the 1930s and mycotoxins have figured prominently in Soviet scientific literature over the past fifty years. Sterling Seagrave points out that of the fifty articles on tricothecenes in Soviet open source literature, twenty-two deal with defining the optimum conditions for biosynthesis of the compounds,[7] a sign that the Soviets have more than a passing interest in obtaining large quantities of the poisons. Research projects on mycotoxins are

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4 William Safire, "Yellow Rain," New York Times, December 13, 1979.
5 Sterling Seagrave, Yellow Rain (New York: Evans, 1981), p. 35.
6 Ibid.
7 Ibid., p. 192.

carried out at heavily guarded Warsaw Pact institutes which previously worked on chemical and biological warfare research.[8] With the world's most advanced research program in the field of tricothecene toxicology, the Soviets definitely possess the knowledge, personnel and facilities needed to produce the poisonous ingredients of "Yellow Rain."

It now appears, moreover, that the mysterious gas that took hundreds of lives during the final stages of the 1963-1967 Yemen Civil War may have been an early version of "Yellow Rain." Not only was the poison gas in Yemen never identified, but victims of the gas attacks suffered the same hellish symptoms as did the victims of "Yellow Rain" a decade later.

As if to admit tacitly that it has something to hide in the matter, Moscow repeatedly has tried to block formation of an impartial U.N. commission to investigate the situation in Laos, Kampuchea and Afghanistan and has not cooperated with it once formed.[9] Moscow and its allies have denied the U.N. access to the sites of chemical attacks. Despite Soviet obstructions, a U.N. panel of experts was dispatched to Thailand in November to verify reports of Communist chemical warfare activities in neighboring Laos and Kampuchea. Because the panel was not granted sufficient time or resources to fulfill this mandate, it was unable to reach a final conclusion as to whether or not chemical weapons had been used. However, it did note that the symptoms reported in some cases "could suggest a possible use of some sort of chemical warfare agents." In view of these tentative findings, the U.N. General Assembly overrode Soviet bloc objections and on December 9, 1981, voted 86 to 20 (with 34 abstentions) to extend the investigations for another year. Since Pakistan recently granted the U.N. panel permission to visit Afghan refugee camps inside its borders, the U.N. panel of experts is now expected to address the matter of chemical operations within Afghanistan.

The investigation of reported chemical warfare incidents is a critical test of United Nations credibility. A November 27, 1981, Washington Post editorial declared:

> The United Nations group has so far not accomplished much of anything...the group must be given adequate time and financial resources to accomplish a difficult task....The charges being investigated, after all, go beyond whether this or that chemical has been used. They engage nothing less than what the United Nations is all about -- the international rule of law. The

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8 State Department Fact Sheet, September 1981, p. 2.

9 During the Korean War, the U.S. called for the U.N. Security Council to investigate Soviet charges that the U.S. was using bacteriological weapons. The investigations were blocked, however, when the Soviets vetoed the measure in the Security Council.

integrity of the international system demands that they be conclusively proved or refuted.

CHEMICAL ATTACKS IN LAOS

Reports of chemical attacks began filtering out of Laos in 1976, although the first attacks began as much as two years earlier. The State Department has documented well over one hundred separate assaults, most against the Hmong (also known as Meo) hill tribes of central Laos. As traditional foes of the lowland Pathet Lao, the Hmong sided with the French against the Viet Minh in the early 1950s and sustained an estimated 30,000 casualties aiding the U.S. fifteen years later. For this reason, they are hated by the Vietnamese and Pathet Lao who have used chemicals to attack defenseless villages inhabited by old people, women, children and other non-combatants. At least half of the Hmong surviving the gas attacks died on the trek to Thailand of exhaustion, malnutrition or Pathet Lao ambushes. The few who manage to get across the Mekong River to Thailand have been described as "walking skeletons carrying skeletons out of the jungle."

In addition to the "Yellow Rain," the Vietnamese and the Pathet Lao have employed a lethal red colored gas and less potent blue-green and white poisonous gas clouds. These are delivered by helicopters, fixed-wing aircraft, artillery and rockets. The attackers, it seems, are testing various combinations of chemical agents and means of delivery. Pathet Lao soldiers, meanwhile, appear to be experimenting with antidotes to the poisons. There have been reports of soldiers wearing cloth masks entering the villages shortly after gas attacks to inject the inhabitants with medicine and then take them to hospitals for observation.[10]

These attacks are destroying the Hmong as a people. While Hmong in Laos numbered about 500,000 in 1960, there are now fewer than 100,000 remaining; 100,000 are in Thai refugee camps or relocated to the West, including about 40,000 in the United States. At least 15,000 to 20,000 Hmong are estimated to have died in the communist chemical onslaught.[11] Many of those who successfully have fled to freedom were exposed to poison gas and continue to suffer constant headaches, painful muscles and joints, pulmonary disorders, and eye and ear problems. At least thirty-five Hmong adults in the U.S. have died suddenly in their sleep for no apparent reason.[12]

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10 See, for example, State Department Compendium, p. 68.

11 Seagrave, op. cit., p. 253.

12 Jane Hamilton-Merritt, "Tragic Legacy from Laos," Reader's Digest, August 1981, pp. 96-97.

CHEMICAL ATTACKS IN KAMPUCHEA

The State Department has documented at least twenty-eight separate chemical attacks in Kampuchea. The evidence comes from interviews with Kampuchean refugees, Vietnamese defectors and Kampuchean nationalist resistance fighters. As in Laos, the munitions used and means of delivery varied widely. Chemical attacks began much later than in Laos and increased markedly in late 1979. "Yellow Rain" weapons have not been used as frequently as in Laos -- possibly because the contested terrain was too close to the Thai border and also was much more vulnerable to conventional military attack than the mountain sanctuaries of the Hmong in northern Laos.

In a typical chemical operation in May 1981, a Vietnamese mortar attack only miles from the Thai border left scores dead and drove sixty-five Kampucheans across the border to Thai refugee hospitals where they received treatment. Thai army tests found traces of cyanide in water samples and plant life recovered from the area, while the Bangkok-based International Committee of the Red Cross confirmed that numerous people were being treated for chemical poisoning, some of whom died.[13] The Vietnamese also have launched chemical attacks on the Thai side of the border. In March 1980, a Vietnamese aircraft violated Thai airspace to drop toxic gas after it was fired on by Thai forces.[14] On January 29, 1982, the State Department announced that the analysis of nine blood samples taken from survivors of a chemical attack in the fall of 1981 provided additional evidence of chemical operations inside Kampuchea.

CHEMICAL ATTACKS IN AFGHANISTAN

State Department files contain evidence of well over fifty instances of chemical attacks in Afghanistan. U.S. officials receive a constant flow of eyewitness reports from Afghan freedom fighters, journalists and doctors who have treated survivors of chemical attacks. Although no physical evidence has yet been retrieved from the remote Afghan hinterland, technical methods and human intelligence accounts, corroborated by the testimony of Afghan army defectors, leave no doubt that chemical weapons are being employed in Afghanistan. All that is missing -- as it was for a while in Southeast Asia -- is the "smoking gun."

The first accounts of communist chemical operations in Afghanistan date from late summer 1979, four months before the Soviets overtly invaded. At that time, freedom fighters attempting to interdict the strategic Salang highway were bombed with what an Afghan army officer (who later defected to the nationalist

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13 "Chemical Warfare in Southeast Asia," Wall Street Journal, September 21, 1981, p. 34.

14 State Department Compendium, p. 118.

side) termed "nerve gas."[15] Since the Soviet invasion, chemical attacks have been reported persistently in northeastern Afghanistan, particularly in the isolated northern province of Badakhshan. At least three broad types of gases have been identified -- a bright yellow or green riot control agent that causes painful skin blisters; an incapacitant dubbed Blue-X that renders its victims unconscious for up to eight hours; and a lethal agent that comes in several different colors and is believed similar to "Yellow Rain."

An eyewitness, who had survived a "dirty colored cloud, yellowish brown," recalls in anguish that "our fighters were throwing up blood as if they have been drinking blood and could not hold any more. There was also blood in their eyes, like tears, and from the nose. At first I thought it was from the concussion of the bomb, but the bomb did not make a big explosion. And our fighters did not have any marks on them. The rest of us ran from the cloud." In another incident, the same Afghan reports: "Our fighters died quickly. They were vomiting blood and fouling their clothes and began to act like crazy people falling down and jerking about."[16]

The yellowish brown clouds seem to be the favored weapon for attacking freedom fighters holed up inside caves and underground tunnels. Seagrave writes that such clouds have "brought the freedom fighters writhing from their caves to dance and squirm, and spew blood, and die in spasms on the bare rock reaches, like earthworms wriggling in a lethal spray of insecticide."[17] Dutch journalist Bernd de Bruin filmed such an attack, took still photographs of a dead freedom fighter whose skin had turned black and described the experience in the magazine Niewsnet in August 1980. An Afghan doctor now living in the United States, Dr. Bashir Zikria, has filmed survivors of a chemical attack, including one dying a lingering death from acute gas poisoning.

The Soviets are thought to be dumping a liquid poison into wells in southern and western Afghanistan and to be spreading an oily, persistent nerve agent on the ground in northeastern Afghanistan. This dreadful substance clings to the feet of passing freedom fighters and becomes lethal when warmed by a campfire or by body heat; it then kills in minutes. Ground observers have noted and satellite photographs have confirmed the deployment of Soviet decontamination units in forward combat areas, particularly in northeastern Afghanistan. Modern TMS-65 decontamination vehicles, capable of rapidly cleansing tanks and other equipment of chemical agents in the field, and AGV-3 detoxification chambers for decontaminating personnel, are used widely and maintained at high readiness. In view of the fact that the Afghan freedom

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15 Ibid., p. 6.
16 Both incidents quoted in Seagrave, op. cit., p. 139.
17 Ibid., p. 138.

fighters pose no chemical threat to the Russians and since the Russians already have withdrawn non-essential military units from Afghanistan to hold down the size of their "limited" presence, the continued deployment of such decontamination units is a clear sign that Moscow is carrying out chemical operations.

SOVIET CHEMICAL WARFARE CAPABILITIES

The Soviet Union's offensive and defensive chemical warfare capabilities, systematically developed and refined over decades, are regarded as by far the world's best. Soviet military doctrine views chemical agents as an integral part of overall military strength and sees nuclear, chemical and biological weapons all as "means of mass destruction." Soviet doctrine teaches that chemical weapons are particularly well-suited for surprise attacks and for seizing military and industrial facilities without destroying them.

Among Moscow's forces are the 80,000 to 100,000 specialists of the Chemical Troops that are devoted to chemical warfare defense. (By comparison, the U.S. has 2,000 such troops.) In Soviet exercises, offensive chemical operations are carried out by conventional front line units, with division commanders responsible for the planning, release and execution of the attacks. Soviet military units have the training, equipment, doctrine and organization to conduct sustained chemical operations. Each division of ground forces maintains its own chemical defense battalion complete with decontamination facilities for personnel and equipment. Soviet armored vehicles are designed and equipped to function in contaminated zones and quickly can be decontaminated. Rigorous chemical operations training is routine in all terrain and weather conditions; chemical warfare defense techniques, in fact, are taught in elementary school.

Soviet stocks of chemical munitions exceed U.S. stocks by a ratio of at least 4-to-1 and perhaps by as much as 10-to-1. Some 5 to 30 percent of Soviet conventional munitions, say analysts, contain chemical payloads.[18] These include such first generation agents as mustard gas, second generation agents such as tabun, soman and VR-55 nerve gas and third generation agents such as the tricothecene mycotoxins.[19]

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18 E. M. Kallis, "Chemical Warfare: Background and Issues," Congressional Research Service, June 1981. p. 6.

19 For more information on Soviet chemical warfare capabilities see: John Erickson, "The Soviet Union's Growing Arsenal of Chemical Warfare," Strategic Review, Fall 1979; and Amoretta Hoeber and Joseph Douglas, "The Neglected Threat of Chemical Warfare," International Security, Summer 1979.

TREATY VIOLATIONS

Chemical warfare has been prohibited on the battlefields of western nations for over fifty years. Under the terms of the 1925 Geneva Protocol, to which the Soviets are a party, asphyxiating, poisonous or other gases, bacteriological methods of warfare and all analogous liquids, materials and devices are banned from military use. The 1972 Biological Warfare Convention, also signed by Moscow, obliges states: "never in any circumstances to develop, produce, stockpile or otherwise acquire or retain 1) microbial or other biological agents, or toxins whatever their origin or method of production, of types and quantities that have no justification for prophylactic, protective or other peaceful purposes; 2) weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict."

As biologically produced chemical substances, mycotoxins fall within the prohibitions of both the 1925 Geneva Protocol, which forbids the use of chemical weapons in warfare and the 1972 Biological Weapons Convention which forbids production, stockpiling or transfer of toxin weapons. The Soviet Union stands in naked violation of these two treaties as well as of customary international law of armed conflict which prohibits the first use of such weapons.

By cynically violating these agreements, the Soviets have crossed the line respected by all civilized nations -- and even by the Nazis, who refrained from using their nerve gas stocks on battlefields during World War II. The poison atrocities in Asia, along with the 1979 Sverdlovsk incident[20] raise grave doubts about the credibility of the Kremlin's signature on international treaties.

CONCLUSION

The Soviet Union, incapable of growing enough grain to feed its own population, is devoting enormous resources and attention to growing a grain fungus from which it extracts deadly mycotoxins for military use. Aside from what this says about the nature of the Soviet system, this chemical warfare effort is disturbing for what it indicates about Soviet intentions in any future conflict.

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20 In April 1979, an explosion at a top secret Soviet defense laboratory released a cloud of anthrax spores in the vicinity of the city of Sverdlovsk, killing up to 1,000 Soviet citizens. Moscow initially dismissed reports of the accident as "impudent slander," then claimed the deaths were due to spoiled meat, an explanation that is contradicted by all of the available evidence. To this day, the Soviets have failed to explain the incident satisfactorily, thereby failing to meet their obligation under the 1972 Biological Warfare Convention, to "cooperate in solving any problems which may arise."

Although the lethal mycotoxins are now being field-tested exclusively on anti-Soviet guerrillas and villages in remote corners of the Third World, it is not so difficult to imagine them being unleashed on NATO or other western military forces in the event of a military showdown. Given the relatively poor preparedness of NATO armed forces for chemical warfare, this is a grim prospect.

The Soviet Union's calculated duplicity in producing toxin weapons, transferring them to client states and secretly deploying them is also disturbing because of what it says about Moscow's appraisal of the relative costs and benefits of breaking its obligations under international treaties. If the Soviets cheat on chemical warfare agreements in order to gain marginal advantages in Asia, may they not also cheat on the much more critical matter of strategic arms limitations?

Finally, the poisoning of thousands of civilian noncombatants is an indictment of the values, methods, and morality of the Soviet leadership itself. The Soviets have crossed a line that even Adolf Hitler, in the darkest days of World War II, refused to cross. The use of chemical weapons against remote Asian villages should be triggering international outrage on legal and humanitarian grounds. If these weapons continue to be used without thundering international protest they could attain a legitimacy that portends appalling consequences for all mankind.

James A. Phillips
Policy Analyst

FOR FURTHER INFORMATION

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Special
Report No. 98

United States Department of State

Chemical Warfare in Southeast Asia and Afghanistan

Report to the Congress
from Secretary of State
Alexander M. Haig, Jr.,
March 22, 1982

THE SECRETARY OF STATE
WASHINGTON

TO THE CONGRESS OF THE UNITED STATES:

The years from 1914 to 1918 were among the most destructive of human life in mankind's history. Yet the sacrifice of millions brought no lasting peace. Of the elaborate structure for collective security, and the series of pacts outlawing war and controlling armaments which were negotiated in the aftermath of this First World War, little remains today. The League of Nations, the Kellogg-Briand Pact, and the Washington Naval Agreement were all swept away in the tide of aggression which culminated in a second global conflict. Almost the sole surviving monument, in the law of nations, to the twenty million dead of the First World War is the 1925 Geneva Protocol outlawing chemical and biological warfare.

Today this accord, among the oldest of arms control agreements still in force, along with another more recent such agreement banning biological and toxin weapons, is again in danger of being swept away by a new tide of aggression. Over the past seven years chemical and toxin weapons have been used, on an ever-widening scale, in genocidal campaigns against defenseless peoples. These weapons are being used for precisely the reason mankind has condemned and sought to outlaw them—because of their indiscriminate action and horrific effects. Today evidence of chemical and toxin warfare has accumulated to the point where the international community can no longer ignore the challenge.

The enclosed report on the use of chemical and toxin weapons by the Soviet Union and its Allies in Laos, Kampuchea, and Afghanistan has been prepared for submission to the Congress, to the United Nations, and to each member of the international community. The report is drawn from information made available to the United States Government since 1975. It contains the most comprehensive compilation of material on this subject available, and presents conclusions which are fully shared by all relevant agencies of the United States Government.

The international community and the world public need not rely solely on this report to form their judgment, nor only upon the United States to provide their information. Lethal chemical and toxin weapons are regrettably still in use in Laos, Kampuchea, and Afghanistan. New victims appear, new witnesses come forward, new scientific evidence is uncovered with increasing frequency. The great bulk of the information in the enclosed report could have been collected and analyzed by any interested government, international organization, or major news service. If the efforts of the United States Government to call attention to chemical warfare in Afghanistan and Southeast Asia stimulate others to discover for themselves, and join in efforts to expose the truth, this report will have served its most important purpose.

Sincerely,

Alexander M. Haig, Jr.

Chemical Warfare in Southeast Asia and Afghanistan

CONTENTS

This study presents the evidence available to the U.S. Government on chemical warfare activities in Laos, Kampuchea, and Afghanistan through January 1982 and examines the Soviet involvement in those activities. It is based on a massive amount of information, from a variety of sources, which has been carefully compiled and analyzed over the years. The paper is accompanied by annexes and tables that provide details of the medical evidence and sample analyses, a technical description of trichothecene toxins, and other supporting data.

INTRODUCTION

Nearly 7 years ago, reports of the use of lethal chemical weapons began to emerge from Laos. In 1978, similar reports started to come from Kampuchea, and in 1979 from Afghanistan. Early reports were infrequent and fragmentary, reflecting the remoteness of the scene of conflict and the isolation of those subjected to such attacks. In the summer of 1979, however, the State Department prepared a detailed compilation of interviews with refugees from Laos on this subject. That fall, a U.S. Army medical team visited Thailand to conduct further interviews. By the winter of 1979, the United States felt that it had sufficiently firm evidence of chemical warfare to raise the matter with the governments of Laos, Vietnam, and the Soviet Union. All three governments denied that a basis for concern over the use of chemical warfare agents existed.

Dissatisfied with these responses, and possessing further reports that lethal chemical agents were in use in Southeast Asia and Afghanistan, the U.S. Government in 1980 began to raise the issue publicly in the United Nations, with the Congress, and in other forums. In August of that year, the State Department provided extensive documentation containing evidence of chemical weapons attacks to the United Nations and also made this material publicly available. In December, as a result of efforts by the United States and other concerned nations, the U.N. General Assembly voted to initiate an international investigation into the use of chemical weapons. This investigation is still underway. To date, the U.N. investigating team has been denied admission to any of the three countries where these weapons are in use.

Despite the volume of information on chemical warfare in Southeast Asia which had become available by 1980, there remained one major unresolved issue—the exact nature of the chemical agents in use. Collection of physical samples was hindered by the remoteness of the then principal areas of conflict—as many as 6 weeks by foot to the nearest international border. Tests for known chemical warfare agents on those samples that were obtained proved consistently negative.

In order to identify the chemical agents in use, U.S. experts in late 1980 began to go back over all the reporting—as far back as 1975—looking for new clues. In particular, they sought to match the reported symptomatology of victims—which commonly included skin irritation, dizziness, nausea, bloody vomiting and diarrhea, and internal hemorrhaging—with possible causes. As a result of this review, the U.S. Government in mid-1981 began to test physical samples from Southeast Asia for the presence of toxins. These substances are essentially biologically produced chemical poisons. Although they have never before been used in war, this was a technical possibility, and it was noted that certain toxins could produce the sorts of symptoms observed in Southeast Asian victims of chemical warfare.

In August 1981, unnatural levels and combinations of lethal trichothecene toxins were detected in the first sample to be tested by the United States for such agents. This consisted of vegetation taken from a village in Kampuchea where an attack occurred in which people had died after exhibiting the symptoms described above. In succeeding months, further samples, taken from the sites of attacks in both Kampuchea and Laos, yielded similar results. So did samples of blood taken from victims of a chemical attack in Kampuchea.

Despite a continued flow of reports, dating back over 7 years, of chemical warfare in Southeast Asia and more recently Afghanistan, and despite the still mounting physical evidence of the use of trichothecene toxins as warfare agents, doubts as to the conclusive nature of the available evidence have persisted. These doubts have arisen for several reasons. For one, the evidence of the use of lethal chemical weapons has become available over a period of several years and from a variety of sources. Few governments, journalists, or interested members of the public have been exposed to all of this evidence, nor has it been available in any one place. A second difficulty has been the inevitable need for the U.S. Government to protect some of the relevant information, often gathered at personal risk to individuals who secured it, or obtained through the use of highly sensitive methods.

Chronology of Diplomatic/ International Actions on Chemical Warfare Use

October 1978

The United States called to the attention of the Lao Charge d'Affaires in Washington the press reports alleging use of poison gas in Laos.

Assistant Secretary of State for East Asian and Pacific Affairs Holbrooke traveled to Vientiane and discussed our concerns over H'Mong human rights and other issues with Lao leaders.

Late 1978

The Department of State directed U.S. diplomatic missions in the Southeast Asia area to seek to develop information on the alleged use of poison gas against the H'Mong.

January 1979

The Department of State again informed the Lao Embassy of U.S. concerns about reports of poison gas use in Laos, coupling this with a similar demarche in Vientiane. The Lao denied the validity of the reports.

March 1979

The U.S. Representative to the 35th session of the U.N. Human Rights Commission expressed U.S. concern about the plight of the H'Mong, specifically raising the poison gas use issue.

May 1979

A State Department representative went to refugee camps in Thailand to interview H'Mong claiming to be eyewitnesses and/or victims of poison gas attacks in Laos.

A State Department representative visited Vientiane where he discussed the problem with various diplomatic missions and the senior U.N. representative in Laos. During that visit, he raised U.S. concerns about the problem directly with the Lao Foreign Ministry.

September 1979

A Department of Defense medical team was dispatched to Thailand to interview and prepare a report on H'Mong refugees having knowledge of gas attacks in Laos.

November 1979

Demarches were made to the Vietnamese in Paris and to the Soviets in Moscow expressing U.S. concerns about reports of poison gas being used against "resistance forces" in Laos. Both the Soviets and Vietnamese supported the Lao denial of the validity of the reports.

December 1979

State and Defense Department officials presented evidence of gas attacks in Laos to the House Foreign Affairs Committee.

February 1980

A bilateral demarche was made to the Soviets about U.S. concerns regarding chemical warfare use in both Laos and Kampuchea and about reports that chemical weapons were being used by the Soviets in Afghanistan. The demarche was made in Geneva in the context of the U.S./Soviet bilateral negotiations on a comprehensive prohibition of chemical weapons production, development, and stockpiling.

May 1980

An interagency team of U.S. Government political, technical, and intelligence officers was dispatched to Europe to brief the allies about the problem and to stimulate support for having an impartial international investigation conducted.

July 1980

Another bilateral demarche was made to the Soviets in the context of the U.S./Soviet bilateral chemical warfare negotiations, concerning the problem of the reported use of chemical weapons in both Southeast Asia and Afghanistan.

The Inter-Parliamentary Union adopted a resolution calling for an impartial international investigation of reports of chemical weapons use.

August 1980

The United States circulated to U.N. member states a 125-page compendium of reports and declassified intelligence information pertaining to the use of chemical weapons in Laos, Kampuchea, and Afghanistan.

The 40-nation Committee on Disarmament included language in its Annual Report to the U.N. General Assembly on the need for an impartial international investigation of the problem of chemical weapons use.

December 1980

With the full and active support of the United States, the West, and others, the U.N. General Assembly adopted a resolution (A/35/144 C) establishing a U.N. investigation, under the auspices of the U.N. Secretary General and with the assistance of qualified medical and technical experts, of reports of chemical weapons use. The vote was 78 in favor to 17 opposed, with 36 abstentions.

March 1981

In accordance with U.N. General Assembly Resolution A/35/144 C and the request of the U.N. Secretary General, the U.S. submitted detailed information pertaining to the reports of the use of chemical weapons in Southeast Asia and Afghanistan. The U.S. submission consisted of a letter summarizing the U.S. submission, the U.S. compendium of reports from August 1980, an update to that compendium covering the period through January-February 1981, the transcripts of congressional hearings held on the subject in December 1979 and in April 1980, and the texts of House and Senate resolutions condemning the use of chemical weapons.

July 1981

The United States provided further details and written responses to questions from the U.N. Group of Experts concerning the U.S. submission of March 1981.

September 1981

Secretary Haig announced, in his September 13 speech in Berlin, that the United States had obtained physical evidence of the use of lethal mycotoxins in Southeast Asia, discovered in the analysis of a leaf and stem sample obtained from the site of a chemical attack in Kampuchea.

On September 14, the United States submitted a report on the new evidence pertaining to the use of mycotoxins to the U.N. Group of Experts investigating reports of chemical weapons use.

Under Secretary of State for Political Affairs Stoessel held a press conference in Washington on September 14 and provided a detailed press backgrounder on the new evidence.

Secretary Haig raised U.S. concerns about the new evidence pertaining to the use of lethal mycotoxins in Southeast Asia and about the 1979 Sverdlovsk anthrax incident with Soviet Foreign Minister Gromyko during their bilateral consultations at the United Nations in New York.

October 1981

Following up the Haig/Gromyko discussions, detailed bilateral demarches were made to the Soviets in Washington by Acting Arms Control and Disarmament Agency Director Grey, and a followup in Moscow by the U.S. Deputy Chief of Mission, on the general subject of Soviet Biological Warfare Convention compliance and specific U.S. concerns regarding the 1979 Sverdlovsk anthrax incident and the evidence of the use of trichothecene mycotoxins in Southeast Asia. The Soviets rejected U.S. concerns once again in their formal response in November.

An interagency team of political, technical, and intelligence officers was dispatched to Europe to brief the allies about the new evidence of the use of lethal mycotoxins in Southeast Asia.

A delegation of U.S. Government political, technical, and medical experts appeared before the U.N. Group of Experts to respond to questions pertaining to the U.S. submission on September 14 of new evidence concerning the use of lethal mycotoxins in Southeast Asia.

November 1981

The U.N. Group of Experts investigating reports of chemical weapons use traveled to Thailand to visit refugee camps and interview and examine survivors and eyewitnesses of chemical attacks in Laos and Kampuchea. While there, the experts also obtained samples from alleged chemical attacks and samples of vegetation and blood from refugees exposed to chemical attacks.

Richard Burt, Director of the Bureau of Politico-Military Affairs, in testimony before the Congress, announced the results of analyses of additional samples of chemical warfare use revealing the presence of high levels of mycotoxins and the results of analyses of control samples from Southeast Asia which were found to contain *no* mycotoxins.

The United States submitted a report on its analyses of chemical warfare use samples from both Kampuchea and Laos, which were found to contain high levels of mycotoxins, to the U.N. Group of Experts investigating reports of chemical weapons use.

Demarches were made to the Vietnamese in New York and to the Lao in Vientiane regarding the evidence of the use of lethal mycotoxins in the conflicts in Kampuchea and Laos. Both the Vietnamese and the Lao rejected the evidence and denied the validity of U.S. concerns.

December 1981

The U.N. Secretary General submitted the Report of the U.N. Group of Experts investigating reports of chemical weapons use (A/36/613). The report was inconclusive and stated that the group had been unable to carry out all the actions it had *intended* (i.e., on-site visits to Afghanistan, Laos, and Kampuchea) due to the refusals to cooperate of the countries concerned, and that it had been unable to complete some of the actions it had *planned* (e.g., on-site visits to Pakistan, analysis of the samples obtained in Thailand) in the time available.

With the full and active support of the United States, the West, and others, the U.N. General Assembly adopted a resolution (A/36/96 C) extending for another year the mandate of the U.N. Secretary General's Group of Experts investigating reports of chemical weapons use. The vote on the resolution was 86 in favor to 20 opposed, with 32 abstentions.

This report represents an effort of the U.S. Government to correct the first deficiency and to ameliorate the second to the extent possible. In preparation of this report, all of the information available to the U.S. Government on chemical weapons use in Laos, Kampuchea, and Afghanistan was assembled in one place. This information was again reviewed, analyzed, cross-indexed, and organized in a coherent fashion. Based upon this comprehensive analysis, a set of conclusions were drawn, conclusions which have since been reviewed and agreed on without qualification by every relevant agency of the U.S. Government.

The evidence upon which this report is based is of several kinds, including:

- Testimony of those who saw, experienced, and suffered from chemical weapons attacks;
- Testimony of doctors, refugee workers, journalists, and others who had the opportunity to question large numbers of those with firsthand experience of chemical warfare;
- Testimony of those who engaged in chemical warfare or were in a position to observe those who did;
- Scientific evidence, based upon the analysis of physical samples taken from sites where attacks had been conducted;
- Documentary evidence from open sources; and
- Intelligence derived from "national technical means."

These sources provide compelling evidence that tens of thousands of unsophisticated and defenseless peoples have for a period of years been subjected to a campaign of chemical attacks. *Taken together, this evidence has led the U.S. Government to conclude that Lao and Vietnamese forces, operating under Soviet supervision, have, since 1975, employed lethal chemical and toxin weapons in Laos; that Vietnamese forces have, since 1978, used lethal chemical and toxin agents in Kampuchea; and that Soviet forces have used a variety of lethal chemical warfare agents, including nerve gases, in Afghanistan since the Soviet invasion of that country in 1979.*

The implications of chemical warfare in Afghanistan and Southeast Asia are painful to contemplate but dangerous to ignore. This activity threatens not only the peoples of those isolated regions but the international order upon which the security of all depends. Those who today suffer chemical warfare against their homelands are powerless to stop it. The prohibitions of international law and solemn agreement are not self-enforcing. Only an alert and outspoken world community, intent to maintain those standards of international behavior it has so painfully achieved and so tenuously established, can bring sufficient pressure to bear to halt these violations of law and treaty. It is hoped that publication of this report will be one step in this process, the end result of which will be the cessation of chemical warfare and the strengthening of the rule of law in the affairs of nations.

KEY JUDGMENTS

Laos. The U.S. Government has concluded from all the evidence that selected Lao and Vietnamese forces, under direct Soviet supervision, have employed lethal trichothecene toxins and other combinations of chemical agents against H'Mong resisting government control and their villages since at least 1976. Trichothecene toxins have been positively identified, but medical symptoms indicate that irritants, incapacitants, and nerve agents also have been employed. Thousands have been killed or severely injured. Thousands also have been driven from their homeland by the use of these agents.

Kampuchea. Vietnamese forces have used lethal trichothecene toxins on Democratic Kampuchean (DK) troops and Khmer villages since at least 1978. Medical evidence indicates that irritants, incapacitants, and nerve agents also have been used.

Afghanistan. Soviet forces in Afghanistan have used a variety of lethal and nonlethal chemical agents on *mujahidin* resistance forces and Afghan villages since the Soviet invasion in December 1979. In addition, there is some evidence that Afghan Government forces may have used Soviet-supplied chemical weapons against the *mujahidin* even before the Soviet invasion. Although it has not been possible to verify through sample analysis the specific agents used by the Soviets, a number of Afghan military defectors have named the agents brought into the country by the Soviets and have described where and when they were employed. This information has been correlated with other evidence, including the reported symptoms, leading to the conclusion that nerve agents, phosgene oxime, and various incapacitants and irritants have been used. Other agents and toxic smokes also are in the country. Some reported symptoms are consistent with those produced by lethal or sublethal doses of trichothecene toxins, but this evidence is not conclusive.

The Soviet Connection. The conclusion is inescapable that the toxins and other chemical warfare agents were developed in the Soviet Union, provided to the Lao and Vietnamese either directly or through the transfer of know-how, and weaponized with Soviet assistance in Laos, Vietnam, and Kampuchea. Soviet military forces are known to store agents in bulk and move them to the field for munitions fill as needed. This practice also is followed in Southeast Asia and Afghanistan, as evidenced by many reports which specify that Soviet technicians supervise the shipment, storage, filling, and loading onto aircraft of the chemical munitions. The dissemination techniques reported and observed evidently have been drawn from years of Soviet chemical warfare testing and experimentation. *There is no evidence to support any alternative explanation, such as the hypothesis that the Vietnamese produce and employ toxin weapons completely on their own.*

METHODOLOGY

The judgments of this study were arrived at through a rigorous analytical process.

- Every relevant piece of information on reported chemical warfare incidents was reviewed, recorded, and tabulated. Numbers of attacks and deaths were screened for possible duplication. Extensive data on the Soviet chemical and biological warfare program also were reviewed.
- All the test data on physical evidence available to the U.S. Government—including environmental samples and background controls—were reviewed.
- A scientific report on toxins, which concluded that trichothecenes probably were among the agents used in Southeast Asia, was prepared.
- The medical evidence was analyzed, drawing on all available information from Southeast Asia and Afghanistan and incorporating the findings of a Department of Defense medical team, which concluded that at least three types of agents were used in Laos.
- Extensive consultations were held with government and nongovernment scientists and medical authorities, many of whom were asked to review the evidence. Experts from other countries also were consulted.

After the data were organized to permit comparative analysis, the study focused on three separate questions.

- Have lethal and other casualty-producing agents been used in Southeast Asia and Afghanistan?
- What are these agents, and how and by whom are they employed?
- Where do these agents originate, and how do they find their way to the field?

Although the evidence differs for each country, the analytical approach was the same. Testimony of eyewitnesses—date, place, and type of attack—was matched against information from defectors, journalists, international organizations, and sensitive information that often pinpointed the time and place of chemical attacks. In addition, information on military operations in the areas where chemical attacks had been reported was examined to establish whether air or artillery strikes took place or whether there was fighting in the areas where chemical agents reportedly were used. *In all three countries, instances were identified in which eyewitness accounts could be correlated directly with information from other sources on military operations in progress.*

There is no evidence of any systematic propaganda campaign by either the H'Mong in Laos or the Afghan resistance forces to promote the allegation that chemical agents have been used on their people. On the other hand, there were early indications that Pol Pot's Democratic Kampuchean resistance did engage in an organized propaganda campaign on chemical agent use. These indications made U.S. Government analysts cautious about accepting DK allegations, which increased markedly after the chemical attacks in Laos were publicized. For Kampuchea, therefore, special efforts were taken to confirm such allegations by analyzing sources of information that in no way could be considered part of a propaganda or deception campaign.

DISCUSSION OF FINDINGS

In September 1981, the U.S. Government declared publicly that toxins—poisonous chemical substances extracted from biological material—probably were the mysterious lethal agents used for many years in Laos and Kampuchea. The statement was prompted by the discovery of high levels of trichothecene toxins in a vegetation sample collected shortly after a March 1981 Vietnamese chemical attack in Kampuchea. This conclusion, however, rested on a much broader base of evidence than analysis of one sample.

By April 1980, the U.S. Government had already concluded that lethal agents almost certainly had been used against H'Mong tribespeople in Laos. There was less certainty then about the use of lethal agents in Kampuchea, mainly because of the already mentioned suspicions about the propaganda campaign of Pol Pot's Democratic Kampuchean forces, although their claims subsequently were shown to be valid. It was also concluded that chances were about even that lethal agents had been used in Afghanistan. There was little doubt by April 1980 that riot-control agents and some form of incapacitants had been used in all three countries. Since that April 1980 assessment, additional evidence has allowed a much firmer conclusion. There is now no doubt that casualties and deaths have resulted from chemical attacks in all three countries.

What Chemical Agents Are Being Used?

As soon as it was determined that chemical agents had been used, an effort was made to identify the specific agents. To do this it was necessary to collect and analyze at least one of the following: environmental samples contaminated with agents, the munitions used to deliver agents, or biological specimens from victims of an attack. A study by medical-toxicological experts of symptoms exhibited by individuals exposed to toxic agents provides a good indication of the general class of chemical agent used. Thus, the range of clinical manifestations from chemical agents, as reported by a U.S. Army investigative team in Thailand, resulted in the determination that nerve agents, irritants such as CS, and highly toxic hemorrhagic chemicals or mixture of chemicals were used in Laos.

Other medical-toxicological personnel who reviewed the evidence and conducted their own investigation reached the same conclusion. They further indicated that toxins such as the trichothecenes were a probable cause of the lethal hemorrhaging effect seen in Kampuchea and Laos. In many cases, symptoms reported by the Democratic Kampuchean forces in Kampuchea and the *mujahidin* in Afghanistan were similar to those reported by the H'Mong in Laos. Moreover, symptoms reported from Afghanistan and Kampuchea indicated that a highly potent, rapid-acting, incapacitant "knockout" chemical also was being used. *Mujahidin* victims and witnesses to chemical attacks reported other unusual symptoms, including a blackening of the skin, severe skin irritation along with multiple small blisters and severe itching, severe eye irritation, and difficulty in breathing—all of which suggests that phosgene oxime or a similar substance was used.

Collecting samples possibly contaminated with a toxic agent during or after a chemical assault is difficult under any circumstances but particularly when the assault is against ill-prepared people without masks or other protective equipment. Obtaining contaminated samples that will yield positive traces of specific chemical agents depends on many factors. These include the persistency of the chemical, the ambient temperature, rainfall, wind conditions, the medium on which the chemical was deposited, and the time, care, and packaging of the sample from collection to laboratory analysis.

Many traditional or known chemical warfare agents are nonpersistent and disappear from the environment within a few minutes to several hours after being dispersed. Such agents include the nerve agents sarin and tabun; the blood agents hydrogen cyanide and cyanogen chloride; the choking agents phosgene and diphosgene; and the irritant phosgene oxime. Other standard chemical warfare agents—such as the nerve agents VX and thickened soman and the blistering agents sulfur mustard, nitrogen mustard, and lewisite—may persist for several days to weeks depending on weather conditions.

The trichothecene toxins have good persistency but may be diluted by adverse weather conditions to below detectable concentrations. To maximize the chances of detection, sample collections need to be made as rapidly as possible after a chemical assault; as with many agents, this means minutes to hours. Under the circumstances of Southeast Asia and Afghanistan, such rapid collection has simply not been possible. Although many samples were collected, few held any realistic prospect of yielding positive results. It is fortunate that trichothecenes are sufficiently persistent and in some cases were not diluted by adverse weather conditions. Thus we were able to detect them several months after the attack.

Samples have been collected from Southeast Asia since mid-1979 and from Afghanistan since May 1980. To date, about 50 individual samples—of greatly varying types and usefulness for analytical purposes—have been collected and analyzed for the presence of known

chemical warfare agents, none of which has been detected. Based on recommendations by medical and toxicological experts and findings of investigators from the U.S. Army's Chemical Systems Laboratory, several of the samples have been analyzed for the trichothecene group of mycotoxins. Four samples, two from Kampuchea and two from Laos, were found to contain high levels of trichothecene toxins. In addition, preliminary results of the analysis of blood samples drawn from victims of an attack indicate the presence of a trichothecene metabolite of T–2, namely HT–2.

A review of all reports indicates the use of many different chemical agents, means of delivery, and types of chemical attacks. The use of trichothecene toxins has been identified through symptoms and sample analysis. In some cases, however, the symptoms suggest other agents, such as nerve gas, which have not been identified through sample analysis. Significant differences as well as similarities have surfaced in the reports from the three countries. The evidence from each country, therefore, is described separately, with attention drawn to similarities where appropriate.

Laos

Reports of chemical attacks against H'Mong villages and guerrilla strongholds in Laos date from the summer of 1975 to the present (see Table 1). Most of the reports were provided by H'Mong refugees who were interviewed in Thailand and the United States. More than 200 interviews were carried out variously by U.S. Embassy officials in Thailand, a Department of Defense team of medical-toxicological experts (see Annex B), U.S. physicians, Thai officials, journalists, and representatives of international aid and relief organizations. According to the interviews, Soviet AN–2 and captured U.S. L–19 and T–28/41 aircraft usually were employed to disseminate toxic chemical agents by sprays, rockets, and bombs. In some cases, Soviet helicopters and jet aircraft were said to have been used.

The reports describe 261 separate attacks in which at least 6,504 deaths were cited as having resulted directly from exposure to chemical agents. The actual number of deaths is almost certainly much higher, since the above figure does not take account of deaths in attacks for which no specific casualty figures were reported. The greatest concentration of reported chemical agent use occurred in the area where the three provinces of Vientiane, Xiangkhoang, and Louangphrabang adjoin (see map). This triborder region accounted for 77% of the reported attacks and 83% of the chemical-associated deaths. Most of the reported attacks took place in 1978 and 1979. Since 1979, the incidence of chemical attacks appears to have been lower, but reported death rates among unprotected and untreated victims were higher. Only seven chemical attacks were reported in the fall of 1981, for example, yet 1,034 deaths were associated with those incidents.

TABLE 1

Laos: Summary of Reported Chemical Attacks and Associated Deaths, 1975–81

Time Period	Area	Attacks[a]	Deaths[b]
Summer 1975	Vientiane	2	25+
Fall 1976	Phou Bia	8	10
	Savannakhet	1	10
Winter 1976–77	Phou Bia	2	16
Spring 1977	Phou Bia	6	66+
	Khammouan	2	1
Summer 1977	Phou Bia	6	95
Fall 1977	Phou Bia	1	25
Winter 1977–78	Phou Bia	10	1,328+
	Savannakhet	6	224
Spring 1978	Phou Bia	34	969+
Summer 1978	Phou Bia	22	664+
Fall 1978	Phou Bia	19	572
Winter 1978–79	Phou Bia	5	15+
Spring 1979	Phou Bia	36	257+
Summer 1979	Phou Bia	5	239+
Fall 1979	Phou Bia	10	56
	Xaignabouri	2	24+
Winter 1979–80	Phou Bia	4	10+
Spring 1980	Phou Bia	3	24
Summer 1980	Phou Bia	6	187+
Fall 1980	Xaignabouri	1	12
	Phou Bia	7	88+
	Savannakhet	3	1+
Winter 1980–81	Xaignabouri	2	57
	Phou Bia	4	82
	Vientiane	1	1+
Spring 1981	Houaphan	2	?
	Phou Bia	7	218
	Vientiane	1	—
Summer 1981	Phou Bia	1	?
Fall 1981	Phou Bia	4	500+
	Khammouan	3	534+
		226	6,310+

[a] This tabulation omits 35 attack sites, accounting for 194 deaths, which could not be geographically located in the reports. The totals overall were 261 attacks and more than 6,504 deaths.

[b] A plus sign indicates that the report(s) of deaths gave a minimum figure. In some cases (shown with a question mark) deaths were reported, but no number was given. Other reports (signified with a dash) gave no information on fatalities.

The medical symptoms reportedly produced by the chemical agents are varied. According to knowledgeable physicians, the symptoms clearly point to at least three types of chemical agents—incapacitant/riot-control agents, a nerve agent, and an agent causing massive hemorrhaging. The last-named was positively identified as trichothecene toxins. This was announced publicly by Secretary Haig in September 1981.

In a number of the refugee reports, eyewitnesses described attacks as consisting of "red gas" or a "yellow cloud."

Laos: Chemical Warfare Operational Areas

Red gas was considered the more lethal. A former Lao Army captain stated that the "red gas" caused the H'Mong to die within 12 hours. An employee of an international organization interviewed victims of a September 15, 1979 attack in which nonlethal rounds preceded an attack by five or six "red gas" bombs that covered a 500-meter area. Persons within 30–100 meters of the circle died in 10 minutes after severe convulsions. Others had headaches, chest pains, and vomiting but did not die.

Every qualified interrogator who systematically interviewed the H'Mong refugees concluded that they had been subjected to chemical attacks. A U.S. Government medical team returned from Thailand in 1979 convinced that several unidentified chemical warfare agents had produced the symptoms described by the refugees. This evidence was expanded by testimony from a variety of sources, including that of a Lao pilot who flew chemical warfare missions before defecting in 1979. His detailed description of the Lao, Vietnamese, and Soviet program to use chemical agents to defeat the H'Mong resistance helped dispel any lingering suspicions that the refugees had fabricated or embellished the stories. The Lao pilot described the chemical rocket he had fired as having a more loosely fitting warhead than a conventional rocket. (His account appears in Annex A.)

In 1977, a H'Mong resistance leader found a U.S. 2.75-inch rocket* with a modified Soviet warhead that fits the Lao pilot's description. Other sources reported that U.S. 2.75-inch rockets were fitted with Soviet-supplied lethal chemical warheads by Soviet and Vietnamese technicians at facilities in Vientiane as well as in Xiangkhoang and Savannakhet Provinces. Munitions storage facilities suitable for storing chemical agents and weapons have been identified in each of these provinces. The aircraft types—AN-2s, L-19s, and T-28/41s—most often reported by the H'Mong refugees as being used to deliver chemical agents have been identified as based on airfields in northern Laos throughout this period. A special Lao Air Force unit is responsible for chemical rockets. The unit is commanded by a Soviet-trained Lao and has a Soviet rocket expert attached as an adviser.

* During withdrawal of U.S. forces from Vietnam, thousands of these fell into Vietnamese hands.

Obtaining additional data for Laos has been difficult because of the nature of the fighting there. There have been few major operations. The reports reflect numerous minor engagements between the opposing forces. In nearly all cases, the chemical use reported has been directed against villages, in the absence of obvious combat operations. This lends support to the Lao pilot's claim that the Vietnamese and Lao military commands were engaged in a "H'Mong extermination" campaign.

Of particular interest are the circumstances surrounding the collection of two physical samples found to contain lethal toxins. The first was collected after a March 13, 1981 attack on a village between the villages of Muong Chai and Phakhao in the Phou Bia region. In this case, a large two-engine plane reportedly sprayed a mist of a moist, yellow, sticky substance; two villagers and all village animals died. The second sample is from Ban Thonghak, another village in the Phou Bia region, collected following an April 2, 1981 attack in which a jet aircraft reportedly sprayed a yellow substance; 24 of the 450 villagers died. In the spring of 1981, seven separate chemical attacks, resulting in 218 deaths, were reported to have occurred in this region.

It is significant that these attacks took place following a period of escalation in overall resistance activities in the Phou Bia area in the winter of 1980–81. During that period, joint suppression operations by Lao People's Liberation Army and Vietnamese Army forces had achieved only limited success, perhaps spurring both forces on to greater effort. The more intense use of chemical weapons may have been part of this effort.

Evidently the fact that chemical agents were being used in Laos was not widely known among units of the Lao Army. In June 1981, a group of refugees from a village in Vientiane Province reached Thailand and described attacks against them carried out a month earlier by helicopters "dropping poison" into their water supply. Lao field units subsequently entered the village and were surprised at the sight of many villagers still suffering from symptoms of acute poisoning. According to a villager, when the Lao military personnel saw the "small yellow grains" spread around the village, they were convinced that toxic chemicals had been used on the village and requested medical assistance for those villagers still suffering from nausea and bloody diarrhea.

In a December 15, 1981 press conference in Beijing, former Lao Health Ministry Bureau Director Khamsengkeo Sengsathit—who had defected to China—confirmed that chemical weapons were being used "in the air and on the ground" in Laos, killing "thousands." He asserted that the Vietnamese alone were using such weapons, keeping the matter secret from the Lao. He also stated that 3,000 Soviet advisers were in Laos and "have taken control" of the Lao Air Force, while 40,000–50,000 Vietnamese troops had "reduced Laos to the status of a colony."

Kampuchea

Since October 1978, radio broadcasts, press releases, and official protests to the United Nations by the Democratic Kampuchea leadership have accused the Vietnamese and the Hanoi-backed People's Republic of Kampuchea regime of using Soviet-made lethal chemical agents and weapons against DK guerrilla forces and civilians. DK allegations for a time were the only source of information concerning chemical warfare attacks in Kampuchea. In November 1979, however, the guerrilla forces of the Khmer People's National Liberation Front reported that the Vietnamese had attacked them with a tear gas which, from their description, resembled the riot-control agent CS. Subsequently, Thai officials, Democratic Kampuchea informants and refugees, Vietnamese Army defectors, U.S. and Thai medical personnel, officials of international aid and relief organizations, and Canadian and West European officials also have implicated the Vietnamese in the offensive use of lethal and incapacitating chemical agents in Kampuchea.

There are reports of 124 separate attacks in Kampuchea from 1978 to the fall of 1981 in which lethal chemicals caused the deaths of 981 persons (see Table 2). The mortality figure represents a minimum because some reports state only that there were deaths and do not provide a number. The earliest reports cite attacks in Ratanakiri Province, in the northeastern corner of the country (see map). Reports from 1979 to the present show the use of lethal chemicals primarily in the provinces bordering Thailand. The greatest use of chemical agents apparently has been in Battambang Province, with 51 reported incidents; Pursat Province has experienced the next highest frequency, with 25

TABLE 2

Kampuchea: Summary of Reported Chemical Attacks and Associated Deaths, 1978–81

Time Period	Area	Attacks	Deaths[a]
1978	Ratanakiri	5	?
Summer 1979	Kompong Speu	4	37
Fall 1979	Siem Reap	1	—
	Battambang	4	22+
	Pursat	2	1+
	Koh Kong	2	6+
	Kampot	1	3
	Kompong Chhnang	2	118
Winter 1979–80	Battambang	12	64+
	Pursat	5	21+
	Koh Kong	2	4
Spring 1980	Battambang	3	20+
	Pursat	8	24+
	Koh Kong	5	13
Summer 1980	Siem Reap	1	82+
	Battambang	3	23+
	Pursat	2	7
	Koh Kong	3	—
Winter 1980–81	Battambang	8	—
	Pursat	2	3
Spring 1981	Preah Vihear	1	—
	Battambang	12	163+
	Pursat	3	42+
	Koh Kong	1	—
	Kampot	1	—
Summer 1981	Battambang	3	7+
	Kompong Thom/Cham	1	—
Fall 1981	Siem Reap	16	305
	Battambang	6	16
	Pursat	3	—
	Koh Kong	1	—
	Kampot	1	—
		124	981

[a] A plus sign indicates that the report(s) of deaths gave a minimum figure. In some cases (shown with a question mark) deaths were reported, but no number was given. Other reports (signified with a dash) gave no information on fatalities.

reported incidents. These numbers are consistent with the overall high level of military activity reported in the border provinces.

A review of information from all sources provides direct and specific support for 28 of 124 reported attacks. There is, in addition, some evidence that in all reported instances some form of attack took place. This evidence includes reports of troop movements, supply transfers, operational plans, postoperation reporting, and air activity. It indicates that military activity took place at the time and place of every incident reported to involve lethal chemical agents. In some cases, it provides strong circumstantial evidence that the action involved chemical substances—for example, the movement of chemicals and personal protection equipment into the area.

There is no doubt that in late 1978 and 1979 the Vietnamese, and what later became the People's Republic of Kampuchea forces, made at least limited use of riot-control chemicals and possible incapacitating agents against both Communist and non-Communist guerrilla forces in Kampuchea. The chemicals used probably included toxic smokes, riot-control agents such as CS, and an unidentified incapacitating agent that caused vertigo and nausea and ultimately rendered victims unconscious with no other signs or symptoms.

In March 1979, during Vietnamese operations against Khmer Rouge forces in the Phnom Melai area, a Vietnamese Army private, who later defected, observed the following activities related to chemical warfare. During the fighting, all regiment (740th) troops were issued gas masks. However, the 2nd Battalion, a "border defense unit," was not issued masks. This unit was in the Phnom Melai area and was virtually surrounded by Khmer Rouge forces. At another point in the battle, the regiment's troops were ordered to don masks. The Vietnamese Army private reported that he saw two Soviets (Caucasians) fire a DH-10 (a hand-held weapon identified by the private's comrades). He was about 50 meters from the firing point. The weapon at impact, which he was able to observe from his position, gave off clouds of white, gray, and green gas/smoke. His signal unit subsequently passed a message reporting that there were 300 dead, including the unprotected Khmer Rouge and Vietnamese of the border defense forces' 2nd Battalion. The corpses reportedly had traces of white and green powder on their faces and clothes. Their faces were contorted, with eyes wide open. No blood was seen. (A H'Mong resistance leader described an incident in 1981 in which two Soviet soldiers fired a hand-held weapon that dispersed a similar lethal agent.)

Starting in February 1980, reports revealed that the Vietnamese were using 60 mm mortars, 120 mm shells, 107 mm rockets, M-79 grenade launchers filled with chemical agents, as well as munitions delivered by T-28 aircraft. According to the DK, the chemicals used were green and yellow and powderlike in appearance. In some instances the gas was described as yellow or white. The symptoms described were tightening of the chest, disorientation, vomiting, bleeding from the nose and gums, discoloration of the body, and "stiffening" of the teeth. In July 1980, the DK described artillery attacks that produced a black smoke causing itchy skin, weakness, skin lesions, and in some cases decaying skin and blisters. In December 1980, the Vietnamese were once again firing chemical artillery shells, and it was believed that poison chemicals were being brought into Thailand's border region. By March 1981, the Democratic Kampuchea forces had reported numerous attacks directed against them with lethal chemical agents and the poisoning of food and water.

U.S. analysis of contaminated vegetation samples collected within hours of a March 1981 attack showed high levels of three trichothecene toxins in a combination that would not be expected to be found in a natural outbreak in this

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environment. At the levels found on the vegetation, the three trichothecenes would produce vomiting, skin irritations and itching, and bleeding symptoms. Water samples taken from the area of the same attack also contained trichothecene toxins. Control samples from nearby areas confirmed that these toxins were not indigenous to the locale. (Details on the sample analysis appear in Annex D.)

There also is ample evidence of military activity at the place and time of the acquisition of the samples. Vietnamese Army defectors described plans for multiregimental sweep operations to be conducted along the border in northwestern Battambang Province before the end of the dry season in May. Actual fighting, however, continued to be characterized by guerrilla tactics on both sides, including, according to a Vietnamese Army defector, "staging ambushes, laying minefields, and use of deception." Indeed, Democratic Kampuchean resistance forces were ordered to avoid large-scale operations and to limit combat operations to scattered sapper attacks. Such information is consistent with other reports of Vietnamese Army forces spreading toxic chemicals in streams, along roadsides, and around villages and firing toxic gas shells against enemy positions. The Phnom Melai sector, where Phnom Mak Hoeun is located, was described as an "anthill of DK activity," and actions reported during March were "sporadic firefights" around Phnom Mak Hoeun involving the Vietnamese Army's 2nd Battalion, 2nd Border Security Regiment.

In Kampuchea, as in Laos, the period of late 1980 through spring 1981 was one of intensified Vietnamese operations to suppress the resistance and break the will of the opposing forces. In July 1981, trucks loaded with blue sacks filled with white powder were being moved by the Vietnamese into the Pailin, Battambang, and Siem Reap areas. Vietnamese soldiers told villagers that the chemicals caused blindness, hemorrhaging, and vomiting.

Additional evidence was derived from blood samples drawn from victims of Vietnamese chemical use that occurred on September 19, 1981 in the Takong area. Takong is in the same general area as Phnom Mak Hoeun—that is, the central region of Battambang Province near the Thai border. Although there is no independent confirmation of the accounts of the attack, American medical personnel visiting a DK field hospital examined the victims and obtained the blood samples. Analyses of these samples suggested the use of trichothecenes. (Blood analysis results also appear in Annex D.)

According to the DK soldiers affected, the chemicals used in the September 19 Takong attack were dispersed as a gas or powder and as a poison to water. The gas or powder was released from containers by tripwires in the area of the rear forces. This description is consistent with the other reporting for this area and time.

Thailand also has been concerned about chemical attacks against its own forces and civilian population. In March 1981, one Thai died from poisons placed by Vietnamese troops, and others became ill after suffering bleeding from the nose and mouth. In May 1981, Thai forces captured two Vietnamese as they were attempting to poison the water supply in a Kampuchean relocation camp in Thailand. The poison was analyzed by the Thai and found to contain lethal quantities of cyanide. Many reports indicate that it is common practice for Vietnamese units to poison water and food used by the DK forces.

The Soviet Connection in Southeast Asia

Much of the Soviet interest in Southeast Asia is dictated by their rivalry with China and their close alliance with the Vietnamese. Regional Communist forces have been strengthened to contain Chinese influence and deter military incursions. The area of northern Laos between Vientiane and the Chinese border—where the H'Mong hill tribes have stubbornly resisted and harassed Vietnamese forces—is strategically significant to the Vietnamese because it adjoins a hostile China. In the last few years the Vietnamese have expanded their military construction and strengthened their forces in Laos which now number 50,000.

Initially there was a tendency to interpret the Soviet role as strictly advisory. Now, however, there is considerable evidence to suggest that the Soviets are far more involved in the Lao and Vietnamese chemical warfare program than was assumed earlier. An estimated 500 Soviet military advisers provide maintenance assistance and technical support, actually running the Lao Air Force, and give advanced training to Lao personnel in conventional as well as chemical warfare.

The Soviets have had advisers and technicians working in Vietnam and Laos for many years and in Kampuchea since 1979. However, it was not until early 1979 that evidence surfaced on the Soviets' direct involvement in chemical warfare activities. For example, the Lao Army chemical section in Xiangkhoang prepared Soviet-manufactured chemical items for inspection by a Soviet military team on February 7, 1979. A seven-man team of Soviet chemical artillery experts, accompanied by Lao chemical officers, inspected chemical supplies and artillery rounds at the Xeno storage facility in Savannakhet on June 1, 1979. One report stated that the Soviets would be inspecting the same chemical explosives used to suppress the H'Mong in the Phou Bia area.

In addition to this information, H'Mong accounts have described Soviet advisers and technicians participating in the preparation of the chemical weapons for the attacks on the H'Mong villages. H'Mong eyewitnesses claim to have seen "Caucasian pilots" in aircraft, and one H'Mong report states that a downed Soviet aircraft was discovered in the jungle along with a dead Soviet pilot. In November 1981, a H'Mong resistance leader described how Soviet soldiers fighting with the Lao Army fired handheld weapons that dispersed a lethal agent over a 300-meter area. Several Lao defectors have reported seeing Soviet advisers present when aircraft were loaded with chemical-agent rockets.

In July 1981, a Soviet shipment of wooden crates filled with canisters described by the Vietnamese as "deadly toxic chemicals" was unloaded at the port of Ho Chi Minh City. This incident further corroborates the judgment that the Soviets have been shipping chemical warfare materiel to Vietnam for some time. During the unloading, Vietnamese soldiers were caught pilfering the wooden crates containing the canisters. The soldiers dropped one of the wooden cases and intentionally broke it open; they wanted to determine if its contents were edible or valuable for pilferage. When a soldier broke the nylon seal and attempted to pry open a canister, special security personnel isolated the area and told the soldiers that the canisters contained deadly toxic substances from the U.S.S.R. The wooden crates, each weighing 100 kilograms, were loaded on military trucks and taken under special guard to the Long Binh storage depot.

This incident is only one in a series involving Soviet chemical warfare materiel dating back several years. In 1975, for example, a Soviet captain of a diving support craft engaged in salvaging a sunken ship in the Black Sea, which had been transporting Soviet military supplies to Vietnam, said that

his divers came in contact with toxic chemicals, and a special Soviet salvage unit took over the operation after the divers became very ill. The salvage operations, conducted by the ASPTR–12 Salvage, Rescue, and Underwater Technical Services Group based in Odessa, were monitored by high-ranking Soviet naval officers.

The operation began with the removal of tractors and helicopters which cluttered the deck of the ship and prevented access to hold hatches. Once the surface clutter was removed, the divers attempted to enter the holds. At this point, however, operations had to be suspended temporarily because of a violent outbreak of chemical poisoning among the divers. Contact with the unidentified chemicals resulted in reddish welts 1–3 centimeters in diameter on exposed skin and was accompanied by severe headaches, nausea, and a general feeling of fatigue. The symptoms disappeared on their own after 3–5 days of rest. At this point, military authorities took over from the ASPTR–12 divers, who were temporarily withdrawn from the project. Soviet naval divers were sent down and determined that the source of poisoning was chemical seepage from an open hatch of one of the holds. The hatch was promptly sealed, and the salvage operation was once more assigned to ASPTR–12 divers who resumed work and retrieved ammunition and an assortment of other equipment. Once this was done, the military took over permanently. The ship was raised without removing the poisonous chemicals and towed to an Odessa shipyard where the chemicals were unloaded by military personnel. The ship was then broken up and scrapped. The entire operation took about 3 years to complete.

As another example of Soviet involvement, two Vietnamese corporals, from the 337th and 347th Vietnamese Army divisions, have stated that Soviet-supplied chemical weapons were stored in caves near Lang Son in February 1979. Although their Vietnamese units were issued gas masks, they were told that Soviet-supplied chemical weapons would not be used unless the Chinese initiated chemical warfare. As late as February 1981, a team of uniformed Soviet military advisers was attached to the corps headquarters. The team leader was a senior Soviet colonel. The Soviets were involved in training corps personnel in the use of Soviet-supplied weapons and equipment, including chemical artillery shells and gas masks. The Soviet team often inspected defensive positions and observed training maneuvers.

Afghanistan

Attacks with chemical weapons against the *mujahidin* guerrillas in Afghanistan were reported as early as 6 months before the Soviet invasion on December 27, 1979. The information specifies that Soviet-made aircraft were used to drop chemical bombs, with no clear identification of Soviet or Afghan pilots or of the specific agents used. On November 16, 1979, chemical bombs reportedly were dropped along with conventional air munitions on targets in Farah, Herat, and Badghisat Provinces by Soviet-supplied Afghan IL–28 bombers based at Shindand. A number of Afghan military defectors have stated that the Soviets provided the Afghan military with chemical warfare training

TABLE 3

Afghanistan: Summary of Reported Chemical Attacks and Associated Deaths, 1979–81

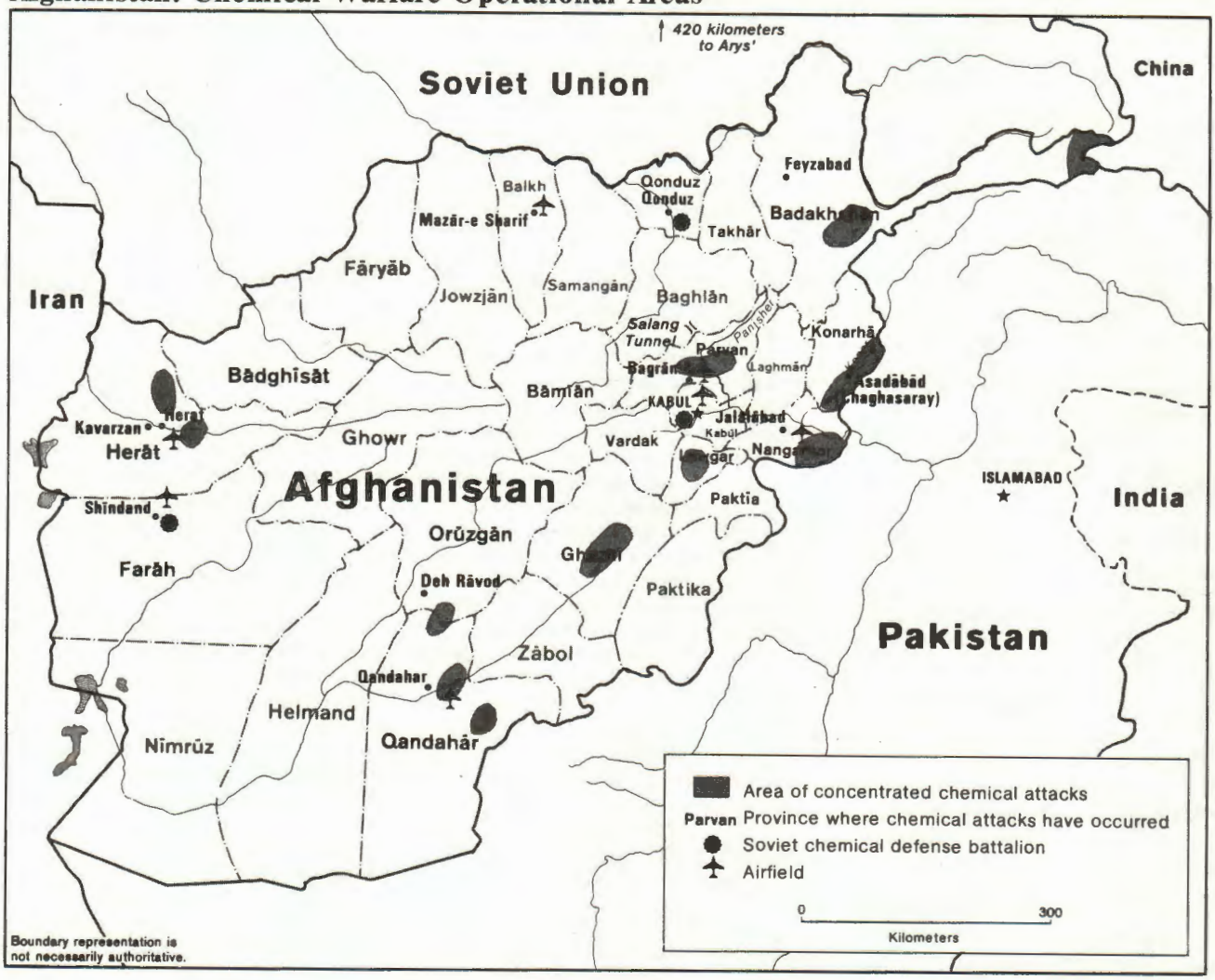
Time Period	Province	Attacks[a]	Deaths[b]
Summer 1979	Badakhshan	1	2,000[c]
	Parvan	1	8
	Bamian	1	—
Fall 1979	Konarha	1	350
	Farah	1	?
	Herat	1	?
	Badghisat	1	?
Winter 1979–80	Badakhshan	5	130+
	Takhar	1	—
	Konarha	2	10+
	Nangarhar	1	?
	Bamian	1	?
Spring 1980	Badakhshan	1	1+
	Konarha	2	?
	Oruzgan	1	—
	Qandahar	1	—
Summer 1980	Nangarhar	2	1
	Vardak	1	3
	Herat	2	300+
	Kabul	2	—
Fall 1980	Konarha	1	?
	Lowgar	1	4
	Ghazni	1	100
Winter 1980–81	Lowgar	2	?
Spring 1981	Parvan	2	—
	Lowgar	3	—
	Ghazni	2	?
	Qandahar	1	—
Summer 1981	Nangarhar	2	?
	Qandahar	2	16
	Herat	1	119
		47	3,042

[a] This tabulation omits some attacks described in the text because they could not be dated or located with high confidence.

[b] A plus sign indicates that the report(s) of deaths gave a minimum figure. In some cases (shown with a question mark) deaths were reported, but no number was given. Other reports (signified with a dash) gave no information on fatalities.

[c] The quality of reporting for this period is not as good as the information that became available after the Soviet invasion. We are concerned that this unusually high figure may reflect an accumulation of deaths from several incidents and not the single attack indicated. For example, reports were received describing over 1,000 deaths in Bamian Province in June-July 1979. An Afghan military officer reported seeing the bodies of many *mujahidin* in Panjsher Valley in August 1979 after a chemical attack and stated that many had been killed. An Afghan civil engineer reported hearing that many deaths resulted from a chemical attack in the Jalalabad area, also in the summer of 1979. Because we could not obtain supporting evidence, these reports were not included. Although sufficient evidence exists to conclude that Afghan Government forces used chemical weapons, mainly bombs, from June to December 1979, no survivors or eyewitness accounts of these attacks are available to determine the type of agent and symptoms.

Afghanistan: Chemical Warfare Operational Areas



as well as supplies of lethal and incapacitating agents.

For the period from the summer of 1979 to the summer of 1981, the U.S. Government received reports of 47 separate chemical attacks with a claimed death toll of more than 3,000 (see Table 3). Of the 47 reports, 36 came from Afghan Army deserters, *mujahidin* resistance fighters, journalists, U.S. physicians, and others. For 24 of the reported attacks, there is additional independent evidence supporting allegations of chemical attacks. In seven instances, further individual reporting exists. Evidence for 20 of the reported incidents comes from information on Soviet or Afghan Army combat operations in progress in areas and at times approximating those of a reported chemical attack (see map).

The reports indicated that fixed-wing aircraft and helicopters usually were employed to disseminate chemical warfare agents by rockets, bombs, and sprays. Chemical-filled landmines were also reportedly used by the Soviets. The chemical clouds were usually gray or blue-black, yellow, or a combination of the colors.

Symptoms reported by victims and witnesses of attacks indicate that nonlethal incapacitating chemicals and lethal chemicals—including nerve agents, phosgene or phosgene oxime, possibly trichothecene toxins, and mustard—were used. Medical examinations of some of the victims include reports of paralysis, other neurological effects, blisters, bleeding, and sometimes death. While none of the agents being used in Afghanistan has been positively identified through sample analysis, there is no doubt that the agents being used are far more toxic than riot-control agents such as CN and CS or even adamsite.

Several descriptions of the physiological action of a chemical agent or of the condition of the corpses of victims were particularly unusual. In one, victims were rapidly rendered unconscious for 2–6 hours and had few aftereffects. In another, the bodies were characterized by abnormal bloating and blackened skin with a dark-reddish tinge, and the flesh appeared decayed very soon after death. In a third incident, three dead *mujahidin* guerrillas were found with hands on rifles and lying in a firing position, indicating that the attacker had used an extremely rapid-acting lethal chemical that is not detectable by normal senses and that causes no outward physiological responses before death.

Shortly after the Soviet invasion, many reports were received that both Soviet and Afghan forces were using various types of chemical agents. Ten separate chemical attacks, resulting in many deaths, were reported in the first 3 months of 1980. These reports came from northeastern Afghanistan and provide the highest percentage of reported deaths. During the mid-January to February 1980 period, helicopter attacks were reported in northeastern Afghanistan in which a grayish-blue smoke resulted in symptoms similar to those

described by the H'Mong refugees from Laos (e.g., heavy tearing or watering of eyes; extensive blistering and discoloration of the skin, later resulting in large sheetlike peeling; swelling in the areas affected by the blister; and finally numbness, paralysis, and death). Medical reports from examinations in Pakistan of refugees from a large attack in the upper Konar Valley in February 1980 described red skin and blisters containing fluid described as "dirty water." Refugees estimated that about 2,000 people were affected after contact with a dirty yellow cloud.

By spring and summer of 1980, chemical attacks were reported in all areas of concentrated resistance activity. Many reports from different sources strongly support the case that irritants were used to drive the insurgents into the open to expose them to attack with conventional weapons and incapacitants to render them tractable for disarming and capture. On several occasions in April 1980, for example, Soviet helicopter pilots dropped "gas bombs" on insurgents, evidently to drive them from caves.

A Dutch journalist, Bernd de Bruin, published an eyewitness account of two chemical attacks occurring in the Jalalabad area on June 15 and June 21, 1980 (*Niewsnet,* August 2, 1980). He filmed an MI–24 helicopter dropping canisters that produced a dirty yellow cloud. A victim with blackened skin, discolored by extensive subcutaneous hemorrhaging, was photographed in the village 5 hours after the attack. The journalist evidently was exposed because he developed blisters on his hands and a swollen and itchy face. He also was exposed in the second attack, and it took about 10 days for him to recover from skin lesions, nausea, diarrhea, and stomach cramps.

An Afghan insurgent provided an eyewitness account of a July 6, 1980 attack on a village 10 kilometers east of Darae Jelga in Vardak Province. He reported that a Soviet MI–24 helicopter gunship dropped a bomb that, upon explosion, released a lethal chemical. A separate report confirmed that Soviet bombing attacks on villages in Vardak as well as Lowgar and Parvan Provinces were taking place during this period. In August 1980, information surfaced on a Soviet attack with chemical bombs on the village of Sya Wusan, 30 kilometers southeast of Herat, leaving 300 dead. It was during this time that the Soviet chemical battalion at Shindand set up an operational decontamination station.

Reports of chemical weapons use in 1981 essentially parallel 1980 reporting with respect to frequency and location of attack. Soviet helicopter units participated in chemical attacks from April 20 to April 29, 1981, in areas east and west of Kabul and in the Konar Valley, according to eyewitness accounts. These attacks were intended to drive personnel from sanctuaries, such as caves, in order to engage them with conventional fire. The munitions were described as Soviet 250-kilogram RBK cluster bombs. The Soviets have such a munition, which can be filled with chemical agents. Other reports described similar operations by helicopters north of Qandahar on April 24 and April 26, 1981.

A former Afghan MI–8 helicopter pilot said Soviet forces had used chemical weapons in Badakhshan, Qonduz, and Konarha. Chemicals in canisters that contained toxic gas, tear gas, and antirespiratory gas, which has an incapacitating effect by causing choking and difficulty in breathing, were manually pushed from the cargo compartment of helicopters. The pilot said that there also was a specific gas that is absorbed by the body and leaves the skin so soft that a finger can be punched through it. In one case, there was a wind shift, and Soviet and Afghan forces were seriously affected. Other sources also have described an incident where Soviet and Afghan forces were victims of their own gas attack.

The following sequence occurred in a small valley in Qandahar Province in early June 1981. According to an Afghan exile, Soviet combat groups engaged rebel forces in that valley during a 2-week period. The situation worsened for the Soviets, and an airstrike was conducted. The exile stated that a Soviet helicopter delivered a single rocket, releasing a chemical that killed 16 insurgents. Nearly all reports state that chemicals were delivered by aircraft or helicopters; a few reports describe chemical artillery rounds.

Before a sweep operation in the Konar Valley in September 1981, resistance leaders were told by an Afghan officer that the Soviets had four agents available but would use only the incapacitant which they could defend against with wet rags over the face. During the operation, Soviet helicopters conducted gas attacks in 25 different areas, using cylinders about 1.5 meters long and 60 centimeters in diameter that exploded 4–5 meters above the ground, releasing the incapacitating gas. Some victims lost consciousness, were paralyzed, and recovered, but others died, and unprotected areas of their skin turned dark green to blue-green.

An Afghan tribal leader recently described a Soviet chemical attack against a large resistance force in October 1981 near Maruf, about 100 kilometers east of Qandahar. Soviet helicopters dropped green cylindrical canisters (18 inches long, 3–4 inches in diameter) which, upon hitting the ground, emitted a greenish-yellow gas. According to the report, victims felt faint and dizzy; later their skin began to itch, and many lost consciousness. About 300 persons were affected by the gas and many died. Soviet ground forces captured many of the survivors. Other information on Soviet and *mujahidin* activities in the Qandahar area during this period confirms that this incident did in fact take place.

In February 1982, a member of the resistance, with considerable knowledge of Soviet weapons, told a U.S. official that the Soviets were using irritants, a hallucinogenic gas, and what he said was an apparent nerve gas. He described the "nerve agent" as an off-white powdery substance dispersed from helicopters generally during artillery or bombing attacks. Victims realize they have been exposed to chemical attack only when they become faint and dizzy. Subsequently, they begin to vomit and bleed from the eyes, nose, and mouth. Death occurs within a short time. The corpses are extremely relaxed, with no evidence of rigor mortis. Flesh and skin frequently peel off if an effort is made to move the bodies.

According to this account, survivors suffer aftereffects for about 6 months, including chest congestion and pain, dizziness, and mental agitation. The powder-like substance is more effective at lower altitudes where there is less wind to dilute the poison, and *mujahidin* groups have experienced fatality rates as high as 70%. Many survivors of chemical attacks in Laos and Afghanistan have exhibited the same long-term health problems described in this account.

Chemical defense battalions—standard in all Soviet divisions—are deployed with the three Soviet motorized rifle divisions operating in Afghanistan at Qonduz, Shindand, and Kabul. Soviet operational personnel decontamination stations were observed at several locations, and chemical decontamination field units were deployed during a sweep operation of the Konar Valley in eastern Afghanistan and near Shindand in the west in 1980. The operational deployment of decontamination units for personnel and equipment suggests that chemical battalions have supported offensive chemical use. In addition, Soviet personnel have been observed wearing chemical protective equipment. The Soviets have specifically tailored their forces in Afghanistan, in part

because of logistical constraints; 5,000 troops and "nonessential" combat equipment were withdrawn, but the chemical battalions remain.

A Soviet military chemical specialist, captured by the *mujahidin*, gave his name as Yuriy Povarnitsyn from Sverdlovsk. During an interview, he said that his mission was to examine villages after a chemical attack to determine whether they were safe to enter or required decontamination. An Afghan pathologist who later defected described accompanying Soviet chemical warfare personnel into contaminated areas to collect soil, vegetation, and water samples after Soviet chemical attacks. According to firsthand experience of former Soviet chemical personnel, the Soviets do not require decontamination equipment in an area where chemical bombs are stored or loaded onto aircraft. Thus, deployment of this equipment in Afghanistan must be assumed to be associated with the active employment of casualty-producing chemical agents.

Afghan military defectors have provided information on ammunition and grenades containing phosgene, diphosgene, sarin, and soman and have described where and when some of them have been used. They also have revealed locations where these agents were stockpiled. The agents used, plus the time and location of the attacks, correspond with the refugee reports and recorded military operations.

The Soviet Union has stocked a variety of toxic chemical agents and munitions to meet wartime contingencies. Weapons systems capable of delivering chemical munitions available to Soviet forces in Afghanistan include artillery, multiple rocket launchers, and tactical aircraft.

Motivation for Using Chemical Weapons

In the course of this analysis, the question has been posed: Is there a military-strategic or tactical rationale for the systematic use of chemical weapons by conventional forces in Laos, Kampuchea, and Afghanistan? The military problems faced in these countries—viewed from the perspective of the Soviets and their allies—make the use of chemical weapons a militarily effective way of breaking the will and resistance of stubborn anti-government forces operating from relatively inaccessible, protected sanctuaries.

The Soviets have made a large investment in insuring that Vietnam and its clients succeed in extending their control over Indochina. For Vietnam, the H'Mong resistance in Laos is a major irritant to be removed as quickly and cheaply as possible. The use of chemical agents has played a major role in driving the H'Mong from their mountain strongholds, relieving Vietnamese and Lao ground forces of the need for costly combat in difficult terrain. Much of the H'Mong population that lived in the Phou Bia mountain region has been driven into Thailand, killed, or resettled.

In the mountainous areas of Afghanistan, where rebels are holed up in caves or other inaccessible areas, conventional artillery, high-explosive bombs, and napalm are not particularly effective. Many reports indicate that unidentified chemical agents have been used on such targets. Caves and rugged terrain in Laos and thick jungles in Kampuchea also have frustrated attempts to locate and destroy the resistance forces. Chemical clouds can penetrate the heavy forests and jungle canopy and seep into the mountain caves. Persistent agents linger in the area and cause casualties days and sometimes weeks after the attack. Unprotected forces and civilians have little or no defense against lethal agents like toxins, nerve gas, or blister agents.

Trichothecene toxins, which are known to have been used in Southeast Asia, have the added advantage of being an effective terror weapon that causes bizarre and horrifying symptoms. Severe bleeding, in addition to blisters and vomiting, has instilled fear in the resistance villages. Not only have the villagers and their animals been killed in a gruesome manner, but the vegetation and water also have been contaminated. Survivors are reluctant to return to their inhospitable homes and instead make the long and dangerous trek to camps in Thailand.

There is no clearcut explanation of why trichothecene toxins have been used in addition to irritants, incapacitants, and other traditional chemical warfare agents. Speculation suggests that they are probably cheaper to make and are readily available from Soviet stocks; they are probably safer and more stable to store, transport, and handle in a Southeast Asian environment, and they may require less protective equipment when being prepared for munitions. They are difficult to trace as the causative agent after an attack—as demonstrated by the length of time it took for the United States to detect them. Few laboratories in the world have the analytical capability to identify precisely the type and amount of trichothecene toxin in a sample of vegetation, soil, or water.

The Soviets may well have calculated that they and their allies could successfully deny or counter charges that chemical weapons had been used, recognizing that it would be especially difficult to compile incontrovertible evidence from inaccessible areas of Southeast Asia and Afghanistan. With respect to Kampuchea, they may also have calculated that, in view of the lack of international support for Pol Pot's resistance, chemical weapons could be used on his troops without significant international outcry.

In addition, the Soviet military very likely considers these remote areas as providing unique opportunities for the operational testing and evaluation of chemical weapons under various tactical conditions. Years of aerial and artillery chemical dispersion have undoubtedly provided the Soviets with valuable testing data. Southeast Asia has offered the Soviets an opportunity to test old agents that had been stockpiled for many years as well as more recently developed agents or combinations of agents. This conclusion is supported by information from foreign military officers who have attended the Soviet Military Academy of Chemical Defense in Moscow. According to their Soviet instructor, three types of chemical agents may be used during the "initial stages" of local wars: "harassing agents (CS, CN, DM), incapacitants such as psychochemicals (BZ) or intertoxins [sic—possibly enterotoxins], and herbicides." During the "decisive phase, lethal agents can be employed under certain circumstances." In a local war, "chemical weapons can be used to spoil enemy efforts to initiate operations, even if the enemy has not used them first." The foreign officers' accounts, including detailed descriptions of the Soviet chemical warfare program, support the conclusion that the Soviets consider chemical weapons an effective and acceptable means of warfare in local conflicts.

Insight into the Soviet bloc military perspective on the use of toxins is provided in the following passage from a 1977 East German military manual entitled *Textbook of Military Chemistry*.

> Toxins are designated as toxic agents which are produced by biological organisms such as micro-organisms, plants, and animals, and cannot themselves reproduce.
>
> By the middle of 1960 the toxins selected for military purposes were included among the biologic warfare agents. In principle, this was understood to mean only the bacterial toxins. Today it is possible to produce various toxins synthetically. Toxins with 10–12 amino acids can currently be synthesized in the laboratory. Toxins are not living substances and in this sense are chemicals. They thus differ fundamentally from the biological organisms so that they can be included among chemical warfare agents. As a result

of their peculiarities they are designated simply as "toxin warfare agents." They would be used in combat according to the same principles and with the same methods used for chemical warfare agents. When they are used in combat the atmosphere can be contaminated over relatively large areas—we can expect expansion depths of up to 6 kilometers before the toxin concentration drops below lethal concentration 50 . . . the toxin warfare agents can be aerosolized. They can be used primarily in micro-bombs which are launched from the air or in warheads of tactical rockets. Toxin warfare agents concentrates can be applied with aircraft spray equipment and similar dispersion systems.

The Soviet designation for several pathogenic *Fusarium* products is "IIF (*iskusstvennyy infektsionny fon*), which stands for "artificial infection background." IIF devices are used in the Soviet Union deliberately to contaminate soil in experimental agricultural test areas with spores of disease-producing fungi. We are not certain if the IIF compounds include trichothecenes. Nor are we certain as to the intent of this agricultural research program. It is possible that these programs are designed to colonize soil with pathogenic organisms either to determine which crop varieties are most resistant to disease or, alternatively, to test eradication and control methods in infected soils. Elsewhere in the Soviet agricultural research program, however, it is known that there is widespread use of certain trichothecenes, including sprays from light aircraft. A capability exists within the Soviet Union for multi-ton production of light aircraft spray-delivered microbial products such as those described above.

Evidence accumulated since World War II clearly shows that the Soviets have been extensively involved in preparations for large-scale offensive and defensive chemical warfare. Chemical warfare agents and delivery systems developed by the Soviets have been identified, along with production and storage areas within the U.S.S.R. and continuing research, development, and testing activities at the major Soviet chemical proving grounds. Soviet military forces are extensively equipped and trained for operations in a chemically contaminated environment. None of the evidence indicates any abatement in this program. The Soviets have shown a strong interest in improving or enhancing their standard agents for greater reliability and effect. Their large chemical and biological research and development effort has led them to investigate other kinds of chemical warfare agents, particularly the toxins.

None of the four countries considered in this report—Vietnam, Laos, Kampuchea, and Afghanistan—has any known large-scale facility or organization for the manufacture of chemical and biological materials. Nor are they known to have produced even small quantities of chemical warfare agents or munitions. The technical problems of producing large quantities of weapons-grade toxins, however, are not so great as to preclude any of the four countries from learning to manufacture, purify, and weaponize these materials. It is highly unlikely, however, that they could master these functions without acquiring outside technical know-how.

ANNEX A

A Lao Pilot's Account

One of the most complete descriptions of chemical warfare activities in the 1976–78 period came from a Lao pilot who was directly involved in chemical warfare. The pilot, a former Lao People's Liberation Army (LPLA) officer who defected in 1979, reported that he flew captured L–19 and T–41 aircraft equipped to dispense toxic chemical agents on H'Mong villagers in the Phou Bia area of northern Laos. He said that the LPLA, in cooperation with the Vietnamese Army, had conducted chemical warfare operations in Laos since April or early May 1976. At that time, two Lao H–34 helicopters were flown between Long Tieng and the Phonsavan airfield, both in Xiangkhoang Province, on a series of flights to transport rockets to Phonsavan for storage.

Between June and August 1976, the LPLA launched attacks in the area of Bouamlong—in Xiangkhoang Province—a stronghold for remnants of the forces of former H'Mong Gen. Vang Pao. The LPLA used L–19 aircraft for rocket attacks in that area aimed at eliminating the H'Mong resisting government control. Lao crews responsible for loading rockets on the attack aircraft noted that they were not allowed to use the rockets that had been moved from Long Tieng to Phonsavan, even though Phonsavan was much closer to the Bouamlong target area than Long Tieng, where Lao aircraft had to rearm. The pilot said that, during nearly 3 months of flying missions against the Bouamlong area, he flew his L–19 aircraft to Long Tieng to be armed with rockets.

In late 1976, the pilot's L–19 aircraft was rearmed with rockets stored at Phonsavan. Initially, H–34 helicopters were used to transport the rockets from Phonsavan to a depot near the Ban Xon airfield (Vientiane Province), where the rockets were fitted onto racks of the L–19 aircraft for missions in the Phou Bia area; later, the rockets from Phonsavan were transported to Ban Xon by trucks. All U.S.-manufactured rockets were stored with the tip and canister kept apart; the two parts had to be joined before being fitted to the racks on the aircraft. The pilot observed, however, that all the rockets transported from Phonsavan to Ban Xon were already assembled.

As part of his routine flight activities, the pilot would check his aircraft and, in doing so, examine the tip portion of new smoke rockets that had been transported from Phonsavan. He said that most appeared "loose" in the portion where the tip and canister joined, whereas the tip and canister of the ordinary explosive-type rockets at Long Tieng were noticeably more tightly connected.

In late 1976, during preparation for airstrikes on Kasy (Louangphrabang Province) and in new areas of Phou Bia, the pilot said he began carrying two or three Vietnamese Army staff officers, sometimes accompanied by a Lao staff officer, in T–41 aircraft for reconnaissance over the target areas. When these airstrikes were launched, the defector pilot initially flew his L–19 aircraft on missions with another pilot and a Lao staff officer. After 2 or 3 weeks, however, Vietnamese staff officers, who spoke excellent Lao, began alternating with the Lao officers. Before each mission, the Vietnamese or Lao staff officer would go over target areas outlined on situation maps—which then were taken along—and would point out the targets to be attacked. The defector pilot noted that at no time did the Vietnamese staff officer communicate with Lao officers on the ground, as did the Lao staff officers. A new Vietnamese officer was assigned for each airstrike mission in the H'Mong areas.

The pilot related that before flying L–19 airstrike missions with a full load of rockets he was often warned by a Lao commander to fly at above-normal altitudes when firing rockets—to preclude hazard to the occupants of the aircraft. For this reason the pilot surmised that the "smoke" rockets fired at the H'Mong were unusual. He was able to observe that the "smoke" rockets detonated in the air and that some produced white smoke, with a mixture of blue, while others produced red smoke, with a mixture of yellow. The ordinary explosive-type rockets detonated on impact. The

commander or his designated representative told the pilot before every mission that the operations—called Extinct Destruction Operations—were intended to "wipe out the reactionary H'Mong people."

Before a mission involving "smoke rockets," the commander warned the pilots to keep the operation secret. The Lao defector said that, during the nearly 2 years in which he flew rocket missions, he learned from the Lao staff officers accompanying him that there were two types of rockets. The first, mostly "smoke" rockets, were to be fired at targets far away from Lao and Vietnamese troops to avoid exposing them to the poison smoke. The second was of the ordinary explosive type, considered a "close support" rocket that could be fired near Lao troop positions. Initially, the L–19 aircraft carried eight rockets—five "close support" and three "smoke" rockets. Later, only four rockets, mainly of the "smoke" type, were carried.

After each mission in which chemical warfare rockets were used, the pilot was returned to a "rest house" at Phonsavan, where a Lao Army doctor and nurse would examine him. He said that after his missions, especially in 1978, he was particularly well treated by the examining doctor and watched very closely by the nurse. Those L–19 aircraft pilots assigned to missions utilizing chemical warfare rockets had special privileges, including additional flight pay and free meals at the Phonsavan cafeteria. In October 1978, the Lao Army stopped using L–19 aircraft on combat missions and began using Soviet MiG–21s for chemical attacks on the Phou Bia areas.

Several H'Mong reports corroborate the testimony of the Lao pilot. A village chief, for example, described attacks covering all 7 days of the week of June 5, 1976 in the Bouamlong area. He described L–19 aircraft firing rockets that produced red and green smoke: Ten villagers were killed by gas and 30 by shrapnel. Most of the H'Mong reports documented by a U.S. Foreign Service officer in June 1979 and a Department of Defense medical team in October 1979 were consistent with the pilot's testimony. H'Mong observers familiar with military aircraft reported L–19s in use until late 1978. After that time, reports described jets or "MiGs" and some accurately described Soviet AN–2s.

A review of information back to 1975 shows L–19 and T–28 aircraft were operating from airfields in northern Laos—including the one at Phonsavan, where AN–2s were seen in 1978. Failure to observe chemical decontamination equipment at the airfields does not rule out the presence or handling of chemical munitions. The Soviets supervise the chemical warfare activities in Laos; it is assumed that chemical munitions are handled in about the same manner as in the U.S.S.R. According to former Soviet chemical warfare personnel, no protective clothing or special decontamination equipment is required for loading chemical bombs onto aircraft and helicopters at chemical munitions test ranges.

The Lao pilot's description of the rockets used on the L–19 was corroborated by other sources. A H'Mong refugee, a former commander of a 500-man resistance force, reported that in 1977 he found a rocket canister and a separated warhead that he believed were the kinds used by the Vietnamese and Lao. The canister had authentic U.S. markings identifying it as a U.S.-manufactured 2.75-inch rocket and, reportedly, three lines of Russian writing which he could not translate. Another H'Mong resistance force officer, reportedly trained as a liaison officer and ordnance expert before the Communist takeover of Laos, stated that he, too, believed that the rocket canister was of U.S. manufacture and that the Soviet technicians in Laos had modified the upper stage to contain a poisonous (i.e., lethal) chemical.

The diameter of the warhead was reported to be 12.5 centimeters (5 inches), probably a measurement taken on a modified warhead, because the United States does not have a 5-inch warhead for the 2.75-inch "rocket motor." During the Vietnam conflict, about 35 million U.S.-manufactured, conventional 2.75-inch rockets were sent to the war zone, and many tens of thousands of these fell into North Vietnamese hands when the South Vietnamese forces collapsed. The Vietnamese may be using some of these rockets with existing loads, but modified warheads for the 2.75-inch rocket motor could easily be fabricated in Vietnam and filled with a lethal or nonlethal agent in Laos, especially with Soviet assistance. According to U.S. experts, fabrication of a warhead 5 inches in diameter, necked down to fit the 2.75-inch rocket, could be accomplished by trained technicians in a small, well-equipped machine shop and laboratory.

ANNEX B

Findings of U.S. Government Investigative Teams: Use of Chemical Agents Against the H'Mong in Laos

State Department Team

In May 1979, State Department officials visited Thailand to interview H'Mong refugees and investigate allegations of the use of chemical agents against H'Mong tribesmen in Laos (see Table B–1). From the signs/symptoms described and observed, it is suggested that at least two and possibly three different chemical agents may have been used, such as:

- A nerve agent (five or six individuals reported symptoms that could be attributed to a nerve agent);
- An irritant or riot-control agent (one-third of the interviews); and
- More than half of the interviews indicated such a variety of signs and symptoms that it is difficult to attribute them to a single known agent.

It is possible that in some cases two or more agents were combined.

- Reported signs and symptoms suggesting a nerve agent include sweating, tearing, excessive salivation, difficulty in breathing, shortness of breath, nausea and vomiting, dizziness, weakness, convulsions, and death occurring shortly after exposure.
- Reported signs and symptoms suggesting a riot-control or irritant agent include marked irritation or burning of the eyes, with tearing and pain; irritation and burning of the nose and throat; coughing; burning and tightness in the chest; headache; and nausea and vomiting in a few cases.
- Reported signs and symptoms not related to any known single agent include a mixture of the above as well as profuse bleeding from mucous membranes of the nose, lungs, and gastrointestinal tract, with rapid death of the affected individuals in some instances.

Estimates from the H'Mong interviewed indicate that approximately 700–1,000 persons may have died as a result of the use of chemical agents and that many times this number became ill. It was reported that on many occasions entire villages were devastated by these agents, leaving no survivors.

In the episodes described, most of the animals exposed to the chemical agents were killed. Generally, all

chickens, dogs, and pigs died and, to a lesser extent, the cattle and buffalo. On several occasions it was reported that where these agents settled on tree and plant leaves, many small holes appeared in the leaves within 2 or 3 days. Rarely did agent exposure result in the defoliation or death of the plants.

Department of Defense Team

From September 28 to October 12, 1979, a team from the U.S. Army Surgeon General's Office was in Thailand to conduct a similar series of interviews.* The team visited the following H'Mong refugee camps of northern Thailand: the detention center at Nong Kai, the large H'Mong camp at Ban Vinai, and two smaller camps at Nam Yao and Mae Charim. As the great majority of refugees as well as the H'Mong leadership are at Ban Vinai, most interviews were obtained there.

The team was prepared to obtain blood and skin samples (for cholinesterase activity and study of pathological changes, respectively) from those exposed to chemical agents. For such samples to yield meaningful results they must be taken within 6–8 weeks of exposure. Since the last reported exposure was in May 1979, no blood or skin samples were collected.

Interviews were conducted through interpreters; one was an employee of the U.S. Consulate at Udorn, and the remainder were hired from among the refugees. The interpreters screened those refugees who volunteered to talk to the team and selected only those who had been eyewitnesses to or had themselves been exposed to an agent attack. Team members interviewed 40 men, 2 women, and a 12-year-old girl. Each interview took 1–2 hours. To insure conformity, a prepared questionnaire was used as a guide.

The chemical attacks reportedly occurred between June 1976 and May 1979 (Table B–1). The absence of reports of attacks after May 1979 may be because

* The authors of the U.S. Army Surgeon General's report are Charles W. Lewis, M.D., COL, MC, Chief, Dermatology Service, Brooke Army Medical Center, Fort Sam Houston, Texas; Frederick R. Sidell, K.D., Chief, Clinical Resources Group, U.S. Army Biomedical Laboratory, Aberdeen Proving Ground, Md.; William D. Tigertt, M.D. (Brigadier General, Ret., USA), Professor of Pathology, University of Maryland, Baltimore, Md.; Charles D. Lane, LTC, Southeast Asia Desk Officer, OACSI, Department of the Army, Washington, D.C.; and Burton L. Kelley, SP5, USA, Dermatology Technician, Brooke Army Medical Center, Fort Sam Houston, Texas.

TABLE B–1

Reports of Probable Chemical Agent Attacks in Laos

Department of State Interviews Conducted in Summer 1979

Date	Location	Method of Attack by Plane	Material Used (Smoke/Gas)
Oct. 1977	Phu Hay, S. of Phou Bia	Rockets	Yellow-gray
1978	Pa Sieng, S. of Phou Bia	Bomb	Yellow
Feb. 1978	Ban Nam Luk, S. of Phou Bia	Spray (?)	Yellow/white
Feb. 1978	20 kms SE. of Phou Bia	Spray (?)	Yellow
Feb. 1978	Ban Ko Mai	Bomb	Yellow
Mar. 1978	Pha Houei	Sacks, burst in air	Brown
Mar. 1978	Ban Na Pong	(?)	Yellow
Apr. 1978	Ban Phamsi	(?)	White, green, blood-colored
May-Apr. 1978	Ban Nong Po	Cloud	Yellow-brown like rain
June 1978	Ban Nam Teng	Rocket (?)	Yellow
June 1978–May 1979	Ban Don area	Spray	Yellow
Mid-1978	1–3 kms NE. of Phou Bia	Rocket, air burst	Red
Oct. 1978	Nam Kham	Rockets, air burst	Yellow
Oct. 1978	6 kms N. of Phou Khao	Rockets, air burst	Red
Oct. 1978	3–4 kms N. of Phou Bia	Rockets, air burst	Yellow-gray
Nov. 1978	Phou Xang Noi	Spray	Yellow, blue
Nov. 1978	near Phou Bia	Bomb, air burst	Yellow
Nov. 1978	NE. of Pha Khao	Rocket, air burst	Yellow
Apr. 1979	Ban Nouia Pong	Spray	Yellow
May 1979	Nam Po	Spray	Yellow
May 1979	Pha Mai	Spray, air burst	Yellow

Department of Defense Interviews Conducted in Fall 1979

Date	Location	Method of Attack by Plane	Material Used (Smoke/Gas)
June 1976	Pou Mat Sao	Rockets	Red, green
Jan. 1977–Oct. 1978	Pha Khao	Rockets	Yellow, red, green
Mar. 1977	Nam Theuna	Rockets	Red, yellow
Apr. 1977	Houi Kam Lang	Rockets	Yellow
May 1977	Pha Khae	Rockets	Red
May 1977	Nam Moh	Rockets	Yellow
May 1977	Pha Ngune	Spray/rockets	Yellow
1977–1978 (3 attacks)	Phu Seu	Rockets	Red, green, yellow
Jan. 1978	Houi Xang	Rockets	Red, green
Feb. 1978	Sane Mak Ku	Rockets	Yellow
Feb. 1978	Tham Se Sam Leim	Rockets	Yellow, black
Feb. 1978	Kio Ma Nang	Rockets	Yellow
Mar. 1978	Mouong Ao	Rockets	White
Mar. 1978	Khieu Manang	Rockets	Green
Apr. 1978	Tha Se	Rockets	White
June 1978	Pha Phay	Rockets	Yellow
June 1978	Phou Seng	Rockets	Red, white, black
July 1978	Phou Bia	Rockets	Red
July 1978	Ban Nam Mo	Spray	Yellow
July 1978	Phou Lap	Rockets	Yellow
Aug. 1978	Pha Houai	Rockets	Red, green
Aug. 1978	Ban Thin On	Rockets	Green, red
Aug. 1978	Bouamlong	Rockets	Red, green, yellow
Sept. 1978	Pha Koug	Rockets	Yellow
Sept. 1978	Ban Nam Tia	Spray/rockets	Yellow, green, red
Sept. 1978	Pha Na Khum	Rockets	Red
Oct. 1978	Phou Bia	Rockets	
Oct. 1978	Ban Done	Spray	Yellow
Oct. 1978	Phou Bia	Rockets	White, green, red
Nov. 1978	Phou Bia	Rockets	White, red
Feb. 1979	Pha Mat	Spray	Yellow
Feb. 1979	Tong Moei	Rockets	Yellow, red
Mar. 1979	Pha Mai	Spray	Yellow
Mar.–May 1979 (6 attacks)	Pha Mai	Spray	Yellow
Apr.–May 1979 (4 attacks)	Pha Mai	Spray	Gray-white
May 1979	Phou Bia	Spray	Yellow
May 1979	Moung Phong	Rockets	Red

few refugees crossed the Mekong River after that time—as a result of heavy rains and flooding from June to September 1979. Most of the early reports were of the use of rockets releasing the agent; beginning in the fall of 1978, the majority of the attacks were carried out by aircraft spraying a yellowish substance which "fell like rain." The attack sites, concentrated around the H'Mong stronghold in the mountainous Phou Bia area, also are listed in Table B–1.

The team was given a plastic vial containing pieces of bark, stained by a yellow substance, which several H'Mong refugees claimed was residue from an aircraft spray attack in April 1979. Preliminary chemical analysis of the sample indicates that no standard chemical agent (i.e., an agent listed in TH 8–285, U.S. Army, May 1974) was present.

Conclusions

The conclusions of these teams, based upon interviews obtained from H'Mong refugees, are as follows:

- Chemical agents have been used against the H'Mong.
- The reported effects of these agents suggest the use of a nerve agent, a riot-control agent, and an unidentified combination or compound.

ANNEX C

Medical Evidence

Southeast Asia

Since 1975, many different sources—refugees, relief workers and medical personnel, including specially qualified physicians—consistently have detailed unusual signs and symptoms of victims of "yellow rain." Specifically, victims in Southeast Asia subjected to a direct attack of the yellow powder, mist, smoke, or dust would be seen to begin retching and vomiting within minutes. These effects and those described below were not pronounced in individuals even 100 meters from the attack zone, indicating a relatively dense chemical/carrier combination that was effective in low wind conditions.

Following the victim's exposure to yellow rain, the initial induced vomiting—unlike that caused by a traditional riot-control nausea agent—was protracted over hours to days. It was often accompanied by dizziness, rapid heartbeat and apparently low blood pressure, chest pain, loss of far-field vision, and a feeling of intense heat and burning on the skin, although not described as being most acute in the groin and axillae. Thus, the acute signs and symptoms match some effects of traditional vomiting and blister agents but clearly not all.

Within the first hours after the attack, many victims also reported intense red eyes, bleeding gums, convulsions or more often trembling, and vomiting of blood, with or without production of copious amounts of saliva—lasting many hours to days, apparently depending on the exposure level. Thick mucous, pinpoint pupils, respiratory collapse, prolonged spasticity, and involuntary urination or defecation were never reported after a yellow rain attack; the absence of these symptoms helped to rule out organophosphate nerve agents in the minds of chemical warfare experts. Many medical and environmental samples also ruled out these and other traditional agents such as DM, DS, and others.

Many observers of "yellow rain" effects reported formation within several hours of small (1 centimeter) homogeneous, hard, fluid-filled blisters over only exposed areas of skin, frequently including the victim's hands, arms, entire throat, and face—wherever skin was uncovered. In most cases the vomit, after 2–8 hours, contained blood and, in many cases, large amounts of it. About half of those receiving the most concentrated doses of yellow material—those who had been directly under the spray—were observed within several hours to cease vomiting temporarily. This interval was often followed in 5–15 minutes by a period of great pain when the victim would hold his abdomen and emit a gush of blood from mouth and nose. These individuals usually died within minutes afterward.

Close questioning by physicians of witnesses to these final moments leaves no doubt that the effects resulted from severe gastrointestinal bleeding, significant pulmonary bleeding, temporary compression of accumulated blood in the stomach, and, finally, projectile vomiting of as many as several hundred milliliters of blood. These findings were consistent with animal and human autopsies.

Many victims of the yellow material received less than the full brunt of a spray, entered the attack zone several hours to 2 days later, or consumed food or water contaminated by the material. These individuals—often within the next 24 hours—developed signs and symptoms similar to those more directly affected but often without pronounced skin effects if they had not contacted the powder residue directly. In addition to attacks of intense vomiting five or six times a day, they also had diarrhea, with bloody stools passed up to eight times a day. Bleeding under the fingernails and around the skin of the eyes and severe bruising of the skin also were commonly reported. Opiates helped the fluid loss in adults, but in children or young persons unable to tolerate the treatments of raw opium and water, death occurred after 10 days to 2 weeks in about half the cases. On the basis of reported signs and symptoms, the cause of delayed death almost certainly was dehydration.

In many cases, chemical attacks are reported to produce symptoms other than those described here. However, there has always been a direct association of the above symptoms with reports of yellow rain attacks—that is, when yellow material is used these symptoms appear; other agents may give rise to other symptoms. Although it is possible to exhibit one or even several of these symptoms associated with traditional chemical warfare agents, no expert has been able to fit the sequence, severity, and consistency with any of them. In many cases, victims and observers were examined, histories taken, and interviews conducted by several health professionals weeks apart. Remarkable consistency has been observed.

From the beginning of the yellow rain episodes in 1975, autopsies occasionally have been reported anecdotally. Some have been done inexpertly, some by nonphysicians, and some were performed on animals rather than on human victims. However, the consistency of the early reported "putrefaction" or "rottenness" of the digestive tract within 12–48 hours after death led many forensic medical experts to suspect that one effect of the poison—whatever it was— was to cause necrosis (cell death) of rapidly dividing mucosa (mucous membranes), especially in the stomach and upper small intestine. Other autopsy findings included hyperemia (engorgement with blood) of digestive mucosal linings and remarkably intense congestion and swelling in the lungs, liver, spleen, and sometimes the kidneys. These and other findings often led experts in toxicology and pathology, on the basis of clinical and pathological data alone, to suggest mycotoxin or even trichothecene intoxication.

Trichothecene effects have been reported in the forensic, oncological, and toxicological literature for several years. Unpublished findings often have been discussed in symposiums. In several dozen cases, toxic effects in humans and

animals have been carefully recorded, and they match those of yellow rain with good precision (see Table C–1). *There are no additional signs or effects of known trichothecene intoxication not frequently reported by victims, nor are there any reported yellow rain symptoms that cannot be explained by the effects of the four specific trichothecene toxins found in the samples.*

There are no significant medical differences in the reporting from Laos and Kampuchea. Although the timing and delivery systems have sometimes varied, the effects of the chemical agent, clinically and pathologically, are identical. In some cases, a series of blood samples from Kampuchean victims also showed a trend toward leukopenia (reduction in the number of white blood cells) and the presence of a trichothecene metabolite (HT–2) consistent with trichothecene intoxication (see Annex D). Dose-response effects that were observed and routes of administration were both consistent with effects of trichothecenes.

An early hypothesis (1978–79) was that a significant number of deaths, especially in Laos, could be explained by the heavy use of riot-control agents such as CS, CN, DM, and agents which cause itching and/or blistering. This hypothesis was rejected quickly on two grounds. First, trace contaminant analysis failed to show the presence of any of these compounds in samples; several samples did, however, contain a trichothecene precursor. Second, contrary to commonly held views, the epidemiology of diseases endemic to the central highlands of Laos and the public health situation of the H'Mong do not support the view of malnourished, disease-ridden, and weak persons who would succumb easily to riot-control agents. Also, many studies have shown the opposite: a relatively low incidence of pulmonary disease, lower than what could otherwise account for certain effects; better nutritional states than could otherwise account for death in 10 days to 2 weeks from water loss (dehydration) and calorie depletion; and a death rate of nearly zero from causes other than infection, old age, and trauma.

TABLE C-1

Comparison of Reported "Yellow Rain" Effects With Known Trichothecene Effects

Yellow Rain Reports*	Effects of Trichothecenes
1. Nausea, vomiting—severe, immediate	1. Nausea, vomiting—severe, immediate
2. "Falling down, world turning"	2. Dizziness
3. "Burning of skin"—small blisters	3. Generalized erythema with a burning sensation of skin
4. "Shaking all over, flopping like fish out of water"	4. Ataxia (failure of muscular coordination), occasional tremors and convulsions
5. "Bleeding eyes"	5. Congestion of the sclera (white outer coat of eyeball) and blood in tears
6. "Pounding" chest, rapid heartbeat, weakness	6. Hypotension (abnormally low blood pressure) with secondary rise in heart rate
7. Severe pain in center of chest	7. Angina (substernal chest pain)
8. Sleepiness, "not able to talk"	8. Somnolence, central nervous system symptoms
9. Bleeding gums and profuse salivation	9. Stomatitis (inflammation of oral mucous membranes) and ptyalism (excessive salivation)
10. "Can't breathe"	10. Shortness of breath
11. "Skin and body hot with cold"	11. Fever and chills
12. Diarrhea with blood	12. Diarrhea with blood
13. Loss of appetite, inability to eat	13. Anorexia
14. Bleeding into skin and fingernails	14. Thrombocytopenia (decrease in number of platelets, white blood cells involved in clotting of blood) and purpura (skin discoloration caused by hemorrhage into tissues)
15. Drop in white blood cell count	15. Leukopenia and anemia
16. "Rotten esophagus, stomach, intestines; soft spleen and liver"	16. Rapid necrosis of linings of gastrointestinal tract; lymphoid necrosis in spleen and liver
17. Swelling of all organs	17. Congestion of all organs

* Effects are immediate at levels near to or above a rough estimate of 500–1,000 mg total body burden for an adult. Although inhalation data are pending, the levels are consistent with reported lethal and sublethal doses. Trichothecenes in combination, when directly ingested or inhaled, or in purified form, are more toxic in lower concentrations, and the order of signs and symptoms and timing varies.

Afghanistan

Some deaths associated with bleeding have been described in the accounts from Afghanistan. In one set of cases, a physician examined persons who had been exposed to sublethal doses of a yellow smoke/black smoke combination attack and one man near death after a series of attacks. Hemoptysis (nasal bleeding)—but not hematemesis (bleeding from the gastrointestinal tract)—was reported in about half of these cases.

Several features of at least one of the chemical agents—an incapacitant—used in Afghanistan defy explanation at this time. One possibility is that the agent(s) are highly selective for the central nervous system rather than the autonomic nervous system. As yet, no good candidate agent has been identified which will selectively inhibit the central nervous system so as to cause unconciousness for several hours. Another finding has been the presence of a dermal anaesthesia, affecting only exposed areas of skin.

Postattack Medical Survey

There is evidence that after some attacks in Laos and Afghanistan, Lao Communist or Soviet forces entered the attack zones to conduct surveys. Several reports indicate that survivors from a toxin attack on a Lao village were taken several kilometers from the village and injected with a small volume of a clear solution said by their captors to be a "new" medicine to assess the gas. The injections, given intramuscularly in the upper arm, reportedly did nothing to

alleviate the weakness, nausea, vomiting, or diarrhea suffered by the survivors. One victim reported the drug caused an immediate sensation of warmth throughout his body. Only the use of opium later eased the discomfort. It is probable that this procedure was a test either of a new antidote or of a drug developed to reduce incapacitation from the nausea and vomiting.

Similarly, in a few cases in Afghanistan, Soviet troops reportedly disembarked from helicopters or armored personnel carriers at the edge of an attack site. Three or four, dressed in full anticontamination gear, walked among the dead, examined the corpses and, opening them with a crude incision, examined the organs in the abdominal and thoracic cavities. In one case, a solution was poured into the incision. When the corpses were later recovered by the *mujahidin,* the body cavity contents had been destroyed beyond recognition. These and a few additional reports support the hypothesis that the perpetrators of some of the attacks were interested in studying aftereffects, lethality, or some other quasi-experimental aspect of the use of a new chemical weapon. Recent indications from Afghanistan indicate that one purpose of the field surveys and body examinations is to determine levels of toxic materials still present in the attack zone before Soviet troops occupy it.

ANNEX D

Analysis and Review of Trichothecene Toxins

Sample Analyses for Trichothecenes

The Trichothecene Hypothesis. Since 1975, the U.S. Government has received remarkably consistent reports detailing chemical attacks in Southeast Asia. Some of these reports described the use of lethal agents which produced symptoms that could not be correlated with those produced by known or traditionally recognized chemical warfare agents or combinations of them (see Table D–1). It is readily apparent that the symptoms most frequently described in Laos and Kampuchea correspond most closely with those produced by a group of mycotoxins—the trichothecenes. A review of the scientific literature revealed not only that these compounds had physical and chemical properties indicating potential as chemical agents but also that they were the subject of intensive investigation by Soviet scientists at institutes previously linked with chemical and biological warfare research. In the fall of 1980, the trichothecenes were added to the list of agents suspected to have been used in Southeast Asia and Afghanistan. Other candidates under consideration included phosgene oxime, arsines, cyanogen chloride, nerve agents, riot-control agents, and combinations of these agents.

Many samples from chemical attacks in Laos and Kampuchea were examined at the U.S. Army's Chemical Systems Laboratory (CSL) for the presence of traditional chemical warfare agents and were reported to be negative. In March 1981, CSL reported the presence of an unusual compound ($C_{15}H_{24}$) in the vapor analyses from several clothing and tissue samples taken from the victim of a chemical attack. The compound was closely related in structure to the simple trichothecenes. This finding sparked the request for analysis of all future samples for the presence of trichothecene mycotoxins.

The Kampuchean Leaf and Stem Sample: The First Analysis for Trichothecenes. On March 24, 1981, a number of samples were received from the U.S. Embassy in Bangkok. Two were reported to have been collected from the site of a chemical attack that occurred in the vicinity of TV 3391, an area just south of Phnom Mak Hoeun. A vegetation sample and a water sample were collected within 24 hours of the attack. Examination of bodies of victims of this attack by medical personnel revealed highly unusual degeneration of the mucosal lining of the gastrointestinal tract. The effects described paralleled those known to be produced by the trichothecenes. The samples were submitted to the Chemical Systems Laboratory for analysis for the presence of chemical warfare agents. With the exception of the unusual presence of high levels of CN-, Cl-, and F-ions, no evidence of known chemical warfare agents was found. An initial test for the trichothecenes by thin layer chromatography was inconclusive because of severe problems with interfering substances and the lack of appropriate standards.

The trichothecenes are difficult to detect even under ideal circumstances, and the presence of interfering substances in the sample may make identification and quantification by thin layer chromatography inconclusive. A review of the limitations and potentials of the analytical methods for trichothecenes led to the conclusion that the computerized gas chromatography/mass spectroscopy method in the selected ion-monitoring mode enabled precise identification and quantification of these compounds in complex mixtures. A comparison of the currently available methods suitable for trichothecene analysis and an assessment of their utility and limitations is presented in Table E–3.

A portion of the leaf and stem sample was furnished to the U.S. Army Medical Intelligence and Information Agency for further analysis. This sample, a positive control sample to which T–2 toxin was added, and a negative control sample of similar vegetation were forwarded to Dr. Chester J. Mirocha of the Department of Plant Pathology, University of Minnesota. Dr. Mirocha was given no information concerning the history or content of the samples and was requested to analyze the three unknowns for the presence of trichothecene toxins using the best methods at his disposal.

The analysis involves a series of extractions followed by ferric gel separation, selected ion monitoring on a computerized gas chromatograph/mass spectrometer, and a full mass spectral scan for comparison with known standards. The methods used are among the most sensitive and specific for detection of these compounds; also, false positives are rare. Toxins can be identified by their mass spectra and quantified with a high degree of accuracy. The vegetation sample allegedly exposed to a chemical warfare agent was found to contain 109 parts per million (ppm) of nivalenol, 59.1 ppm of deoxynivalenol, and 3.15 ppm of T–2 toxin; each is a potent toxin of the trichothecene group. No trichothecenes were detected in the negative control sample, and 35 ppm of T–2 toxin were detected in the sample to which T–2 toxin had been added. It was Dr. Mirocha's assessment that a mixture of these particular toxins in the high levels detected could not have occurred as a result of natural contamination.

The possibility that the identified toxins were produced by natural fungal contamination was discounted on the basis of the climatic conditions required for production of T–2 toxin, the high levels of toxins detected, the unusual mixture of toxins found, and the results of surveys of Southeast Asia for the presence of these toxins. This conclusion was supported by the analysis of normal flora samples from Kampuchea described below.

Analyses of Control Samples From Kampuchea for the Presence of Trichothecenes. On September 20, 1981, the U.S. Army Medical Intelligence and Information Agency received nine control samples from U.S. Army personnel in Bangkok for the purpose of conducting laboratory analyses for background

TABLE D-1

Symptoms of Chemical Attacks Reported in Laos, Kampuchea, and Afghanistan

Symptom	% of Reports Mentioning Symptom	Tricho-thecenes	Nerve Agents	Arsines	Phosgene Oxime	Cyanogens	Incapacitant (BZ)	Riot-Control Agents
Laos								
Multiple deaths	84.6	X	X	X	—	X	—	—
Vomiting	71.4	X	X	X	—	—	—	X
Diarrhea	53.1	X	X	X	—	—	—	—
Hemorrhage	52.0	X	—	—	X[a]	—	—	—
Breathing difficulty	47.95	X	X	X	X	X	X	X
Itching and skin irritation	43.9	X	—	X	X	—	—	X
Nausea	42.8	X	X	X	—	—	X	X
Animal death	41.8	X	X	X	—	X	—	—
Blurred vision	39.7	X	X	X	X	X	X	X
Headache	36.7	X	X	—	X	—	X	X
Fatigue	35.7	X	X	—	—	—	X	—
Nasal excretion	34.7	X	X	X	X	—	—	X
Rash or blisters	32.6	X	—	X	X	—	—	X
Tearing	30.6	X	X	X	X	X	—	X
Coughing	28.6	X	X	X	X	X	—	X
Effect on vegetation	26.5	X	—	X	X	—	—	—
Dizziness and vertigo	25.5	X	X	—	—	X	X	X
Facial edema	20.4	X	—	X	X	—	—	X
Thirst and dry mouth	20.4	X	—	—	—	—	X	—
Skin color change	16.3	X	—	—	X	—	—	—
Tachycardia	12.3	X	X	—	X	X	X	X
Temporary blindness	9.18	X	—	X	X	—	X	X
Rapid loss of consciousness	9.18	X[b]	X	—	—	X	X	—
Salivation	6.12	X[c]	X	—	—	—	—	—
Hearing loss	5.1	X	—	—	—	—	—	—
Tremors or convulsions	4	X	X	—	X	X	—	—
Sweating	3	—	X	—	—	—	—	—
Paralysis	3	X	X	—	—	X	—	—
Loss of appetite	3	X	X	X	—	—	—	—
Frequent urination	2	X	X	—	—	—	—	—

Continued on p. 25

Note: This table is a compilation relating the signs and symptoms reported in the three countries to symptoms associated with certain chemical agents. The frequency with which a particular symptom was reported is expressed as a percentage of the total number of attacks.

levels of trichothecene toxins. The samples were collected from an area near TV 3391 that had not been subjected to any reported chemical attacks. The samples were collected by U.S. personnel under instructions to reproduce the sampling conditions, handling, packaging, and transfer conditions of the original sample as closely as possible. The same species of plant was sampled, and four other vegetation samples also were collected. A water sample and two soil samples were recovered. Corn and rice samples from the area also were taken. These grains provided an ideal substrate for growth of toxin-producing fungi and would, therefore, be a sensitive indicator of any natural occurrence. The nine samples were forwarded under code to Dr. Mirocha for trichothecene analysis. A portion of each sample also was submitted to Chemical Systems Laboratory for background determinations of CN-, Cl-, and F-levels. No trichothecenes were detected in any of these samples, indicating that nivalenol, deoxynivalenol, T-2, and diacetoxyscirpenol are not prevalent in the geographical area from which the alleged chemical warfare-exposed sample was collected. The appearance of these trichothecenes in high levels and unique combinations in a sample associated with a chemical attack—which produced symptoms typical of trichothecene exposure—indicates that these toxins may have been used as chemical weapons. This conclusion is further supported by the evidence provided by analysis of additional alleged chemical warfare samples from Laos and Kampuchea as described below.

Analysis of Additional Chemical Warfare Samples From Laos and Kampuchea for the Presence of Trichothecenes. The U.S. Army Medical Intelligence and Information Agency received from the Chemical Systems Laboratory three additional suspected chemical warfare samples for analysis for trichothecenes. The first sample consisted of 10 ml of water taken from the same chemi-

TABLE D-1 (continued)

Symptoms of Chemical Attacks Reported in Laos, Kampuchea, and Afghanistan

Symptom	% of Reports Mentioning Symptom	Tricho-thecenes	Nerve Agents	Arsines	Phosgene Oxime	Cyanogens	Incapacitant (BZ)	Riot-Control Agents
Kampuchea								
Multiple deaths	72.4	X	X	X	—	X	—	—
Hemorrhage	62.06	X	—	—	X[d]	—	—	—
Dizziness and vertigo	51.7	X	X	—	—	X	X	X
Vomiting	41.3	X	X	X	—	—	—	X
Nausea	34.5	X	X	X	—	—	X	X
Skin irritation	27.6	X	—	X	X	—	—	X
Rapid loss of consciousness	24.1	X[b]	X	—	—	X	X	—
Fever	20.68	X	—	—	—	—	—	—
Headache	17.2	X	X	—	X	—	X	X
Tearing	13.8	X	X	X	X	X	X	X
Breathing difficulty	13.8	X	X	X	X	X	X	X
Fatigue	13.8	X	X	—	—	—	X	—
Paralysis	10.3	X	X	—	—	X	—	—
Numbness	6.9	X	X	—	—	X	X	—
Blurred vision	6.9	X	X	X	X	X	X	X
Dry throat and thirst	6.9	X	—	—	—	—	X	—
Edema	6.9	X	—	X	X	—	—	—
Salivation	3.4	X[c]	X	—	—	—	—	—
Vegetation affected	3.4	X	—	X	—	—	—	—
Diarrhea	3.4	X	X	X	—	—	—	—
Cough	3.4	X	—	X	X	X	X	X
Nasal discharge	3.4	X	X	X	X	—	—	X
Rash or blister	3.4	X	—	X	X	—	—	X
Chills	3.4	X	?	—	—	—	—	—
Hearing loss	3.4	X	—	—	—	—	—	—
Afghanistan								
Rapid loss of consciousness	47.9	X[b]	X	—	—	X	X	—
Skin irritation and itching	31.5	X	—	X	X	—	—	X
Multiple deaths	30.1	X	X	X	—	X	—	—
Nausea	20.5	X	X	X	—	—	X	X
Vomiting	19.1	X	X	X	—	—	—	X
Tearing	17.8	X	X	X	X	X	—	X
Dizziness and vertigo	16.4	X	X	—	—	X	X	X
Blisters or rash	15	X	—	X	X	—	—	X
Difficulty breathing	13.7	X	X	X	X	X	X	X
Paralysis	13.7	X	X	—	—	X	—	—
Headache	12.3	X	X	—	X	—	X	X
Temporary blindness	8.2	X	—	X	X	—	X	X
Salivation	6.8	X[c]	X	—	—	—	—	—
Loss of appetite	6.8	X	X	X	—	—	—	—
Effects on vegetation	5.5	X	—	—	—	—	—	—
Fatigue	5	X	X	—	—	—	X	—
Confusion	4.1	X	X	—	—	—	X	—
Hemorrhage	4.1	X	—	—	X[a]	—	—	—
Change in skin color	2.8	X	—	—	X	—	—	—
Diarrhea	2.8	X	X	X	—	—	—	—
Coughing	1.3	X	X	X	X	X	X	X

[a] Bloody frothing.
[b] Only at very high doses.
[c] Depending on which trichothecenes.
[d] Blood flecked frothing.

cal attack site in Kampuchea as the leaf and stem sample previously examined. The second sample came from the site of a "yellow rain" attack occurring on March 13, 1981, in the village of Muong Cha (TF 9797) in the Phou Bia region of Laos. The agent was sprayed from a twin-engine propellor aircraft at about noon, local time. The falling substance was described as "like insect spray" and sounded like drizzling rain. Quite sticky at first, it soon dried to a powder. Symptoms described by victims included nausea, vomiting, and diarrhea. A sample of the agent scraped from the surface of a rock by a victim and carried into Thailand was turned over to U.S. Embassy personnel. The third sample was taken from the site of a "yellow rain" attack that occurred at 2:00 p.m. on April 2, 1981, at Ban Thong Hak (TF 9177). Twenty-four people reportedly died in this attack; there were 47 survivors. Symptoms included severe skin irritation and rash, nausea, vomiting, and bloody diarrhea. A survivor of the attack scraped this sample from the surface of a rock with a bamboo knife. Although the individual took precautions (that is, cloth mask), a severe skin rash and blisters developed.

These three samples were submitted to Dr. Mirocha for analysis. The water sample from Kampuchea contained 66 ppm of deoxynivalenol and a trace amount of diacetoxyscirpenol. A trace quantity of the second sample was screened as strong positive for trichothecenes. Further analysis of that sample confirmed the presence of high levels of T-2 toxin (150 ppm) and diacetoxyscirpenol (25 ppm). Nivalenol and deoxynivalenol may also be present but are being masked by interference from phtalate compounds (leached from the plastic packaging). An effort to modify the extraction process is being made in order to overcome the interference so that nivalenol and deoxynivalenol can be measured more easily. Interestingly, examination of the petroleum ether fraction from the sample revealed the presence of a yellow pigment almost identical to that previously identified by Dr. Mirocha in cultures of *Fusarium roseum,* indicating that the yellow powder probably consisted of the crude extract of a *Fusarium* culture.

There was little of the third sample contained in the vial received for testing. The quantity was too small to be weighed accurately, and inspection of the vial revealed only a small speck estimated to weigh much less than 0.1 mg. That speck contained 10 ng of diacetoxyscirpenol, a level equivalent to 100 ppm at the very least and probably much higher. The sample size was too small to allow adequate analysis for the other three trichothecenes of interest.

These results support the hypothesis that trichothecenes have been used as chemical warfare agents in Laos and Kampuchea. The presence of these high levels of trichothecene toxins in water and in yellow powder scraped from rocks argues against natural occurrence, since neither water nor rock is a suitable environment for growth of the fungi required to produce the toxins.

Differences between the analyses of the Kampuchean leaf and stem sample and the water sample collected from the same attack site raise additional questions. Failure to find T-2 toxin in the water sample is probably due to the relative insolubility of T-2 toxin in water. The presence of diacetoxyscirpenol in the water might be the result of biotransformation or breakdown of T-2, as they are so structurally similar, differing only in the substitution on carbon 8. While this hypothesis cannot be entirely ruled out, it is unlikely on the basis of known biotransformation of T-2 in the laboratory. The initial vegetation sample was not screened for diacetoxyscirpenol, although the mass spectra from the initial analysis will be reexamined for trace amounts of it.

The absence of nivalenol in the water sample is more difficult to explain because nivalenol is water soluble. The effect of environmental conditions and microorganisms on the stability of these compounds may vary widely for each of the specific compounds and may explain the analytical results. Further scientific investigation of these factors is needed.

Analysis of Blood Samples From Chemical Attack Victims

Blood samples drawn from victims of recent chemical attacks in Kampuchea have been received by the U.S. Army Medical Intelligence and Information Agency for analysis for indications of trichothecene exposure. Little is known concerning the rate of metabolism of trichothecenes in humans; it is difficult, therefore, to estimate the probability of detecting trichothecenes or their metabolites in blood samples. T-2 is rapidly cleared from the blood in animals, and 25% of the total dose is excreted within 24 hours after exposure; it is unlikely that trichothecenes could be detected unless blood samples were obtained within 24–48 hours after an attack. Other blood parameters are affected by the trichothecenes, however, and may prove to be useful markers. The trichothecenes induce a severe leukopenia (decrease in white cell count) which can persist for several weeks following exposure. In addition, the trichothecenes affect some liver and kidney function marker enzymes which can be monitored in the blood.

On October 11, 1981, four whole blood samples and four blood smears were received from the U.S. Embassy in Bangkok. The blood was drawn from four Khmer Rouge soldiers on October 7, 1981 at a Khmer Rouge hospital inside Kampuchea. Detailed medical histories as well as descriptions of the attack were recorded on each individual from whom a blood sample was taken. All four men were victims of a gas attack occurring near Takong on September 19, 1981. Symptoms experienced included vomiting, blurred vision, bloody diarrhea, difficult breathing, dry throat, loss of consciousness, frontal headache, tachycardia, and facial edema. Unfortunately, the samples could not be refrigerated until 48 hours after collection. Thus, it was impossible to obtain data concerning white cell counts and blood chemistry. The four whole blood samples were submitted to Dr. Mirocha for analysis for trichothecene metabolites because of the possibility, admittedly remote, that some of the metabolites might bind to blood proteins and might still be detectable even 3 weeks after an attack.

On October 22, 1981, additional blood samples were received. These had been drawn from nine victims from the September 19 attack and from four control individuals of similar age and background who had not been exposed to a chemical attack. The samples had been properly refrigerated and were accompanied by complete and detailed medical histories taken by trained medical personnel who examined the individuals. Included in the package were blood smears and heparinized and nonheparinized samples from each individual. The samples were submitted for blood assays to the U.S. Army Medical Research Institute of Infectious Diseases.

The above results show no statistically significant differences between exposed and control groups (students T-test). In eight individuals exposed to a chemical agent, a trend toward depressed white cell counts was observed. Such an observation would be compatible with the clinical picture of toxin exposure; however, it is also compatible with a number of other medical problems, and a larger control sample would

be required before such results could be adequately interpreted. Abnormal liver and kidney functions were not indicated by these data.

Portions of the blood samples were analyzed by Dr. Mirocha for the presence of trichothecenes and/or trichothecene metabolites. The results of the analyses are consistent with trichothecene exposure in at least two of the gassing victims and tend to support the hypothesis that a trichothecene-based agent was used in this attack.

Using the selected ion-monitoring gas chromatography/mass spectroscopy analysis technique, Dr. Mirocha was able to identify tentatively a metabolite of T-2 toxin (that is, HT-2) in the blood of two alleged victims. The compound was identified on the basis of its selected ion masses and gas chromatographic retention times.

The tentative identification of HT-2 in the blood of two victims, and the trend toward depressed white cell counts in these same victims, cannot be taken as conclusive scientific proof of toxin exposure because the trace amount of the compound present precluded unequivocal identification and quantification and because many other medical problems in addition to toxin exposure can cause a decrease in white cell counts. It is interesting to note that the individual who showed the greatest amount of the compound tentatively identified as HT-2 in his blood reportedly received the greatest exposure to the agent. He was exposed to contaminated water for more than 30 minutes and was the only victim who fell down in the water and actually swallowed some of it. However, the description by victims of symptoms correlating exactly with those associated with trichothecene poisoning provides strong circumstantial evidence that trichothecenes were used as chemical agents in yet another chemical attack in Southeast Asia.

Trichothecenes have been identified previously in environmental samples taken from several other chemical attacks in Laos and Kampuchea. Analysis of control vegetation, water, soil, corn, and rice samples from these areas, as well as reviews of published scientific literature, indicates that the particular toxins that have previously been identified are not known to occur naturally in the combinations found and at the levels detected in Southeast Asia. The latest analysis results contribute another piece of evidence to the growing body of data supporting the charge that trichothecenes have been used as chemical/biological agents in Southeast Asia.

ANNEX E

Overview of Natural Occurrence and Significant Properties of Trichothecenes

Historical Trichothecene Mycotoxicoses

The trichothecenes are members of a large group of naturally occurring toxins known as mycotoxins. The word "mycotoxin" is derived from the Greek "mykes" meaning fungus and the Latin "toxicum" meaning poison. It refers to a metabolite produced by a mold that is toxic to man and animals. Mycotoxicoses have been described as the "neglected diseases," and before 1960 English-language literature concerning the diseases caused by mycotoxins was scarce. Soviet scientists have been involved in research with some of these compounds for almost 30 years longer than their Western counterparts. The Soviet Union has had serious problems with mycotoxin contamination of food and has suffered several severe outbreaks of disease in humans. The first comprehensive studies of mycotoxin diseases were conducted in the Soviet Union in the late 1930s.

Since the 1940s, the group of mycotoxins figuring most prominently in Soviet scientific literature are the trichothecenes, a class of chemically related, biologically active fungal metabolites produced primarily by various species of *Fusarium*. Table E-1 lists some of the toxins in this group and producing fungi. The fungi are well-known plant pathogens that frequently invade many agricultural products.

Trichothecene toxins, perhaps more than any other mycotoxins, have been associated with acute disease in humans. Most of the human intoxications have occurred in the Soviet Union (Table E-2). The earliest recognized outbreak occurred in 1891 in the Ussuri district of eastern Siberia. Humans who consumed contaminated grain exhibited headache, chills, nausea, vomiting, vertigo, and visual disturbances. Dogs, horses, pigs, and domestic fowls reportedly were affected.

The most extensive mycotoxicosis outbreak reported to have caused multiple fatalities in man also occurred in the Soviet Union. In 1944, 30% of the population of Orenburg district, near Siberia, was affected by alimentary toxic aleukia (ATA), a disease later shown to be caused by ingestion of trichothecene toxins. More than 10% of the entire population of the district died of the disease. Many other outbreaks of ATA occurred in the Soviet Union, mainly during the 1942-47 period. The contamination was traced to overwintered millet, wheat, and barley infected with *Fusarium*. Symptoms of the disease included vomiting, skin inflammation, multiple hemorrhaging (especially of the lung and gastrointestinal tissue), diarrhea, leukopenia, and suppression of bone marrow activity.

In 1939, Premier Joseph Stalin dispatched Nikita Khrushchev to the Ukraine to organize and improve agricultural operations and to identify the disease causing the deaths of many horses and cattle. The problem was traced to hay and straw contaminated with *Stachybotrys atra*. The disease, later referred to as stachybotryotoxicosis, occurred after ingestion or contact with the contaminated grain. Symptoms included ulcerative dermatitis, peroral dermatitis, blood dyscrasias, hemorrhagic syndromes, abortion, and death. The greatest economic impact was due to loss of horses, although cattle, sheep, poultry, and humans also were affected.

Other disease outbreaks in which similar symptoms were present occurred in 1958 and 1959 among horses and cattle in the Soviet Union and Eastern Europe; thousands of animals were lost. Other intoxications were reported later

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Soviet Scientists Involved in Mycotoxin Research

A. Kh. Sarkisov—All Union Scientific Research Institute of Experimental Veterinary Science, Moscow

V. I. Bilay (also spelled Bilai)—Ukrainian S.S.R. Institute of Microbiology and Virology, Kiev

V. A. Tutel'yan—U.S.S.R. Academy of Medical Sciences Nutrition Institute, Moscow

M. A. Akhmeteli—U.S.S.R. Academy of Medical Sciences Institute of Epidemiology and Microbiology

L. Ye. Olifson
M. F. Nesterin
K. Z. Salomatina
Ye. P. Kozhevnikova
N. D. Osadchaya
L. F. Mikhaylova
Sh. M. Kenina
V. L. Kartashova
L. R. Filonova
T. Ye. Tolcheyeva
Kn. A. Dzhilavyan
I. S. Yelistratov
N. S. Tishkova
V. I. Kaplun
Ye. P. Kozhevalkova
S. M. Gubkin
L. I. Il'ina
P. A. Il'in
A. M. Kogan
D. T. Martynenko
N. A. Kostyunina
V. V. Yerinakov
I. A. Kurmanov
V. V. Semenov
Z. K. Bystryakova
Z. Z. Orlova
L. S. L'vova
L. I. Lozbina
T. A. Shevtsova
I. Yu. Makedon
N. S. Proskuryakova
A. V. Borovkov
M. N. Nazypov
L. I. Lozbin
M. S. Marova

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in Japan, Europe, the Soviet Union, and the United States, affecting various domestic animals and—in the case of "red mold toxicosis"—man. All of these diseases have now been shown to be due to ingestion of trichothecenes rather than to an infectious agent. In earlier outbreaks, the levels of toxin present in the contaminated grain were not measured; however, the levels of nivalenol and/or deoxynivalenol measured in toxic grains implicated in more recent outbreaks (i.e., "moldy corn toxicosis" and "red mold toxicosis") typically were between 2 and 8 ppm.

Natural Occurrence of Trichothecene Mycotoxins

Publications concerning the occurrence of trichothecenes are relatively scarce because of the lack of convenient detection methods and the complexity of the trichothecene family of compounds. Only recently have scientists developed methods capable of distinguishing between close structural derivatives and accurately quantifying the levels of toxin present (see Table E-3 for comparison of analytical methods). Extreme care must be taken when reviewing the scientific literature on natural occurrence of these compounds because erroneous conclusions can be drawn on the basis of results obtained with inadequate analytical techniques. Misidentification of compounds and gross overestimation of concentrations have occurred using techniques such as thin layer chromatography.

Table E-4 lists the reports of natural occurrence of T-2 toxin, diacetoxyscirpenol, and nivalenol that were obtained from a literature search of more than 3,000 citations concerned with trichothecene toxins. Levels that are questionable on the basis of techniques used are indicated. It is immediately apparent that the levels of toxins found in the various samples from Laos and Kampuchea are highly unusual, even if one accepts the questionable reports in Table E-4 as valid. The levels of these toxins (150 ppm of T-2 toxin, 109 ppm of nivalenol, more than 100 ppm of diacetoxyscirpenol, and 66 ppm of deoxynivalenol) are markedly higher than those reported to occur in nature. It should also be noted that the incidences recorded in Table E-4 concern levels of toxin produced when *Fusarium* is growing on its ideal substrate, while the Laos and Kampuchea samples were taken from surfaces—rocks and water—that would be extremely unlikely to support *Fusaria* growth and toxin production. Higher levels of toxin production can, of course, be induced when the mold species is grown in pure culture under ideal laboratory conditions; for instance, the Soviets have succeeded in producing 4 grams of T-2 per kilogram of substrate. In a natural environment, however, the *Fusaria* species cannot compete well with other molds such as species of *Aspergillus* and *Penicillium*, and levels of toxin produced are orders of magnitude lower.

The conclusion that the levels of toxins found in the Southeast Asia samples could have occurred only by means of an unnatural mechanism is also strengthened by surveys of the area conducted

TABLE E-1
Trichothecene-Producing Fungi

Type	T-2 Type	Nivalenol-Type	Macrocyclic
Trichothecenes	T-2 Toxin	Nivalenol	Roridins
	HT-2 Toxin	Monoacetyl-Nivalenol	Veirucarins
	Diacetoxyscirpenol	Diacetyl-Nivalenol	Satratoxins
	Neosolaniol	Deoxynivalenol	Vertisporin
Fungus	F. tricinctum	F. nivale	Myrothecium verrucaria
	F. roseum	F. opisphaeria	
			M. roridum
	F. equiseti	F. roseum	
	F. sporotrichioides		Stachybotrys atra
			Verticimonosporium diffractum
	F. lateritium		
	F. poae		
	F. solani		
	F. rigidiusculum		
	F. semitectum		

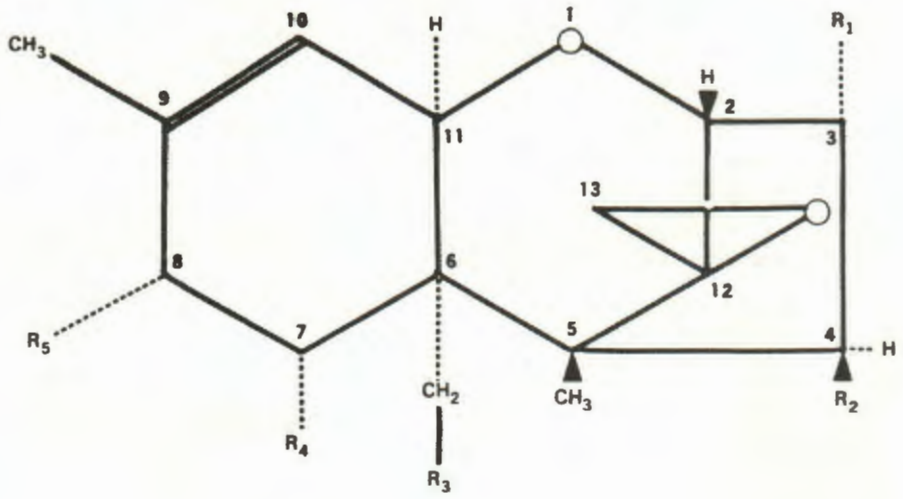
TABLE E-2
Historical Trichothecene Mycotoxicoses

Toxicosis	Districts and Affected Species	Symptoms
"Taumelgetreide" Toxicosis	U.S.S.R.: man, farm animals	Headache, nausea, vomiting, vertigo, chills, visual disturbances
Alimentary toxic aleukia	U.S.S.R.: man, horse, pig	Vomiting, diarrhea, multiple hemorrhage, skin inflammation, leukopenia, angina
Stachybotryotoxicosis	U.S.S.R., Europe: horse	Shock, stomatitis, hemorrhage, dermal necrosis, nervous disorders
Bean-hull toxicosis	Japan: horse	Convulsion, cyclic movement
Dendrodochiotoxicosis	U.S.S.R., Europe: horse	Skin inflammation, hemorrhage
Moldy corn toxicosis	United States: pig, cow	Emesis, hemorrhage
Red mold toxicosis	Japan, U.S.S.R.: man, horse, pig, cow	Vomiting, diarrhea, congestion and hemorrhage of lung and intestine

by various researchers. Surveys of the toxigenic fungi and mycotoxins naturally present in Southeast Asia conducted by the Mahidol University in Bangkok and the Massachusetts Institute of Technology have not revealed the presence of T-2, nivalenol, deoxynivalenol, or diacetoxyscirpenol, although other mycotoxins such as aflatoxin were identified. These results were confirmed by our analysis, using our own methodology, of normal flora samples of vegetation, soil, water, corn, and rice from Kampuchea that failed to reveal the presence of trichothecenes.

Skeptics have formulated theoretical explanations for the analytical results to support a hypothesis of natural occurrence of these toxins. It was postulated that the trichothecenes found were absorbed through the roots of a plant, translocated to the leaves, and exuded and washed onto the surface of a rock and into water where they were found. A 1981 publication by Jarvis et al. reported a Brazilian shrub that appeared to absorb, translocate, and chemically alter a macrocyclic trichothecene produced by soil fungi. While this citation is used to support a hypothetical mode for natural deposition in Southeast Asia, it should be noted that the plant reported in this publication did not exude the toxin, that the toxin was extremely phytotoxic to all other plants assessed, and that the plant was not capable of de novo trichothecene synthesis. No other trichothecenes have been found to be absorbed and translocated in any other plant in this manner. Control samples of soil and vegetation from Southeast Asia do not support endemic presence of these toxins. The appearance of these particular trichothecene toxins in these high levels in environments generally inhospitable to their formation cannot reasonably be attributed to a natural contamination.

FIGURE E-1
General Structure of Trichothecenes



T_2 Toxin	Nivalenol	Deoxynivalenol
R_1=OH	R_1=CH	R_1=OH
R_2=OAc	R_2=CH	R_2=H
R_3=OAc	R_3=OH	R_3=OH
R_4=H	R_4=OH	R_4=OH
R_5=$OCOCH_2CH(CH_3)_2$	R_5= =O	R_5= =O

Chemical and Physical Properties of the Trichothecenes

When considering the suitability of trichothecenes as agents, factors such as stability, solubility, and ease of production must be considered. The general structure for the trichothecene group is shown in Figure E-1. There are more than 40 currently known, naturally occurring, 12 to 13 epoxytrichothecenes. The R groups may be hydroxyls, acylated hydroxyl groups or esters. The R group for the toxins detected in the sample is shown below the general structure. All of the compounds have in common an olefinic double bond at carbon atoms 9 and 10 and an epoxy group at carbon atoms 12 and 13. These compounds are stable, especially in the solid form. They may be stored for years at room temperature with no loss of activity. They are heat stable with no loss of activity noted after heating for 1 hour at 100° centigrade. The solubility depends on the R groups; highly hydroxylated derivatives are more water soluble. The compounds are also quite stable in solution. Detoxification can be accomplished by treatment with strong mineral acid, which will open the 12 to 13 epoxide bond and abolish all biological activity. Most of the toxins are well absorbed through mucous membranes and some through skin; this property is also a function of the R group.

Some of these compounds have been synthesized chemically; however, biosynthesis employing *Fusarium* species is the most effective way to produce large quantities. In a preliminary search of recent Soviet literature, 50 articles dealing

TABLE E-3

Physicochemical Methods for Detection of Trichothecenes in Feedstuffs

Method	Trichothecenes Detected	Detection Limits	Required Standards	Use and Limitation
Thin-layer chromatography 1-dimension	All	0.1 microgram/spot (H_2SO_4)	Reference Standard	Qualitative Interference Not confirmatory
Thin-layer chromatography 2-dimension	All	0.1–1.0 microgram/ spot (H_2SO_4)	Reference Standard	Qualitative Less interference Confirmatory
Gas-liquid chromatography	Nonhydroxy-lated or TMS derivatives	0.03–0.05 microgram/ microliter injection	Reference Standard	Quantitative Monoglyceride interference Equivocable identification
Gas chromato-graphy/mass spectrometry-normal scanning mode	TMS derivatives	0.02–0.05 microgram/ microliter injection	Reference Standard or Spectrogram	Semiquantitative Less interference Unequivocable identification
Gas chromato-graphy/mass spectrometry-selection ion monitoring	TMS derivatives	0.007–0.02 microgram/ microliter injection	Reference Standard or Spectrogram	Quantitative Best for complex mixtures Unequivocable identification
Nuclear-magnetic-resonance	All	——	Reference Standard or Spectrogram	Confirmatory Purified toxin structure elucidation
Radio-immunoassay (developmental stage)	T–2 toxin	1–20 nanogram	Rabbit anti-T–2 toxin anti-body	Sensitive Low interference
			HT–2 toxin	Relative structural specificity

with the trichothecenes were reviewed. Of these, 22 dealt with defining optimum conditions for biosynthesis of the compounds. N.A. Kostyunina has reported production of T-2 toxin at levels of 4 grams per kilogram of substrate (normally wheat grain or rice). Many industrial microbiology plants have been identified in the Soviet Union. Some are involved in production of single-cell protein for fodder additives, others produce antibiotics, and the function of still others is unknown. *Fusaria* are produced in the Soviet Union at a facility long reported in the open literature as being a suspected biological warfare agent production and storage facility. This facility, Berdsk Chemical Works, is near the science city of Novosibirsk in Siberia. The only difference between an antibiotic and mycotoxin is their target specificity. Both are produced by fungi, but the mycotoxins are relatively more toxic to man than to microorganisms. Mycotoxins can be produced in good yield employing the same techniques used to produce some antibiotics. Thus, it may be concluded that the Soviets could produce trichothecenes in large amounts. They produce an antibiotic that is a trichothecene derivative, which would provide an ideal cover for agent production facilities.

Medical Effects of the Trichothecenes in Humans

The most prominent symptoms associated with trichothecene poisoning are listed in Table E-2. Striking among these is the rapid onset of vomiting, along with severe itching and tingling of the skin. Hemorrhage of the mucous membranes and bloody diarrhea follow. The symptoms shown in Table E-2 are similar to those reported by victims of trichothecene attacks in Laos, Kampuchea, and Afghanistan. The correlation is striking.

The LD_{50}'s (dose required to produce death in 50% of a test population) of the trichothecenes in laboratory animals range from 0.1 mg/kg to greater than 1,000 mg/kg, depending on the particular toxin, species, and route of exposure. The LD_{50} of T–2 toxin in a cat is 0.5 mg/kg. However, the ED_{50} (dose required to produce a desired physiological effect in 50% of a test population) is much lower. The ED_{50} to produce a vomiting reaction is 0.1 mg/kg; for skin irritation it is in the tenths of microgram range.

Most of the data concerning the toxicological effects of the trichothecenes are derived from animal data in which pure compounds were administered by oral, subcutaneous, intraperitoneal, or intravenous routes. Unfortunately, there are no reports concerning the effects of inhalation of mixtures of the compounds. Therefore, it is difficult to speculate concerning the effects that would be expected in humans exposed to an aerosol of mixtures of these potent toxins. The most useful data concerning exposure in humans were obtained in a phase I clinical evaluation of anguidine (diacetoxyscirpenol) as an anticancer drug. Diacetoxyscirpenol was administered by intravenous infusion. Doses of 3 mg/m²/day caused immediate onset of nausea, vomiting, diarrhea, somnolence and/or mental confusion, fever, chills, a generalized erythema with a burning sensation, hypotension, dyspnea, stomatitis, hives, and ataxia. Because of the side effects, the treatment was discontinued. The properties which make the use of diacetoxyscirpenol potentially useful as an anticancer drug are the same as those responsible, in part, for its extreme toxicity. It and the other trichothecenes cause extensive damage to rapidly dividing cells such as tumor cells. Unfortunately, the cells of the lining of the gastrointestinal tract and bone marrow are also rapidly dividing, and the effects of the trichothecenes on these cells result in severe, rapid degeneration of these tissues. The compounds also have direct effects on the clotting factors in the blood (that is, a primary effect on Factor VII activity and a secondary effect on prothrombin), which result in excessive hemorrhage following trauma.

The other useful body of clinical data concerning the effects of trichothecenes in humans is drawn from descriptions of the course of the disease in the natural

TABLE E-4

Spontaneous Occurrence of Trichothecene Mycotoxins

Toxin	Country	Source	Concentration (parts per million)	Reference[a]
T-2 Toxin	U.S.	Mixed feed	0.08[b]	15
	U.K.	Brewer's grains	ND[c]	19
	India	Sweet corn	4[b, d]	5
	Canada	Corn	ND	4
	India	Sorghum	ND[d]	22
	Canada	Barley	25[d]	20
	India	Safflower seed	3–5[d]	6
	U.S.	Corn stalks	0.11[b]	16
	U.S.	Feed supplement	ND	7
	U.S.	Corn	2	8
	U.S.	Mixed feed	0.3	14
	France	Corn	0.02[b]	10
	U.S.	Corn	ND	2
Diacetoxy-scirpenol	U.S.	Mixed feed	0.5	15
	U.S.	Mixed feed	0.38	15
	India	Safflower seed	3–5[d]	6
	India	Sweet corn	14[d]	5
	Germany	Corn	31.5[d]	23
	U.S.	Corn	0.88	21
Deoxynivalenol	U.S.	Corn stalks	1.5[b]	16
	U.S.	Corn	1.8[b]	15
	U.S.	Corn	1.0[b]	15
	U.S.	Corn	0.1[b]	15
	U.S.	Mixed feed	0.04[b]	15
	U.S.	Mixed feed	1.0[b]	15
	U.S.	Mixed feed	1.0[b]	15
	U.S.	Corn	7.4	9
	U.S.	Corn	0.1–25[d]	21
	U.S.	Corn	trace–25[d]	2, 21
	U.S.	Corn	1.1–10.7	26
	U.S.	Corn	41	25
	U.S.	Corn	1.0[b]	17
	U.S.	Oats	5	17
	Japan	Barley	ND	18
	U.S.	Corn	1.0[b]	13
	U.S.	Corn	0.06[b]	13
	U.S.	Mixed feed	0.07[b]	13
	France	Corn	0.6[b]	10
	South Africa	Corn	2.5	11
	Zambia	Corn	7.4	11
	U.S.	Corn	ND	2
	Japan	Barley	7.3	18
	Austria	Corn	1.3	24
	Austria	Corn	7.9	24
	Canada	Corn	7.9	24
Nivalenol	Japan	Barley	ND	18
	France	Corn	4.3[b]	10
Partially characterized trichothecenes	U.S.	Corn	ND	25
	India	Safflower seed	ND[d]	6
Skin irritant factors—not analyzed chemically	U.S.	Corn	93 positive[b] of 173	3
	U.S.	Corn	Multiple positive samples	21
	Yugoslavia	Corn	16 positive of 191	1

FOOTNOTES

[a] References:

1. Balzer *et al.* (1977)
2. Ciegler (1978)
3. Eppley *et al.* (1974)
4. Funnel (1979)
5. Ghosal *et al.* (1978)
6. Ghosal *et al.* (1977)
7. Hibbs *et al.* (1974)
8. Hsu *et al.* (1972)
9. Isshi *et al.* (1975)
10. Jemmail *et al.* (1978)
11. Marasas *et al.* (1977)
12. Miller (1976)
13. Mirocha (1979)
14. Mirocha (1979)
15. Mirocha *et al.* (1976)
16. Mirocha *et al.* (1979)
17. Mirocha *et al.* (1979)
18. Morooka *et al.* (1972)
19. Petrie *et al.* (1977)
20. Puls and Greenway *et al.* (1976)
21. Romer, T., Ralston Purina, St. Louis, MO (personal communication)
22. Rukmini and Bhat (1978)
23. Siegfried (1979)
24. Vesonder and Ciegler (1979)
25. Vesonder *et al.* (1976)
26. Vesonder *et al.* (1978)

[b] Zearalenone (F-2 toxins) also detected in the sample.

[c] ND = toxin concentration was not determined.

[d] Levels that are questionable on the basis of techniques used.

outbreaks that occurred in the Soviet Union. The effects produced are similar to radiation poisoning, and there is a latent phase similar to that seen in radiation poisoning, in which the overt symptoms disappear.

The clinical picture may be divided into four stages.

The first stage occurs within minutes to hours after ingestion of toxic grains. The symptomatology described was produced by oral exposure to low doses. In exposure by inhalation, the symptoms may be more pronounced or the time course accelerated. The characteristics of the first stage include primary changes, with local symptoms, in the buccal cavity and gastrointestinal tract. Shortly after ingestion of toxic grain, the patient experiences a burning sensation in the mouth, tongue, throat, palate, esophagus, and stomach as a result of the toxin's effect on the mucous membranes. The tongue may feel swollen and stiff, and the mucosa of the oral cavity may be hyperemic. Inflammation of the gastric and intestinal mucosa occurs, along with vomiting, diarrhea, and abdominal pain. In most cases excessive salivation, headache, dizziness, weakness, fatigue, and tachycardia accompany the initial stage. There may be fever and sweating, but the body temperature normally does not rise. The leukocyte count may begin to decrease in this stage, and there may be an increased erythrocyte sedimentation rate. This first stage may last from 3 to 9 days.

The second stage is often called the latent stage or incubation period because the patient feels well and is capable of normal activity. It is also called the leukopenic stage because its main features are disturbances in the bone marrow and the hematopoietic system, characterized by a progressive leukopenia and granulopenia and a relative lymphocytosis. In addition, anemia and a decrease in erythrocytes, in the platelet count, and in hemoglobin occur. Disturbances in the central nervous system and autonomic nervous systems may occur as well as weakness, vertigo, fatigue, headache, palpitations, and mild asthmatic conditions. Visible hemorrhagic spots (petechiae) begin to appear on the skin, marking the transition to the third phase. The second stage may last 3–4 weeks. The transition to the third stage is sudden, and symptoms progress rapidly.

In the third stage, petechial hemorrhages occur on the skin of the trunk, arms, thighs, face, and head. They can vary from a millimeter to a few centimeters in size. Capillaries are fragile, and any slight trauma results in hemorrhage. Hemorrhages of the mucous membranes of the mouth, tongue, soft palate, and tonsils occur. Nasal, gastric, and intestinal hemorrhages can be severe. Areas of necrosis begin to appear on the lips, fingers, nose, jaws, eyes, and in the mouth. Lymph nodes are frequently enlarged, and the adjoining connective tissue can become so edematous that the patient has difficulty opening his mouth. Blood abnormalities previously described are intensified. Death may occur from hemorrhage, strangulation due to swelling, or secondary infection.

The fourth stage is convalescence. Three or 4 weeks of treatment are required for disappearance of necrotic lesions and hemorrhagic effects. Two months or more may elapse before the bloodforming capability of the bone marrow returns to normal. ■

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