

(EFFECTS) (~~REPORT~~)

'NUCLEAR WINTER' COULD WIPE OUT LIFE ON EARTH

TEL.
6/8/84

By RICHARD BEESTON in Washington

THE United States Government has begun an extensive scientific survey to investigate a recent theory that even a limited atomic war could cause a "nuclear winter," extinguishing most of life from Earth and with it all of mankind.

The programme to study nuclear winter, involving more than a dozen Government agencies, results from theories put forth in the last nine months suggesting that fires started by even a limited nuclear exchange would block out so much sunlight that life on Earth would be all but extinguished.

If the theory proves valid, an extensive report in the *New York Times* said yesterday, the threat of nuclear winter could cause dramatic changes in the United States' plans and equipment for fighting a nuclear war.

"Clearly this is an area of public concern," said Dr George Keyworth, President Reagan's science adviser. "It deserves far better assessment

The new \$50 million study programme is to include simulations, experiments, and possibly the creation of large fires to assess how high smoke plumes rise and how far they spread.

The programme to study nuclear winter resulted from new theories and studies put forth in the past nine months at an international conference by five leading United States scientists. "Initially there was lots of scepticism," said one of the scientists, Dr Richard Turco, a physicist. He said, however, that the issue was now being taken seriously by the United States Government.

Potential dangers

Speaking of the potential dangers of a nuclear winter, Dr Keyworth said that if the gravest imports turn out to be true, it would limit serious consideration by the Soviets of "first strike" nuclear attack.

Killer ice-age would follow nuclear strike—top scientist

M.S. 12/1/84

By BILL WAINWRIGHT

BRITAIN would be gripped by a killing ice-age in the event of a nuclear war, the British Association for the Advancement of Science meeting in Norwich heard yesterday.

The deep-freeze would be similar to present conditions in Alaska, said Dr. P. M. Kelly, of the Climatic Research Unit at the University of East Anglia, whose report was a devastating condemnation of nuclear war.

"Even in the unlikely event of a successful first strike, there can be no winner in the nuclear winter that would follow a nuclear exchange," he said. "The victor may well suffer as much as the vanquished," he added.

The use of nuclear weapons would produce a vast cloud of nuclear dust and a dense pall of smoke from fires and those would blot out the sun's rays. Scientists had been concerned to research the after-effects of

had "turned away from deterrence toward the development of the capability to fight and survive a nuclear war."

It had been thought earlier that the major climatic impact would be a big increase in damaging ultra-violet radiation.

But fresh research by groups in the US and the Soviet Union had reached broadly similar conclusions predicting the likelihood of a nuclear winter of temperatures well below zero.

KITCHEN TABLE

The land masses in much of the Northern hemisphere would be frozen on a scale not experienced since the last ice-age because the sun's warmth and light would be blanketed by the thick layers of dust and smoke thrown up by the bombs.

The freeze would last for weeks, possibly months, or according to new research shortly to be published, for up to four or five years.

report, Dr. Kelly asks: "What will we find as we emerge from under the kitchen table, pushing aside the sandbags?"

"Twilight, day long, with only an occasional glimpse of the sun. Temperatures swinging from day to day between freezing and 20 or so degrees (centigrade) below.

"Intense storms die to the temperature contrast between the cold land and the relatively warm ocean. Dense fogs in the coastal areas. . . . The seas alone the coastline gradually freezing.

"The ground permanently covered by frost and snow. All surface water frozen.

"Without Arctic survival gear, and in a physically and psychologically shattered state, survival at sub-zero temperatures is likely to prove difficult, to say the least.

"It is feared that the casualties of a prolonged nuclear winter could equal those killed

SURVIVAL 'difficult'

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or injured in the initial days of the nuclear exchange.

Few domestic crops would be likely to survive. Domestic livestock and wild animals would be extremely unlikely to survive the cold. The lack of food and the lack of unfrozen water, "not to mention the effects of blast and radiation poisoning," Dr. Kelly added.

"It has been said that we would be reduced to a hunter-gatherer lifestyle, with nothing to hunt and precious little to gather," he concluded.

In another report yesterday the meeting was told that another natural ice-age would not occur before 3,000 and 7,000 years.

But before it was triggered off by variations of the earth's orbit round the sun, the earth might become warmer for several centuries through carbon dioxide discharges into the atmosphere. Professor Hubert Lamb of the East Anglia University School of Environmental Sciences said: