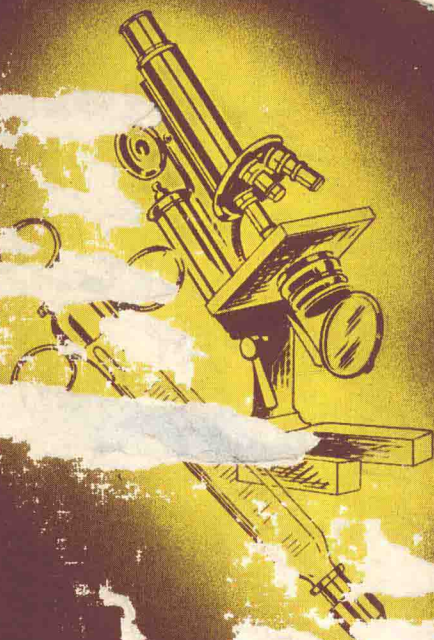


# *Mankind Against Polluters*



JAMES HEMMING

# MANKIND AGAINST THE KILLERS

*by*

JAMES HEMMING



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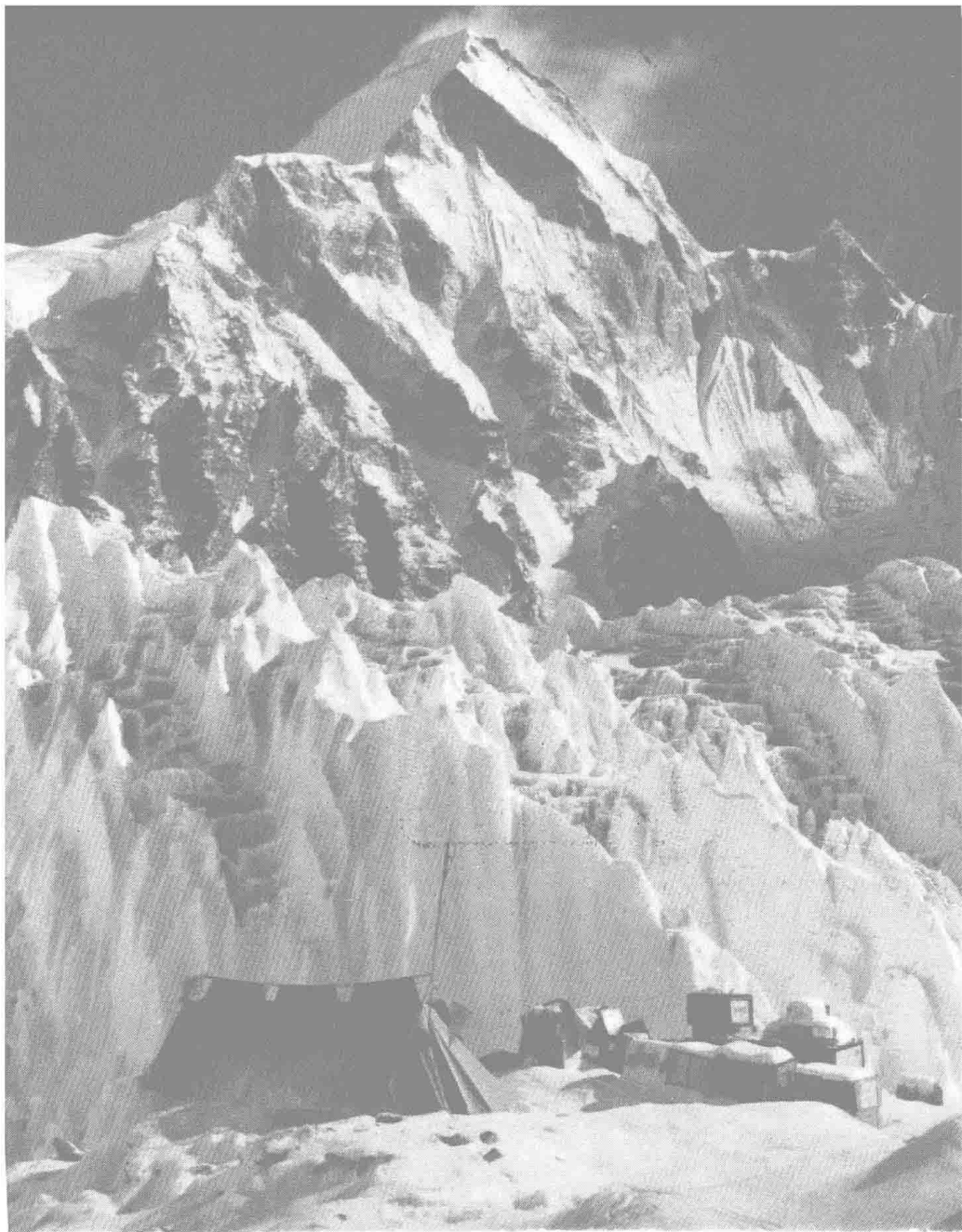
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MAN WAS BORN TO CONQUER  
Base Camp before the Everest Ascent 1953

## FOREWORD

WHEN I read Mr. Hemming's manuscript, on the eve of my retirement as Director-General of the World Health Organization, I commented that here was something I had been hoping to see throughout the seven years of my association with international health work.

It is the first time, to my belief, that a book dealing with health on a world scale has been attempted with the aim of interesting young people. That it will interest them I feel sure—and not only them, but older readers as well. Here let me admit that I did not put down the manuscript until I had read every word. The author selects and marshals his facts with skill, but he does more: he breathes life into them to give us a book full of the spirit of adventure.

In its job of helping to bring about a healthier, saner world, WHO cannot succeed (in fact no international organization can succeed) without full public support based on knowledge and understanding of its work. This book will help to supply both.

The future of the world depends upon the building up of a sense of World Citizenship. Here is a work which cannot fail to inspire all its readers, young or old, with that ideal.

DR. BROCK CHISHOLM

*Canada, September 1955*

## ACKNOWLEDGEMENTS

IN a book of this kind, which attempts to draw into a simple synthesis many fields of human knowledge and inquiry, it is difficult to make acknowledgements to all those who have helped to provide background and content. Rows of reference numbers are distracting to the ordinary reader; lengthy bibliographies frighten him. Nevertheless, the author is very conscious of a special debt to particular books and people and would like to express his appreciation of the assistance they have given him:

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To Josué de Castro for *Geography of Hunger* (Gollancz).  
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## CHAPTER ONE

# MAN THE CONQUEROR

MAN first appeared on earth half a million years ago. Then he was little more than an animal, living like an animal in holes and caves, feeding like an animal on what roots, nuts, fruit or prey he could find to eat about his dwelling-place, dying like an animal—helplessly—when disease struck him.

Even so, early man had certain big advantages over the animals. He had a large brain, enabling him to think and feel more powerfully than any other animal; he had an upright body, with nimble hands free to explore the things he found around him, to shape them into tools to help him protect himself and get food; and he had in his brain special groups of nerve cells, not present in animals, that enabled him to invent a language and use it to communicate with his fellow men. This ability to speak was of supreme value because it allowed men to share ideas, and to plan together, so that tasks impossible for a single person could be successfully undertaken by intelligent team-work. Speech also enabled ideas to be passed on from generation to generation so that the stock of human knowledge slowly increased.

It was these special advantages—large brain, the power of thought, free hands, speech, and intelligent co-operation—that put man far ahead of all other living creatures in the struggle for existence. Animals have to accept what comes to them; men can alter things to suit themselves. They can pit their wits against their diffi-

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culties and master them. Man, in fact, is equipped to triumph over the obstacles that confront him.

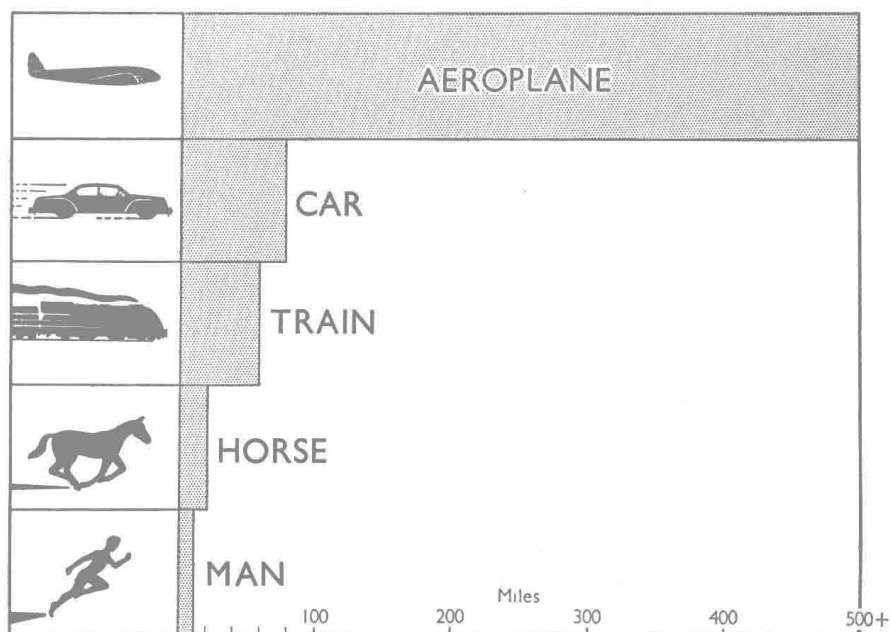
Since those far-off times, when he first made his appearance, man has achieved a great deal. Dissatisfied by his own speed of moving over the land, he has used animals, steam, electricity and oil to get himself faster and faster from place to place. He found rivers and seas across his path; he overcame these obstacles with rafts, canoes, boats and ships of endless variety. He found darkness inconvenient and it made him afraid. He mastered darkness too, first with dim torches, candles and flickering rush lamps, later with brighter and brighter lights, until he can now make for himself so dazzling a radiance with a blazing arc that, like the sun, it is too strong for his naked eyes.

Man found his own muscles were too weak for the work he wanted to do; he explored many forms of power—wind, water, steam, electricity—until now, at long last, he has his hands on the ultimate source of physical energy, the nuclear power which ties together the minute units from which all matter is made.

From man's earliest days the flight of birds stirred his wonder and desire. Why should he not fly as they did? For endless ages he just dreamed about flying. Then he began to experiment. At last, after many false starts and gallant fiascos—man has always scorned to let failure break his heart—his dream came true. He learnt how to make the right machines to do the trick. Now he can fly faster than sound—far faster than the swiftest bird. Already he is hatching schemes for conquering space. The moon looks tempting swinging across the sky only about 240,000 miles away—no more than ten times the distance round the earth. Already man has shot up mice and monkeys to immense heights in experimental rockets

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while automatic cameras took pictures all the time for research workers to study later. It will not be long now before "Next Stop Moon" becomes the travel order and man takes a giant stride away from this planet, learning in the hours of swift, silent flight what it is like to have no weight to his body, no up and no down to where he is.

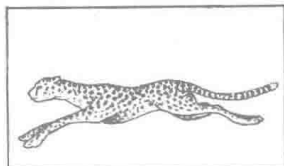


Man's conquest of speed and distance has gone so far that we are already approaching the limit of useful speed on Earth.

Communication—making contact between people quickly and surely—also presented man with a problem. His own voice carried only a few yards. How could he extend its range? Here, too, man has triumphed. Not far back in history even the most important message took

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weeks to travel from one country to another in written form or by word of mouth; now a comedian's back-chat leaps across the world at 186,000 miles a second. Sight has followed sound: man can now see things happening hundreds of miles away at the very moment when they occur.



Nature's swiftest land animal—the cheetah.

Since his first beginning man has also travelled far in spreading his dwelling-places over the surface of the globe. Exactly where he first emerged as man from his animal ancestors we cannot be sure—perhaps somewhere in that

strip of the world which lies between China and the Mediterranean Sea; perhaps in Africa. But he was a restless wanderer from the outset, always curious to know what lay beyond the mountains and seas that encompassed him, always willing to risk his life to find out.

In order to wander, man had to overcome the difficulty of adjusting himself to different climates—that was yet another problem for him. Fortunately, in spite of having no thick skin or warm fur to protect him, he is peculiarly robust compared with other living creatures. Most of them are unable to live far outside the region that suits them best. A polar bear cannot live in the African jungle; a lion would soon perish in Lapland. Man, however, can go almost everywhere. You will find him living on the plains, and up in the hills—up to a height of over 18,000 feet in Peru and Tibet; he lives in damp areas and in dry; in the depths of tropical forests and in snow huts on the bleak white wastes of the Far North. You will find him in the heart of Siberia where temperature falls to  $-90^{\circ}$  Fahrenheit, and in the

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deserts of Africa and Arabia where it soars to  $+130^{\circ}$ . Sometimes nature has helped man by adapting him to the conditions around him—by darkening his skin to cut off dangerous amounts of ultra-violet rays from powerful sunlight. But often man has had to adapt himself—as when he puts on the furry skins of animals to keep out the deadly cold of arctic winds or wears oxygen apparatus on high mountains. But one way or another he has fitted himself not only to go everywhere on the surface of his world—even to the Poles and the top of Everest—but, in pressurized cabins, has also flown miles above it and, in hollow spheres of thick steel, has explored far down into the depths of the sea where a world of fantastic fishes lives its own strange life.

### *A New Conquest*

Man, we see, is a remarkable creature: robust, versatile, curious, intelligent; he is a conqueror too, bold to tackle the difficulties that face him. He has the brains for it, and when to his intelligence he adds determination, courage and team-work there seems to be no practical problem beyond his powers. We who live in the twentieth century can look back over the works of man down the ages and feel a glow of wonder—and of pride, for we also are men—at what he has already achieved since his lowly beginnings long ago. We are right to feel pride in our past, hope for our future. But yet we have no cause to feel self-satisfied. Hurrying on with high success in many things, man has lagged seriously behind in a particularly vital field—that of health. In this field two special problems face him: disease and starvation. These problems still often defeat him even though he has been struggling against them for all the years of his existence, for hundreds of thousands of years clumsily and ignor-



antly; only very recently—for the last three hundred years at most—with the knowledge and accuracy of scientific investigation.

The problems of this battle for health have proved tougher than those of man's struggles to defeat distance, darkness, cold, climate and lack of mechanical power. There are many reasons for this. One is that in his battle against disease and starvation man is not faced by merely physical things—mountain ranges, raging seas, heat, cold and distance—he is up against living things. It is easier to dig a hole than to grow a good plant; easier to ride a bicycle than to ride a horse; easier to climb a hill than to catch a rabbit. Living things are always harder to handle than non-living things.

What is more, in his struggles to conquer disease and starvation, man has often to deal with living things so tiny that the most powerful microscopes barely make them visible. Supposing we cut a finger. It will heal up by itself. We just notice that it gradually grows well again as new skin closes over the wound. What we see, however, gives us no idea of what is really going on. Were we able to magnify the cut until it looked as large as a factory, we should see a bustle of activity going on such as even the busiest factory never produces. We are all of us made up of millions of millions of separate living cells averaging about one two-thousandth of an inch across. Each cell is complete in itself but unites and works together with other cells to make up our body. A magnified cut would show innumerable living cells all hard at it repairing the damage, clearing away the remains of the cells actually destroyed by the cut, and mounting guard to see that no harmful germs—themselves also living cells—enter the body from outside while the breach in its protective covering is being sealed over.