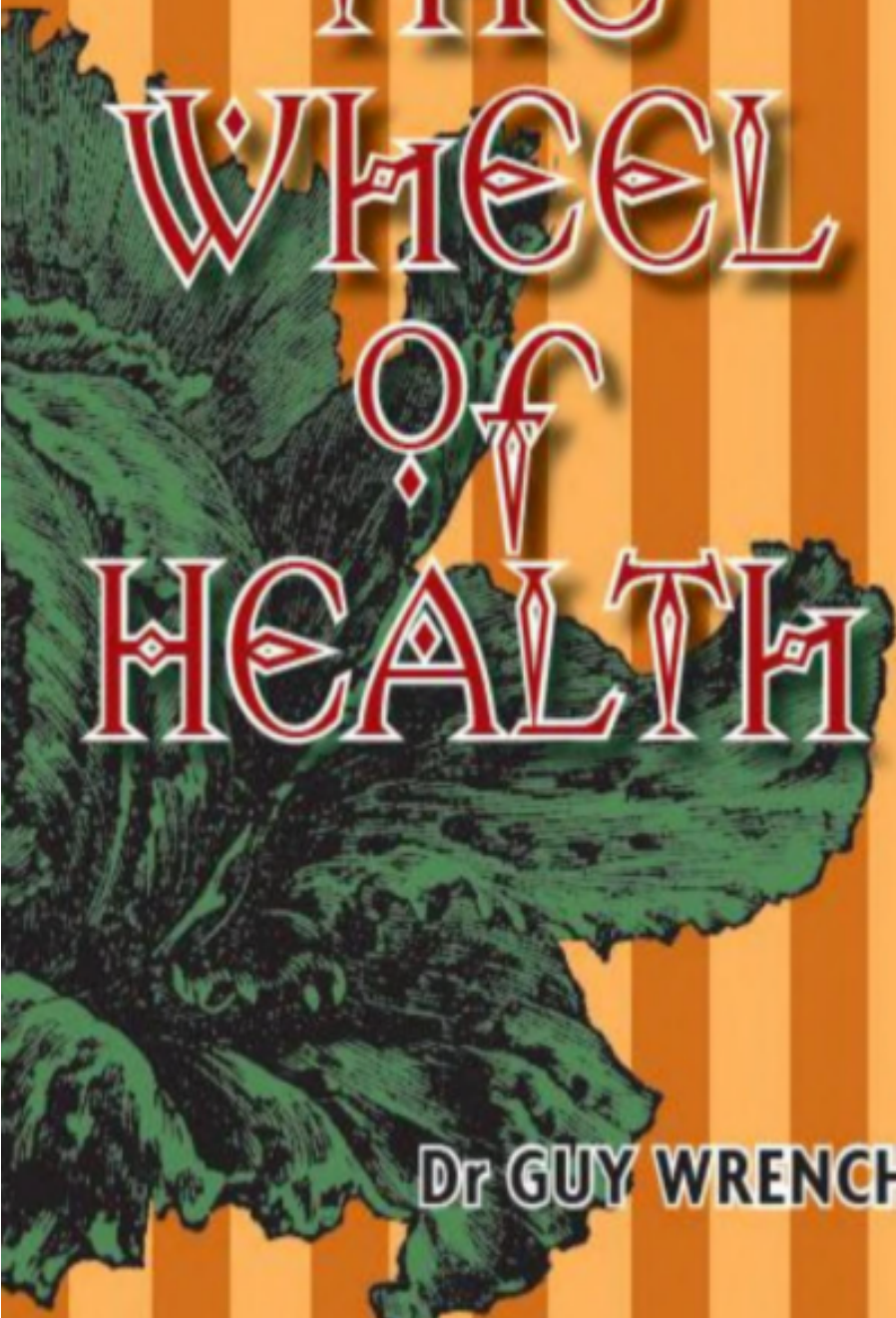
# The Wheel of Health



Dr GUY WRENCH

# THE WHEEL OF HEALTH

## A study of the Hunza people and the keys to health

DR GUY WRENCH

A DISTANT MIRROR

THE WHEEL OF HEALTH

by Dr Guy T. Wrench

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# Introduction

It should be clearly understood that a doctor is someone so saturated with people's illnesses and ailments that, if thoughtful, he is almost forced to look upon life as something heavily burdened by these defects.

I carry with me the profound impression of the first months I spent in the hospital wards and out-patient departments many years ago. I had come from the vigorous and exuberant life of an English public school, where everything that really absorbed my boyish interests was based on a glowing vitality and responsive health. After school hours there was plenty of time to let the muscles go – games, sports, ragging, bathing, or running and walking over untilled fields. All these things involved plenty of sunlight and wind or the raw cold, which made the blood flow.

Something of this life accompanies the early years of the medical student, but there is always the lure of hospital work to draw students back to its consuming interests. They're caught in the meshes of the problems of disease, and they won't be able to free their mind from it for the rest of their lives.

Impressions of youth are those that remain. They color all thought and experience, and they largely determine that thought and experience. The impact of the numerous diseases, and the suffering due to them, is a tremendous one. The impression that the microscope and the post-mortem room made upon me was so vivid that I used to sometimes walk about London with my eyes down and with the question 'Why?' on my lips, until I saw evidence of the many harmful

objects of pathology upon the pavements.

The effect was not one of depression; that's not the effect upon healthy youth. The effect instead stimulated me, as if I were facing an opponent who is stronger than I am at boxing. And here was truly an extraordinary opponent: the problem of disease, and why humans are so affected.

After debating with my fellow students again and again the question of why we have disease instead of health, I slowly, before I qualified, came to a further question. Why was it that as students we were always presented with sick or recovering people for our teaching, and never with the ultra-healthy? Why were we only taught disease? Why was it presumed that we already knew all about health in its fullness? The teaching was completely one-sided. Moreover, the basis of our teaching upon disease was pathology – namely, the appearance of that which is dead from disease.

We started from our knowledge of the dead, and from that, we interpreted the manifestations, slight or severe, of disease that threatened death. Through these various manifestations which fattened our textbooks, we approached health. However, by the time we reached real health, the studies were dropped. Their human representatives, the patients, were now well, and neither we nor our educators were any longer concerned with them. So we made no studies of the healthy – only the sick.

Disease was the reason for our specialized existences. There was also a great abundance of it. Between its abundance and the need we had for it, its inevitability was taken for granted. Gradually, however, a question forced itself upon me more and more insistently. Hadn't some of this 'inevitability' attached to disease come about through our profession only viewing disease from within? What would happen if we reversed the process, and started by learning all we could about the healthiest people and animals we could find? This question constantly nagged at me, but unfortunately, I didn't have the motivation that is part of the genius of discovery, which I so

admire. Those who possess it grip an idea and never let it go. They are as passionate for it to get on in the world as a mother is for her children. They dare, as even weak animals do, to challenge hopeless odds on its behalf. After achieving a small local status in research, all I did was to apply for scholarships. I placed a subject of my own choice in my applications: to study the health of the healthiest people I could discover.

I did not, of course, succeed. My proposal was probably looked upon as ridiculous. To research health rather than disease was a complete reversal of the 'normal' outlook, which was confined to different aspects of disease. To the medical profession, disease is the base and substance of its structure. Health is just the top of the pyramid, where it itself comes to an end. To suggest reversing this was like asking someone to stand on their head to get the right point of view.

At any rate, my applications came to nothing, though I was offered work upon the accepted lines. I didn't have the necessary conviction for this, so I gave up research and went into practice. I remained interested in very healthy people and read what I could about them, but the work imposed by the war and by practice in the following years kept me from anything more than an academic interest in the old question of why we couldn't have *health*.

It was not until two years ago, when I had more leisure, that the following vivid sentence in the writings of Sir Robert McCarrison thawed my frozen hope:

> "These people are unsurpassed by any Indian race in perfection of physique; they are long lived, vigorous in youth and age, capable of great endurance and enjoy a remarkable freedom from disease in general."

Further study of his writings was very encouraging. Here was someone whose research was in health, and healthy people. In fact, he saw health as a problem, and produced answers to it. He wrote things about research into the reasons

these people had unsurpassed health and physique.

In this way, it will be seen we come as researchers straight to health without intervention, and to health in the full dictionary sense of the word: *wholeness* – particularly, sound physique of every organ of the body and freedom from disease. This is the knowledge that we all want to have. We want to know what full health is, whether the tremendous part illness and ailments play in modern civilized countries is really necessary and, if not, upon what health primarily depends. We can ourselves attain to health – or at least with our modern skill in investigation we should be able to do so – if this full health exists in any part of our world today.

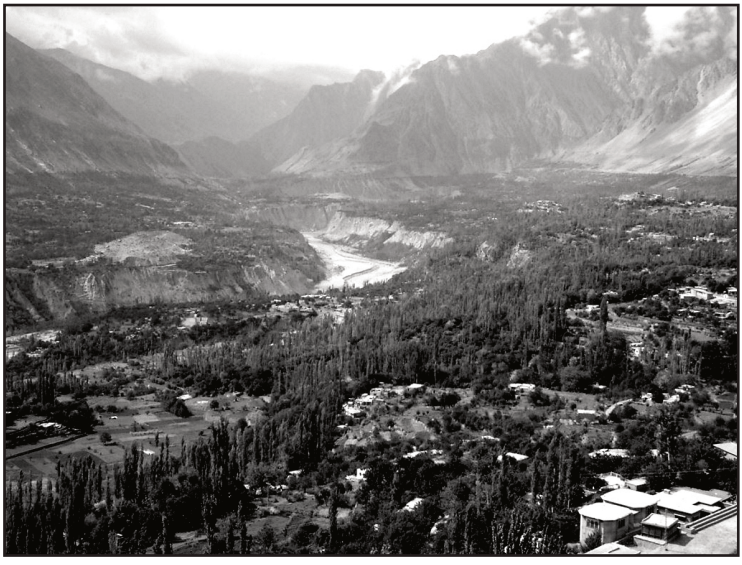
We will at least learn more about how to be healthy ourselves, and how to bring healthy children into the world, by studying successful human examples than we can by any other way.

By studying the wings of birds in flight, we have made our machines carry us through the air. In the same way, by studying one of the healthiest peoples of the world, we might so improve our methods of health that we can become a really healthy people ourselves.

A research in health is really promising. Well, this book is one. Let us see if the promise is fulfilled.

*Dr Guy T. Wrench*

# THE WHEEL OF HEALTH



*The Hunza valley*

# 1
# The Hunza People

Where India meets Afghanistan and the Chinese Empire and is closest to the Soviet Republics, there, amidst a congress of great mountains, is the Native State of Hunza.

If you look at a map of this part of the world with the mountain ranges shown by strongly-marked lines, they are seen to sweep towards each other to meet to the north of, at, and to the south of, the cleft of the Hunza valley.

A map in Mrs. Visser-Hoofts' *Among the Kara-Korum Glaciers* (1926) is of this kind. To the north is the mighty wall of the Tien-shan, coming from Mongolia, as the northern border of the Chinese Turkestan, to merge itself with the Pamir in the west, to the north of Hunza. South of the Tien-shan, forming the southern boundary of Turkestan and separating it from Tibet, is the curved line of the Kwen-lun, passing from east to west to also meet the line of the Pamir.

Further south, passing from west to east, is the straight line of the Hindu-Kush. From the east, passing west and meeting the Hindu-Kush at the cleft of Hunza, is the Kara-Korum range. Sweeping up from the southeast is the main Himalaya, ending in the lesser ranges of Chitral and Afghanistan to the south of Hunza.

The greatest folding of the earth's surface is found in the congress of these huge ranges, and the folding is greatest between the Hindu-Kush to the west and the Kara-Korum to the east. There, in a profound cleft, between walls of 10,000 to 15,000 feet in height, lies the habitable part of Hunza.

Could any place be less like England, or London, which now harbors a quarter of England's population? Is any place less likely to give us guidance in matters of health than this cleft between these prodigious mountain walls?

That seems a reasonable enough doubt. Certainly there are stupendous superficial differences, yet the beautiful and highly cultivated sunny seven miles that is the heart of Hunza may, by its very remoteness, have sheltered primary truths of health which our civilization has forgotten.

Fortunately, many people have seen the Hunza folk, for their valley is the highway to the 15,600 foot tall wall which divides India from China and is called the Mintaka Pass. The pass is only some ten miles from the extreme eastern corner of Afghanistan. Moreover, a good walker, starting early in the day, can pass over it and reach Kizil Robat, which is the most southeastern post of Bolshevist Asia. So a lot of people have passed along this cleft, and no doubt in the past a lot more, in invading armies, would likely have done so. Actually, more than a thousand years ago, an army of 10,000 Chinese did cross the Darkot Pass (15,400 feet) into the neighboring valley of Yasin and occupied the Gilgit district, but that proved to be an inimitable feat. With this exception, these clefts have only been traversed by small groups of men. In modern times, most of the European explorers, missionaries, and officials, on their way from India to Central Asia, take the Hunza route.

Europeans do not live in Hunza. In transit they spend a few days in Baltit, the capital of Stanza, collecting coolies for their further journey and enjoying the hospitality of its famous ruler, Mir Mohammed Nazim Khan. There is no account of Hunza by a resident. Nevertheless, many travelers have left their impressions of Hunza, and the officials of the Gilgit Agency to which Hunza is now attached have to visit the valley on their official rounds. Therefore, a good deal is known about the Hunza people, but superficially rather than intimately.

*A Hunza man*

They are still an unusual people. They have preserved their remoteness from the ways and habits of the modern world, and with it those methods of life which contribute to or cause their excellent physique and bodily health.

With one voice, the travelers and officials bear testimony to the Hunzas' physique. They find these people not only fearless, good-tempered and cheerful, but also as possessing a marvelous agility and endurance.

For example, that illustrious traveler and savant, Sir Aurel Stein, when on the way to the *Sand-buried Ruins of Khotan* (1903), was amazed on the morning of June 25th to see a returning messenger, sent by the Mir to the political Munshi of Tashkurghan to prepare him for Stein's impending arrival. The messenger had started on the 18th. It was just seven complete days between his start and his return, and in that time he had traveled 280 miles on foot, speeding along a track mostly two to four feet wide, sometimes only supported on stakes let into the cliff wall. Twice he had crossed the Mintaka Pass, which is the height of Mont Blanc. The messenger was quite fresh and undisturbed, and did not consider that what

he had done was unusual.

Nor was it, not even its speed. To pass along mountain tracks, of course, is the only way the people can get out of their strip of green country between river and mountain, but that does not make their going up and down and across the faces of precipices easy-going.

> "Yet it is quite a usual thing for a Hunza man to walk the 60 miles to Gilgit at one stretch, do his business and return direct,"

says Colonel R. C. F. Schomberg, who for eight years had occasion to visit the Gilgit Agency and saw much of the Hunza.

They are a peculiar people, almost like the mountain ibex which they hunt, in the ease of their gait. When they traverse these huge distances they have such a quick, light way of passing over the ground that they can be distinguished at great distances from other people on a mountain track.

> "How can you tell at such a distance that those laden coolies are Hunza?"

asked Schomberg of his native companions.

> "By the way they walk,"

was the reply.

Indeed, inserted throughout the fascinating narrative of Schomberg's travels (*Between the Oxus and the Indus*) one finds a constant tribute to the physique and excellence of the Hunza. This is interesting because Schomberg visited a number of other populated valleys of the Gilgit Agency. Though mountainous conditions and climate were the same, the people did not compare overall in physique and quality with the Hunza.

However, Schomberg found that some of the peoples he studied did have qualities approaching those of the Hunza. He set out from Gilgit and passed through the fief of Punyal. He writes:

"The Punyalis are splendid climbers, second only to the men of Hunza."

Punyal is the first bit of country to the west, going from Gilgit, up the valley of the Gilgit River, with the mountains of Hunza on the right. Some 60 miles further westwards is Ghizr, on the borders of Chitral.

The people of Ghizr are lazy. They do not store food carefully for the winter, and at the end of the winter are usually starving. Schomberg's two Hunza attendants mocked the hovels in which the Ghizr lived. The owners of the hovels replied meekly that they knew their houses were squalid and miserable, but they could not be troubled to build new ones. The general assent with which the bystanders received this explanation showed how ingrained this laziness of character was in the Ghizr people. The Hunza are a most industrious people, and yet Hunza and Ghizri areas are not far apart, and both live in similar surroundings.

Two valleys lie to the west of Hunza. These valleys are like the Hunza in being made by rivers flowing from the Kara-Korum glaciers, south to the Gilgit River. The first is Ishkoman, the second Yasin. Schomberg visited both. The Yasinis had fine lands and ample crops, and were, moreover, of fine physique, though falling short of the folk of Hunza and Punyal. Yet the Ishkomanis, whose valley is between that of the Yasinis and that of the Hunza, though living under apparently identical conditions to their neighbors, were poor, undersized, undernourished creatures. There was plenty of land and water, but the Ishkomanis were too indolent to cultivate it with thoroughness, and the possibility of bad harvests was not enough to overcome their sloth. They had a number of yaks, but they were too lazy to load them or ride them, to collect their valuable hair, or even to milk them. They had no masons or carpenters or craftsmen in their country. Many of them showed signs of disease.

> "The more I saw of the Ishkomanis, the more I was struck by their degeneracy. They were poor in physique and lacking in brains; a strange type of mountaineer!" (Schomberg).

Their visitor did not say why they were so poor a type when they had such fine people on the other side of the eastern wall of their valley. These poor Ishkomanis, who danced to entertain their guests, looked like "newly-hatched chickens," as a Hunza spectator scornfully remarked, whereas the Hunza dance is altogether wonderful, according to travelers.

The difference of the Ishkomanis and the Hunza cannot be due to their being on different sides of their 23,000 foot wall. In this relation, the two peoples are not north and south, but west and east. Both valleys run to the south from the main range, so the similarity of their situation remains.

From the valley where

> "the people represent as low a type of humanity as any in northwest India,"

Schomberg passed from the south into the valley of the Hunza river. On the way he had to pass through the territory of one more people, the Nagiris of the Native State of Nagir. They were situated on the southern side of the Hunza river valley, but with a capital a little removed in a branch valley joining the main valley from the east.

The Nagiris, though facing the people of Hunza, are not of their physical class, as noted by all travelers who write of them. They are mainly of good physique, but they fail to reach the supreme excellence and energy of the Hunza, which makes so light of the harsh conditions in which both live.

It is recorded that in all the little wars that arose between these neighbors, the Hunza have invariably won, though they weren't as numerous. Even in games it is the same. Bruce, in 1894, organized various sports and games between Hunza and Nagiris. The Hunza men won every event. As coolies for mountaineering expeditions, the Hunza have greatly

the superior reputation. They are superb mountaineers and unequalled slab climbers, whereas the Nagiris have no such superlative repute. Nor do the Nagiris have the brightness and good humor of the Hunza; they are more sedate and morose. The Nagiris' explanation for this difference is that in winter, when the sun is in the south, they on the south side of the valley are in the shadow of the great mountains, whereas the Hunza on the northern side enjoy the sun. It is true that, owing to a western bend to the river, the Hunza do get more sun, but this extra sun would not explain the Hunza superiority to the men of Ghizr and many others who also live on the northern side of their west to east valleys. Still, this is a difference which we, in a British winter, can appreciate.

The Nagiris are slovenly and have unclean habits, because of which, say the Hunza, they also have such swarms of flies. They are content with squalid houses and with lazy workmanship. Schomberg writes:

> "The people of Nagir are poor husbandmen, believing rather in the kindness of Providence than in hard work, and their lovely fertile country owes but little to its owners."

Passing Nagir, Hunza is reached. It is in the main a stretch of intense cultivation, extending some seven to eight miles along the northern bank of the Hunza River. It is a place of brilliant beauty. Facing it to the south is the great white cloud of Rakaposhi, 25,550 feet high, rising some 18,000 feet above the valley itself and dominating it as Mont Blanc dominates the valley of Chamonix, though on a vaster scale. Between the valley and the snows are huge barren precipices, except where the slopes allow terraced vegetation. In summer, these terraces are bands of brilliant green or golden corn from the river bank almost up to the verge of the snows. In the autumn, the green of the abundant fruit trees change to scarlet and gold and vermilion and even bright pink, so that Mr. Skrine in *Chinese Central Asia* (1926), on his way through Hunza, wonders that

no artist has made his name 'world-famous' by transferring to his canvas something of the incomparable brilliance of the multi-colored valley, with its tremendous frame of grim, rocky walls, above which are the immeasurable snows.

Here dwell the Hunza, whose numbers Major Biddulph in *Tribes of the Hindoo Koosh* (1880) roughly calculated as 6,000 people, but who have seemingly increased, to their detriment, to 14,000 since the census was instituted about 1911.

Their occupation has been and is agricultural, but before coming under the British suzerainty, they added a little banditry. They were not cruel; indeed, they seem to have partly regarded the looting of fat Turkis on their way to Mecca or the Khergiz of the Pamirs as a sport. However, it was a sport that often ended in failure and a long journey home without food.

As brigands, they showed their wonderful powers of endurance, traveling for miles along cruel precipices and crossing turbulent rivers at a speed none other could match. They were, of course, much feared, and in 1891, Colonel Durand led an expedition to stop their practices. It seems that they were willing to stop. Durand (*The Making of a Frontier*, 1894), discovered that they did not care to neglect their fields for banditry. Agriculture was their real desire, and true agriculturists are not military. Durand says:

> "As brigands, they appear to have acted always on the orders of their chief. They act also on the admirable cultivation of their ground, the immense and persistent labor spent on their irrigation channels, and on the retaining walls of their terraced fields."

This showed him clearly where their interests as a people lay. Since brigandage has had to be abandoned as an extra source of income by the chiefs, its place has been taken by the profit received from the hire of porterage by travelers and mountaineers. The Hunza are quite exceptional porters. All mountaineers are agreed on this point. Two quotations from

Volume 71 (1928) of the *Journal of the Royal Geographical Society* are examples of the general testimony.

General Bruce, of Mount Everest fame, recounted in 1928 at the Royal Geographical Society how in 1894 he had to call up the one-time Hunza Rifles. He told how they left their flocks away up in the mountains and collected their kit.

> "Then they went to Gilgit in one march of 65 miles of very bad country indeed. I found the Hunza people most charming and perfectly companionable. They are as active as any people can possibly be, and nobody in the world can beat the Hunza as slab climbers. For hard work in the mountains, if we had a trained body, they would prove superior to our best Sherpa porters."

The Sherpa porters have nobly assisted our Everest climbers almost to the top of the world, but not quite.

The second testimony is that of Captain C. Y. Morris, who explored the Hunza side valleys and glaciers in 1927. He said at the same meeting of the Royal Geographical Society in 1928:

> "These men were with us for just on two months. During this time they were continuously on the move, and over what is probably some of the worst country in the world for laden men. Always ready to turn their hand to anything, I think they were the most cheerful and willing set of men with whom I have ever traveled. At the worst part of all, we halted in order to help the porters across. They disdained our proffered assistance, however, and came over, climbing like cats, and with never a murmur at the hardships of this day's work."

If there is anything to try the nerves in these parts and give the equivalent of neurasthenia, it must be the danger and the exhausting work of porterage. Other porters give up, as the

readers of the tales of recent expeditions, such as that which conquered Nanda Devi, know. Not so the Hunza. They know neither the fear nor the weariness which oppresses the will.

Far from being nervous or morose, nearly every visitor testifies to their exceptional cheerfulness and freedom from quarrels. This cheerfulness, it is noted, seems to be a characteristic of the little Tibetans of Baltistan, Tibetans, Chinese, Koreans, and Japanese, *all of whom, we shall see, follow certain similar principles of agriculture.*

The Hunza were originally brought into contact with the British power owing to their interference with trade, which was by the same British converted from a hindrance to an assistance. Of course, no people can exist merely upon banditry or porterage. Biddulph wrote of the Hunza in 1880:

> "Far from being mere robber tribes, they are settled agricultural communities."

Here also, as might be expected, they excel. They are admirable cultivators, and famed as such. As well as being capable at agriculture, they are also good craftsmen. C. Skrine notes in *Chinese Central Asia* (1926):

> "They are conspicuously ahead of all their neighbors in both brain and sinew. Their big irrigation conduit, the Berber, is famous everywhere in Central Asia. Amongst the peoples of the Agency, not only are they quite in a class apart as tillers of the soil, they alone – and this always strikes me as truly remarkable – are good craftsmen. As carpenters and masons, as gunsmiths, ironworkers, or even as goldsmiths, as engineers for roads, bridges or canals, the Hunza people are outstanding.
>
> As dancers they are incomparably finer than the well-known Cuttack dancing of the Northwest Frontier."

Owing to their excellent agriculture, they also have enough to eat, except the few weeks preceding the summer harvest.

They have wheaten bread, barley and millet, and a variety of vegetables and fruits. They have milk, buttermilk, clarified butter, and curd-cheese. They have occasional meat. They rarely have any fish or game. They take wine, mostly about the time of Christmas. They used to make spirits, but that has been forbidden.

It is important to note, as has been already stated, that the population has seemingly increased since the suzerainty of the British, a common phenomenon when such a people comes in contact with the west. There is, therefore, less food for them than in the past. Colonel D. L. Lorimer was Political Agent at Gilgit from 1920 to 1924, and revisited the Hunza and lived amongst them from 1933–1934 at Aliabad, four miles from the capital, Baltit. He told me that not only did they seem smaller to him during his second visit, but that the children appeared undernourished for the weeks preceding the first summer harvests halfway through June. Moreover, the children suffered at that time of year from impetigo, or sores of the skin, all of which vanished when the more abundant food came. The climate of Hunza is arid, and the supply of land and water today is not sufficient for the people at the pre-harvest period.

The most conspicuous feature of the Hunza diet is the large quantity of fruit they eat, fresh in the summer and at other times dried, either alone or in wheaten cakes. Durand says:

> "There is so much fruit in Hunza that even the animals take the fruit diet, and you see donkeys, cows and goats eating the fallen mulberries. The very dogs feed on them, and our fox terriers took to the fruit regimen very well and came to enjoy it."

The daily diet is described by Schomberg. They eat nothing before going out in the early morning to the fields. After two or three hours of work, they eat bread, pulses and vegetables with milk. At midday, they have fresh fruit or dried apricots

kneaded with water. In the evening, they have these same foods, with meat on rare occasions.

This food seems simple and primitive. It will be found, on amplification, that it is neither simple nor is it primitive in the sense of being crude, and the full understanding of it will not be reached until almost the last pages of this book.

The Hunza are Muslims, but they do not confine their women, who go about freely. Nor do they refrain from wine. On the contrary, they grow good grapes and enjoy homemade wine. They, and the people of Punyal, shock the more orthodox Muslims in those parts by their fondness for public jollifications. The Mir, or ruler, treats his visitors to his homebrew and they find it sound and comforting. Bruce suggested to his fellow geographers that this wine is one of the reasons for the great cheeriness of the Hunza.

Their life is one of the open air, of course, for men, women and children work in the fields. They have to face the cold and storms of winter. The Hunza houses are often three stories high and are better built and more light and airy than elsewhere in the Gilgit Agency.

Moreover, owing to a shortage of fuel or a liking for better air, the Hunza do not fill the main living room of the house with dense, smoky atmosphere, even though they spend much time indoors during the stormy period of winter. This smoky atmosphere is something Durand speaks of as horrible in the houses of the Hindu-Kush, generally in mid-winter.

As regards the disposal of human excreta, the Hunza, as in other matters of great importance, follow the same principles as the Tibetans and Chinese. They pass their excreta into hidden privies, as do their Tibetan neighbors in Baltistan. From time to time these privies are opened and the material is added to the compost, which they use as manure for the soil.

Their water is kept in closed, separate cisterns, so that their animals cannot drink from them. Open water tanks are provided for their beasts.

So the Hunza houses are better than their neighbors, their water is separate and protected, and their sanitation has the time-honored approval of the Far East. Here, in these matters of ventilation, water-supply, and sanitation, they also show superiority, but especially in the case of winter ventilation, this can't account completely for the superiority of their physique. Something of these better ways may well contribute, but not enough to give a full and sufficient reason.

Schomberg, therefore, asks the question: "Can it be race?" He gives many pages to answering this question.

As the first settlement of Nagir was from Hunza, the Hunza and Nagiris have been classed as one race. However, the first settlement was many centuries ago. Since then many Kashmiris have entered Nagir and overwhelmed the earlier settlers, but they were kept out of Hunza. About the only remnant of relationship between the two peoples is that they both speak the Burushaski tongue, as do some people in Yasin and Punyal. It is even seen in Hunza that there has been mixture, but the majority of the Hunza in Hunza are distinguished by their fair skins, and they themselves scoff at being of the same blood as the smaller, dark Nagiris. Schomberg says:

> "Still less are the Hunza folk of the same stock as those of the rest of the Indus valley. It is certainly difficult to understand how anyone, after having dealings with the Hunza people, could imagine that they had anything in common with their neighbors of Nagir, still less with the inhabitants of Gilgit or the Indus valley."

Their very language is a peculiar and difficult tongue. Burushaski is only spoken in Hunza and parts of Nagir, and a little in Punyal, whose men Schomberg, as already quoted, places as second to the Hunza. Sir Aurel Stein says something very significant about Burushaski in *Sand-buried Ruins of*

*Khotan* (1906).

> "It has no apparent connection with either the Indian or the Iranian family of languages, and seems an erratic block left here by some bygone wave of conquest."

How the small race that speaks the language of Hunza has come to occupy these valleys will perhaps never be explained by historical evidence, but its preservation between the Dards on the south and the Iranians and Turki tribes on the north is clearly due to the isolated position of the country.

So the Hunza are mysterious, as well as being people of outstanding physique and health. They are something very old, an erratic block of an ancient world, still with its peculiar knowledge and traditions, and preserved from the decay of time in that profound cleft of theirs.

The ruling families of the Hunza claim to be descended from the soldiers of Alexander or even from Alexander himself, much as English families like to say their ancestors came over with the Conqueror. Farfetched though this may seem, still there is one thing that is a little strange.

The Hunza, as Muslims, will not be photographed unclothed; that would be an unforgivable affront. Yet there is one such photo in existence. It shows a man of medium height, broad shoulders, full chest, wide costar arch, narrow waist, small belly, and strong legs. If we look at this photo and then at the Aeginetan sculptures lodged in the Glyptothek of Munich, we see rare examples of deep-chested breathing, feeding efficiency, and powerful motility. Most strangely and unexpectedly, these sculptures and the photographed Hunza appear the same. The photo might be the statues, and the statues the photo.

Schomberg calls this claim of descent from Alexander fantastic, and so it is, and any speculation of a nest of pure-bred preservation of classic Greek racial stock is equally fantastic.

*Hunza children*

**All we can say is that this people of Hunza, so unique amongst peoples, is no less unique in its racial characteristics. Everything suggests that in its remoteness, it may preserve from the distant past things that the modern world has forgotten and no longer understands. Amongst those things are perfect physique and health.**

# 2
# A Revolution in Outlook

Robert McCarrison, now Major-General Sir Robert McCarrison, qualified as a medical practitioner at Queen's University, Belfast, in 1900. He entered the Indian Medical Service and sailed for India on his 23rd birthday.

He was posted as regimental medical officer to the Indian troops, stationed as warden to the frontier march of Chitral, between the Gilgit Agency on the east and Afghanistan on the west. It is in the heart of a country which, as we shall see in the penultimate chapter, is likely to prove one of the utmost significance in the history of food.

McCarrison was born with the mind of a researcher. He quickly displayed it in the usual manner of medical research. Eighteen months after his arrival in India, he was stationed at the isolated Fort of Drosh. The winter was cold, but healthy. In the summer it was hot and dry, and then, as he reports in his Lloyd Roberts Lecture in 1937, "there fell upon us a strange sickness which few escaped."

Here was a great opportunity for the young medical research worker – a strange sickness. McCarrison seized it with pure and scientific joy, for the disease was not a serious one; it was a sharp three-day fever. He made every sort of investigation possible with his meager equipment. He observed and tabulated the outbreak of the epidemic, the nature of its spread, the ages of the sufferers, its great prevalence amongst newcomers, the immunity of those previously attacked, and its absence above a certain altitude.

*Sir Robert McCarrison*

McCarrison sent for his microscope and some simple laboratory apparatus. He examined hundreds of blood films for malaria and found it absent. Quinine also had no effect on the fever or its symptoms. He tried to grow microbes from the blood of patients and failed. He inoculated volunteers with the blood of the affected with no result. He made mosquito-surveys and sand-fly-surveys, to see if the fever was possibly conveyed by their bites. He finally came to strongly suspect sand-flies as the conveyers of the disease, and repeatedly submitted volunteers to bites from insects which had been fed on fevered patients. He again had no result.

He published his results without proving the cause, and *Three-day Fever of Chitral* figured in the textbooks. Soon it was recognized that this fever prevailed, as McCarrison predicted, in other parts of India, and also in Dalmatia, Malta, Crete, and other Mediterranean stations. In 1908, Doerr confirmed McCarrison's suspicions, and the disease subsequently came to be known as 'sand-fly fever'.

The young McCarrison followed this excellent piece of research with another that still claims his interest, though that interest has now merged into the greater one of his later work.

In his Milroy Lectures of 1912, he described what any

research worker, working by means of the outlook of disease, would regard as a piece of good fortune. In the Gilgit Agency, to which he was appointed surgeon between 1904 and 1911, another experiment on a grand scale in disease, not health, was being carried out by nature, in a manner that excited his keen interest. The disease was that of goiter, or enlargement of the thyroid gland, which lies in front of the windpipe. In the introduction of his first lecture, he expressed his joy in being provided with a suitable subject for his abilities.

> "I had the good fortune to reside for some ten years in a part of India where goiter and cretinism prevail with great intensity, and where it is probably one of the purest regions of endemic goiter in the world. As such, I have had exceptional opportunities for carrying out extensive observations and experiments, not only on animals, but also on people."

He then went on to describe his researches to date. They were thorough and profitable. They were based on the disease as exhibited particularly in the nine villages which are collectively known as Gilgit, where he himself was stationed. He succeeded so well in his research that he was eventually able to give himself and fifteen volunteers the disease and then to cure it.

There is no need to go into the course of these researches, interesting and illuminating though they are. The chief effect, from the point of view of this book, is that they led to McCarrison being relieved of the routine duties of a medical officer and confirmed as a research worker. In 1913, he was transferred to the Central Institute, Kasauli, with its well-equipped laboratories, to pursue his investigations with all the advantages offered by laboratories and facilities, scientific colleagues, and literature.

In 1912, Sir Gowland Hopkins had made public his work on accessory food factors, to which Casimir Funk a year later

gave the name of *vitamins*. McCarrison, reading the work, at once thought that maybe a very important clue to the enigma of goiter lay in a deficiency of vitamins in the food that people with goiter eat. He therefore began experiments in the Kasauli laboratory designed to give pigeons goiter. He fed them on diets defective in vitamins. Something different happened. The birds did not develop goiter, but some of them, as was expected, developed a disease called polyneuritis. It was then found that these birds were overrun by specific microbes.

Now came the surprise. Some of the healthy birds, the stock of the laboratory who were well-fed before any experiments were tried upon them, also harbored these microbes, but they were not ill. The ill-fed birds, on the other hand, were mortally sick. If, however, the healthy birds were fed on the food defective in vitamins, they too got the polyneuritis and died. Good feeding, it seemed, protected the birds against the microbes, but faulty feeding led to a microbial triumph. Thus was McCarrison brought into a field of 'deficiency diseases'; that is to say, diseases due to faulty food. Then came the War, and no more research was done until 1918.

Now, it must be carefully noted that up to this time McCarrison's research work, brilliant though it was, ran along conventional medical lines. It was concerned with certain diseases, and it had the outlook of disease – that is to say, its concern was the cause of Chitral three-day fever, the causes of goiter, of cretinism, of pigeon's polyneuritis, and so on. There was no revolution of outlook as yet.

In 1918, McCarrison returned to research at the Research Fund Association of India. He took up the study of deficiency diseases, which had first excited his interest, as a side issue of his work at Kasauli on goiter. In 1921, he published a book entitled *Studies in Deficiency Diseases*.

For contrast, studies in deficiency diseases clearly entail the picture, if not the study, of animals. Animals or birds, which are kept for experiments, are kept in ordinary health by

hygienic care and sound food. They are, for this reason, known as 'controls', for it is by comparing their condition with that of the experimental subjects that the effect of any experimental testing can be observed.

It was when his mind was dwelling on the healthy that the picture of the people of Hunza returned to McCarrison. When he was Agency Surgeon at Gilgit, the Hunza, though 60 miles away, were his official patients. Like other Europeans who met them, he was greatly impressed by their fine physique, but his mind was focussed on illness, goiter, and cretinism in particular, and these illnesses, like most others, the Hunza failed to get. As a people, they offered very poor fare to a researching physician.

The ultimate objects of McCarrison's experiments on faultily fed animals were, of course, human. His intent was to determine what and to what degree diseases in Indian peoples were caused by faulty food. So the memory of the Hunza came back to McCarrison with peculiar vividness. They had no such diseases. They appeared to McCarrison to be a picture of the high attainment humanity can reach in health and physique. He wrote:

> "My own experience provides an example of a race unsurpassed in perfection of physique and in freedom from disease in general. I refer to the people of the State of Hunza, situated in the extreme northernmost point of India. Amongst these people, the span of life is extraordinarily long. The service I gave them during the seven years I spent in their midst was confined chiefly to the treatment of accidental lesions, the removal of senile cataract, plastic operations for granular lids, or the treatment of maladies wholly unconnected with food supply."

There were two diseases of the eyes, cataract in old people and irritation of the inner lining of the lids. These two diseases

might also have been excluded if the winter ventilation of the living rooms in Hunza had been better, even though they were not as foul as that of most houses in the Hindu-Kush – which, Durand wrote, choked the unfortunate inhabitants.

He gave a Mellon Lecture in 1922 at Pittsburg, in the U.S.A., on *Faulty Food in Relation to Gastro-Intestinal Disorder*. He spoke of people from the remote Himalayas. Though he did not give their name to his American audience, he undoubtedly referred to the Hunza and such allied people as the Punyalis. They were almost like control human beings in the vast laboratory of nature, in which civilized people, and especially Americans, were very prone to gastrointestinal disorders.

> "During the period of my association with these people, I never saw a case of asthenic dyspepsia, of gastric or duodenal ulcer, of appendicitis, of mucous colitis, of cancer. Among these people, the 'abdomen over-sensitive' to nerve impressions, to fatigue, anxiety, or cold was unknown. The awareness of the existence of this part of their anatomy was, as a rule, related solely to the feeling of hunger. Indeed, their buoyant abdominal health has, since my return to the west, provided a remarkable contrast with the dyspeptic and colonic problems of our highly civilized communities."

So the picture of a healthy people in 1921-1922 strongly colored McCarrison's thought. His work on deficiency diseases was, as has been said, designed to ascertain their prevalence in India. One aspect of this study had been of peculiar importance to the Government, namely the prevalence of the diseases amongst the native troops during the War. The Government needed to know what foods their soldiers should eat to avoid these diseases, if possible, in future campaigns.

This, fortunately, brought McCarrison into research contact with the fighting races of India – Punjabis, Dogras,

Rajputs, Brahmins, Jats, Ghoorkas, Pathans, and Sikhs. It did not, however, bring any Hunza men again under his observation, for though there had at one time been the Hunza Rifles, to whose marching powers Bruce testified in our first chapter, they were soon disbanded. Further enlistment of the Hunza in any form was prohibited, owing to the strong objection of the Mir to his subjects leaving the country.

Of these fighting men, McCarrison selected the Pathans and Sikhs as men of exceptional physique. From then on, he grouped them in his mind and writing with the Hunza, though he always gave the Hunza the premier place. A brief account of these two fighting peoples is therefore necessary.

Looking at a map of Afghanistan, its northeastern corner projects a long thin tongue to the east. This forms a northern cap to Chitral and the Gilgit Agency, and its tip touches the Hunza river cleft.

Near Chitral town, the eastern border of Afghanistan turns sharply south. Between it and the plains of the Punjab are the Northwest Frontier Provinces. This is the country of the Pathans.

The Pathans, therefore, are not the immediate neighbors of the Hunza, nor are they allied to them in race. The Pathans are in part Semitic. Their neighbors, the Afghans, are even more Semitic. The Pathans call themselves Beni-Israel, as descendants of the ten lost tribes of Israel.

They are like the people of Hunza in that they are great hillsmen, though their mountains are not so vast. However, in their life as hillsmen and agriculturalists, they form a group with the hillsmen of Eastern Afghanistan, of Chitral and of the Gilgit Agency. The significance of this will be seen in the later chapters on the food of the Hunza.

There are about one million Pathans. They are a very vigorous people. Here is an account of the famous Afridi Pathans, who live in the neighborhood of the Khyber Pass.

> "The Afridi, in appearance, is generally a fine, tall athletic highlander, whose springy step, even in traversing the dirty streets of Peshawur, at once shows his mountain origin. His appearance immediately prejudices Englishmen in his favor and there are few brought into contact with him who do not at least begin with an enthusiastic admiration of his manliness."

The Sikhs are not hillsmen, but belong to the river plains of the Punjab. They are a religious, not a racial community. The greater number of them are converted Jats. They are an independent people, and admirable agriculturists. Captain Bingley wrote in *The Sikhs* (1899):

> "In agriculture, the Jat-Sikh is preeminent. No one can rival him as a landowner or yeoman cultivator. He calls himself a *Zamindar,* or husbandman, as often as a Jat, and his women and children work with him in the fields. Indeed, it is a common saying in the Punjab that the Jat's baby has a ploughshare for a plaything."

The Sikh is up at dawn and at work in his field, taking a little food left over from the previous day before he leaves his home. About midday, when the sun gets powerful, his women bring him out a substantial meal of coarse ground wheaten *chapattis* smeared with butter, porridges of grains and pulses, vegetables, and when in season, raw green grain, or *sarson*. He washes all this down with copious draughts of spiced buttermilk, which he calls *lassi*. He takes a further substantial meal of similar foods at the end of the day's work. He eats sprouting grain. He eats fruit, though he cannot get the abundance of it which Hunza and Pathans get. He takes meat sometimes sparingly, sometimes freely.

He works hard, but he is spared the extremes of exercise which the mountains force upon the Hunza and the Pathan. Nevertheless, he likes extra exercise in the manner of sports

and games. He is fond of running and jumping, lifting and tossing weights, throwing quoits, or wielding huge wooden clubs. When young, he is fond of wrestling. However, as Bingley observed, the Jat-Sikh is usually too much occupied with agricultural labor to spare much time for games.

Such were the pick of the fighting men of India whom McCarrison associated with the Hunza in the perfection of their physique. He wrote in an article entitled *The Relationship of Diet to the Physical Efficiency of Indian Races,* in *The Practitioner* in 1925:

> "It would be difficult to find races, either in the east or west, of finer physical development, hardiness, and powers of endurance than the Sikhs, the Pathans, and certain Himalaya tribes."

He gave the premier place to the Hunza:

> "These people are unsurpassed by any Indian race in perfection of physique; they are long-lived, vigorous in youth and age, capable of great endurance, and enjoy a remarkable freedom from disease in general."

It is clear from this article that McCarrison's review of the fighting had removed him from the conventional attitude of medical research to an overriding interest in health. The question that now presented itself to his mind was: "How is it that a human can be such a magnificent physical creature as the Hunza, the Sikh, or the Pathan?"

*Health is wholeness.* The careful reader of McCarrison's *Studies in Deficiency Diseases* will note that wholeness lay at the very core of his work. The work reveals an intellectual passion for wholeness. Up to that time, as he himself later pointed out in the Lloyd Roberts Lecture, research workers in malnutrition had studied the effects of faulty food on the nerves, the eyes, the bones, and so on. They fragmented the subject. He was the first "to survey the whole realm of the body by microscopic means." He wanted to see the whole picture. It is possible, indeed, to watch this sense of wholeness increasing

in his work, until it finally takes form in the whole view of health that will be presented in the last chapter.

When he had to study the Sikh, Pathan, and others, he seemed to step into a new atmosphere of observation. His approach to it was long, but he was led to a new outlook. McCarrison is now impressed and absorbed by *efficiency*, with *deficiency* only as a background and contrast. He is captivated by health as a whole thing, and not the medical concept of health – that is, the state reached by recovery from a disease.

The pyramid of conventional medical art, built up of innumerable studies of an ever-increasing number of diseases, was turned on its head, and so had only a precarious stability, being as it was a new perception. McCarrison, however, managed to sustain it, and from the small apex formed by Hunza, Sikh, and Pathan physique and health, he proceeded to view the ills of both civilized and uncivilized man.

This was a complete reversal of the accustomed outlook of medical research. We have all become so weary of revolutions these days that I fear the very phrase "a revolution of medical thought," may be objectionable, but that is what this was.

The old traditional way of thought, with its focus on separate diseases or groups of diseases, and aiming at the recovery of average health, was displaced by a focus on the healthiest peoples and their diets, environment, and practices.

It was, in the strictest sense of the word, a revolution – a turning point. The turnaround is the unique character of McCarrison's later research work, and it is this which separates it from his earlier work.

Of course, we cannot always draw a line, as we might across a race track, and say "here is the start." We could collect many instances of tentative approaches in the same direction in the work of others, as well as that of McCarrison. Every revolution has such presages, but in McCarrison's work, this conversion was complete, except for an occasional relapse to the subject of goiter.

**From this time onwards, his work starts and proceeds from these people of unsurpassed physique, and is an ongoing inquiry into what it was that gave them such physical excellence and health in such full measure.**

# 3
# The Shift to Experimental Science

In 1927, McCarrison was appointed Director of Nutrition Research in India under the Research Fund Association. He was not only director. He was, as he told the members of the Royal Commission on Agriculture in India, the only officer engaged in work on nutrition. He was given a laboratory and headquarters at Coonoor, on the beautiful Nilgiri plateau of the Madras Presidency. It was there that he directed his work and the work of his Indian assistants to focus on the health of Hunza, Sikh and Pathan.

McCarrison used albino rats in this work. Rats are largely used in nutritional laboratories, as they offer many advantages for experimental work on foods. They are omnivorous and they like practically all human food. They are small animals, and therefore cheap to feed. They breed readily in captivity, and their span of life is short, so that their whole life history can easily be watched.

McCarrison's first objective was to see if he could make the rats exceptional in physique and health. He put them in good conditions of air, sunlight, and cleanliness, and he chose as a diet for them one based on those of the Hunza, the Pathan, and the Sikhs.

He did not, however, give the full diet of any of these peoples in one particular food; that of fruit. The Hunza eat fresh and dried fruit abundantly. The Pathans are also large