



# NUTRITION AND PHYSICAL DEGENERATION

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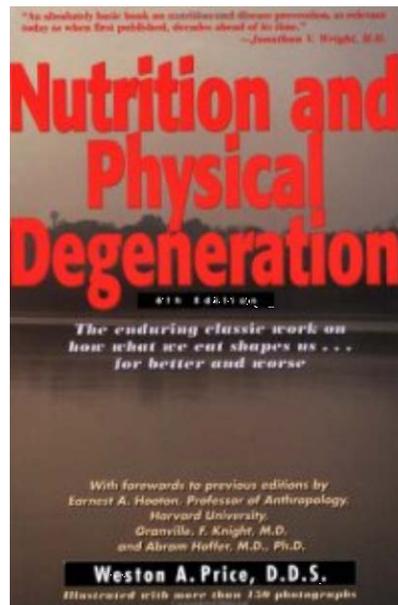
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# NUTRITION AND PHYSICAL DEGENERATION

Source: Dr. Weston A. Price, D.D.S.

## SYNOPSIS:

**First published in 1939, this monumental but highly readable book is designed to preserve the classic study of Dr. Price's worldwide investigation of the deleterious effects of processed foods and synthetic farming methods on human health, and the promise of regeneration through sound nutrition.** Contains guidelines for approaching optimum health and reproduction, now and through future generations, as did the primitives. Dr. Price has been universally accepted as one of the foremost authorities on the role of foods in their natural form in the overall health pattern and the development of degenerative illnesses as a result of the addition of processed foods to our diet.

In the 1930's, numerous commentators were proffering all sorts of unlikely explanations for the alarming rise in tooth decay, including the alleged 'soiling' of racial stock by interbreeding. Accomplished dentist Weston A. Price had long suspected faulty nutrition. To find out just whether inter-racial marriages or substandard diets were to blame, Price decided to visit isolated communities around the world. He reasoned that if genetics were the sole explanation, then native peoples would have the same incidence of tooth decay regardless of whether they ate traditional diets or imported Western foods.

During his extensive travels, Price examined Australian Aborigines and Torres Strait islanders, African tribes, isolated Swiss and Gaelics, Polynesians, Melanesians, New Zealand Maoris, Eskimos, North American Indians and Peruvians. Among all these isolated populations he noted one recurring theme; when people lived on their native diet of unrefined whole foods they enjoyed excellent health and an almost complete absence of tooth decay.

However, when people from the same racial stock were exposed to western-style processed and refined foods, including canned goods, sugar and white flour, Price noted that their health took a sharp turn for the worse and the incidence of tooth decay would skyrocket. Price documented his findings with photographs comparing those on a native diet with those who lived near ports or other areas where "modern" foods were sold. Many of these are included in the book and the differences are striking. Those eating the traditional diet show clear complexion and excellent facial and jaw structure while those eating western foods exhibit marked dental and facial deformities.

Price called for a return to real food, warning that the widespread consumption of denatured foods would lead to much illness and suffering in Western nations and in developing nations where these foods were becoming ever more readily available. Price's warnings were ignored, and his prophecies fulfilled.

***Nutrition and Physical Degeneration has to be one of the most important texts ever written on nutrition.*** Forget all those infomercial-style diet books--this is the real deal! A timeless classic that should be on the shelf of every serious student of nutrition.

## A BOOK REVIEW BY STEVE SOLOMON

<http://www.soilandhealth.org/02/0203CAT/020305ppnf/PPNF.HTML>

It is a truth: "In the country of the blind the one-eyed man is king." Even more certainly—a one-eyed king is going to feel very alone. Different than everyone else. Like what happened to me twenty years ago after Weston Price's book had opened both my eyes.

I discovered *Nutrition and Physical Degeneration* in when I began to reconsider and then to reject the conventional and unexamined answers I'd been given about health, and healing, and doctoring. Like most people who are glad to accept their smoothly-running body without question or concern, I only got curious about my health after I first noticed the onset of middle-aged degeneration. I visited the medical doctor in town who was generally regarded as the most progressive and least likely to prescribe drugs, to ask why I was feeling "off" such a large proportion of days during the week. His answer mainly it consisted of 'get used to it,' and 'it's middle age, everyone goes through it,' and 'take two aspirin when it gets bad and don't worry about it.'

But I felt I was entitled to enjoy physical well-being and could not accept an increasingly hopeless, ever-worsening prognosis. So I then asked the advice of a very wise, and very old gardener in my neighborhood, who lent me his treasured first-edition copy of Price's book and referred me to a naturopath practicing nearby, Dr. Isabelle Moser. Isabelle became my doctor, taught me how to repair much of the degeneration that had already happened, and some years later, became my wife.

Life has never been the same since I read *Nutrition and Physical Degeneration*. Price started me observing the bone structure and state of constitutional degeneration of most of my neighbors. I found myself noticing peoples' teeth and jaws and faces and how many of them had crooked, crowded, irregular teeth, narrow jawbones, thin, pinched noses, and flat, nasal voices that derive from small, inadequately developed sinus cavities. Instead of admiring only the hefner-esque charms of the young women, I began to observe and catalog the size of their pelvic girdles, to note if their "ovens" were adequate for the purpose of baking babies. Most were too small. I stopped thinking thin, aristocratic faces were beautiful and began considering that broad faces with flat noses were. I put new significance on the small number of children younger married couples were having, the difficulty their young parents had with the raising and management of even one child, the uncooperative and unfocused behavior of these kids, and how often the children around me were seeing the doctor, and how many of them seemed to suffer from a ever-ongoing series of physical complaints. And I contrasted this with how it had been for my parent's generation, where three children per family was normal. Or with my Grandparent's generation, where four or five kids per family was typical.

And my increased understanding has created a wide gulf between me and most of my neighbors, who are lost in a confusion over why they and their loved ones get sick and who depend on medicine and medical doctors for their cures when they should be focused on their nutrition and life-styles.

Most writers of books on health and alternative medicine mainly offer prescriptions and explanations to overcome degenerative complaints, of which most of us have no shortage. The Hygienists (my favorite of all the holistic approaches) at least have a systematic theory that explains how and why the body gets sick and offers a method of remedy that is the logical response to the cause of illness. But almost none, including some of the Hygienists, offer a standard of comparison which one can hold up and say, "This is an example of what true health would look like."

Others in other fields have stressed that when studying some aspect of life how essential it is to have a standard of comparison--a control group--and that without a control group it is virtually impossible to grasp significant truths. For example, **Abraham Maslow** wisely tried to envision what a psychologically-healthy human would be like before figuring out what we might do to become better beings. He called this ideal a "self-actualizing" person. Maslow contested that if one knew what a person should try to become, then one could recognize a person who had grown to realize our potentials--and then could have a target to aim at for improving their own life. L. Ron Hubbard, another person who was deeply interested in achievement of the full human potential, created a dozen or more of these targets with his scales of various aspects of experience, from the most desirable state to most undesirable. G.T. Wrench did a similar thing when he stressed so strongly that if no one around you has had a good nutritional "start" in life, it is virtually impossible to recognize what a truly healthy person looks like. (You can read Wrench's book, *The Wheel of Health*, in this Longevity Library collection. Unfortunately there aren't many really healthy bodies around and they don't carry prominent labels. So we muddle in a morass of medical confusion.

**Weston A. Price** did humanity a great and largely-unappreciated service by establishing an easily-understandable standard of human health, clearly demonstrated with photographs. A really good picture *really* is worth many thousands of words and Price offers the reader a narrated slide show of over a hundred photos, many of them of extremely healthy people contrasted with degenerated ones, photos taken all over the world, of people of different races living in climates eating totally different dietaries, accompanied by sensitive, compassionate narration. This coupling of the visual image with narration increases the power of Price's argument by a hundred-fold. Price's book is basically a photographic travelogue, the story of a world-wide search for a standard by which to judge human health. This makes *Nutrition and Physical Degeneration* the most convincing and powerful awakener of health-consciousness I have ever encountered.

As I stated at the beginning of this essay, I was never the same after reading his book the first time. Only a handful of other books have so strongly influenced how I *understood* life. So I have gone back and re-read *Nutrition and Physical Degeneration* periodically--about once every five years it seems. I have lectured about Price's work, promoted the Foundation that tries to continue it, and have deeply wanted to make Price's book a central part of the *Soil and Health Library*. But have not been able to obtain permission from those who control the Price-Pottenger Nutrition Foundation. They have denied my requests because a reprint of *Nutrition and Physical Degeneration* is still being sold by the Foundation and income from these sales are a major sustainer of that group. However, under the rules of "Fair Use" regarding copyright protections, one *is* allowed to quote from a book for the purposes of book reviewing or scholarly discussion. This is what follows below, a book review.

Now, dear reader, comes a caution, and what I hope will be taken as a strong suggestion. Long ago before the university-trained, academic-minded English majors completely took over the editorial side of publishing business, writers were allowed to repeatedly restate their themes. If clever about how they go at this, an author can restate their restatements many times without seeming to be repetitive or redundant. Restatement can be a useful technique and often necessary because most people do not really read carefully and don't fully grasp a concept the first time they are exposed to it. However, a book review must, by definition, be concise. If the reader wishes to achieve full understanding of what the book under discussion is about, they are almost required to go slow, to think the ideas over as they occur. I suppose what I am trying to communicate here here is a *plea* that you take your time, and think over the small portions of Price's book that I am able to excerpt here--look long and hard at the

few photographs that accompany this article. Then, I hope you will be inspired to visit <http://www.price-pottenger.org/> and order yourself a copy. *And study it!*

Weston A. Price was a successful Midwestern American dentist practicing during the 1920s. He could have merely enjoyed a financially-comfortable life ameliorating the ravages of rampant dental decay and facial deformity in those upper-crust mid-western Americans who were able to pay his fees. Instead, he worried about the marked degeneration he saw occurring in modern civilization. Though by Price's time mainstream medicine had largely ceased causing increased mortality from ordinary infection, the incidence and severity of many forms of degenerative conditions were increasing. The recent reduction in infant mortality from inoculation and sanitation made the statistics appear to show that we were living longer, but Price felt that as individuals we were not enjoying the same good health and well-being enjoyed by previous generations. Nor were we probably living any longer as individuals. The amount of dental decay and frequency of malformed facial bones, Price's direct day-to-day concern, also seemed to be increasing rapidly. A third area of degeneration Price discussed with considerable worry, will probably cause the readers of his book the most difficulty to accept--he perceived and agonized over a marked decline in the overall character of people in the "civilized" world.

The academic will probably concede that Price might have been qualified to evaluate mass dental health. However, it is all too easy to glibly dismiss worry over "moral decay" because for thousands of years the middle-aged portion of humanity has been complaining that the young are not the equal of their parents, yet the species still has gone on. It is not the purpose of this article to convince the unconvinced of modern moral decay, but to quickly transmit the essence of Price's work in a positive way such that the reader of this article will be motivated to obtain the book and read it. I observe that Price's vague worry about the degeneration of modern character solidified into a strong concern only after his searches in "primitive groups," where he noted that people isolated from modern civilization seemed to have a higher intelligence and more refined moral/ethical presence. In essence, Price concluded that healthy, well-nourished persons tend to be brighter, more honest, and happier. Or, physical nutrition is senior to spiritual health. Price said of this:

"The origin of personality and character appear in the light of the newer data to be biologic products and to a much less degree than usually considered pure hereditary traits. Since these various factors are biologic, being directly related to both the nutrition of the parents and to the nutritional environment of the individuals in the formative and growth period, any contributing factor such as food deficiencies due to soil depletion will be seen to produce degeneration of the masses of people due to a common cause. Mass behavior, therefore, in this new light becomes the result of natural forces, the expression of which may not be modified by propaganda but will require correction at the source." (p. 4) Price thought we were wasting our efforts at reforming antisocial behavior by mental therapy or punishment. The cure rested in nutrition and to be effective, proper nutrition had to begin before birth.

Another who saw this same reality from a very different starting point was the German mystic and spiritualist Rudolf Steiner, inspiration of the Waldorf method of education and founder of the Anthroposophical philosophy. Steiner wondered why so many involved in his spiritually-oriented communities demonstrated such reactive, irresponsible, virtually criminal behavior, when these, of all people, were the ones who had focused so hard on self-improvement. Why, Steiner wondered, were his communities such hot beds of internicine strife, such deep-seated backstabbing and covert politics? He finally concluded that the problem was not in his teachings or in the methods he was

suggesting for self-improvement. The problem lie in the nutrition of those who were his followers. Until the body was well nourished, there was little or no point in talking about spiritual nourishment. So Steiner began to study agriculture, and the result was Biodynamic farming and gardening.

### **Price said of his book:**

"In my search for the cause of degeneration of the human face and the dental organs I have been unable to find an approach to the problem through the study of affected individuals and diseased tissues. . . . The evidence seemed to indicate clearly that the forces that were at work were not to be found in the diseased tissues, but that the undesirable conditions were the result of the absence of something, rather than the presence of something. This strongly indicated the need for finding groups of individuals so physically perfect that they could be used as controls. In order to discover them I determined to search our primitive racial stocks that were free from degenerative processes with which we are concerned in order to note what they have that we do not have. These field investigations have taken me to many parts of the world though a series of years. The following chapters review the studies made of primitive groups, first when still protected by their isolation, and, second, when in contact with modern civilization. (p. 21)"

What proved to be the something missing was nutrition. Remember, dear reader, that Price (and interestingly, Rudolf Steiner) began practice shortly after a massive change occurred in peoples' food habits. The degenerations observed during the 1920s came about thirty years after the introduction of the roller mill and the consequent wide-spread consumption of denatured white-flour products. Price started researching *Nutrition and Physical Degeneration* around 20 years after nationally-distributed devitalized brand-name prepared packaged food products began to dominate the food shops and peoples' dietaries.

Proving his points by argument or data when faced with the intense opposition from powerful vested food interests and contrary established medical viewpoints was obviously beyond his (and probably anyone's writing skills). So Price took a different tack. "In presenting the evidence I am utilizing photographs very liberally. A good illustration is said to be equivalent to a thousand words of text. This is in keeping too with the recent trend in journalism. The pictures are much more convincing than words can be, and since the text challenges many of the current theories, the most conclusive evidence available is essential." (p. 4)

Price began nearly a decade of travels and research by journeying to Switzerland, where, on his first "expedition" he began to sort out a mish-mash of suspected causes of superior dental health. He initially supposed that living at high elevations might produce greater physical health. Better food also would have something to do with it. He said:

"In order to study the possibility of greater nutritive value in foods produced at a high elevation, as indicated by a lowered incidence of morbidity, including tooth decay, I went to Switzerland and made studies in two successive years, 1931 and 1932. It was my desire to find, if possible, groups of Swiss living in a physical environment such that their isolation would compel them to live largely on locally produced foods. . . . at a little less than a mile above sea level, a group of about 2,000 people had been made easily accessible for study, shortly prior to 1931. Practically all the human requirements of the people in that valley, except a few items like sea salt, have been produced in the valley for centuries." (p. 23)

Price discovered that he accorded the people of this valley unusually deep admiration. "The people of this valley have a history covering more than a dozen centuries. The architecture of their wooden buildings, some of them several centuries old, indicates a love for simple stability, adapted to expediency and efficiency. Artistically designed mottoes, many of them centuries old, are carved deep in the heavy supporting timbers, both within and without the buildings. They are always expressive of devotion to cultural and spiritual values rather than to material values. These people have never been conquered, although many efforts have been made to invade their valley." (p.23)

"If one is fortunate enough to be in the valley in early August and witness the earnestness with which the people celebrate their national holiday, he will be privileged to see a sight long to be remembered. These celebrations close with the gathering together of the mountaineers on various crags and prominences where great bonfires are lighted from fuel that has been accumulated and built into an enormous mound to make a huge torchlight. These bonfires are lighted at a given hour from end to end of the valley throughout its expanse. Every mountaineer on a distant crag seeing the lights knows that the others are signalling to him that they, too, are making their sacred consecration in song which says "one for all and all for one." This motive has been crystallized into action and has become a part of the very souls of the people. One understands why doors do not need to be bolted in the Loetschental Valley.

"How different the level of life and horizon of such souls from those in many places in the so-called civilized world in which people have degraded themselves until life has no interest in values that cannot be expressed in gold or pelf, which they would obtain even though the life of the person being cheated or robbed would thereby be crippled or blotted out.

"One immediately wonders if there is not something in the life-giving vitamins and minerals of the food that builds not only great physical structures within which their souls reside, but builds minds and hearts capable of a higher type of manhood in which the material values of life are made secondary to individual character." (p. 27)

Price began to notice certain themes in his first journey of exploration that would replay themselves as he visited other areas of the planet in subsequent years. The first and most important factor common to all healthy environments seemed to be isolation--from "civilization," from the modern foods of industrial civilization, and perhaps from the stresses of industrial life. And the next recurring aspect of living in such isolation was the absence of social problems and degenerative diseases of all sorts.

"The people of the Loetschental Valley make up a community of two thousand who have been a world unto themselves. They have neither physician nor dentist because they have so little need for them; they have neither policeman nor jail, because they have no need for them. The clothing has been the substantial homespuns made from the wool of their sheep. The valley has produced not only everything that is needed for clothing, but practically everything that is needed for food. It has been the achievement of the valley to build some of the finest physiques in all Europe. This is attested to by the fact that many of the famous Swiss guards of the Vatican at Rome, who are the admiration of the world and are the pride of Switzerland, have been selected from this and other Alpine valleys. It is every Loetschental boy's ambition to be a Vatican guard. Notwithstanding the fact that tuberculosis is

the most serious disease of Switzerland, according to a statement given me by a government official, a recent report of inspection of this valley did not reveal a single case." (pp. 24,25)

Though Price noticed the absence of illness in general, he focused on teeth and jaws, his specialty:

"We are primarily concerned here with the quality of the teeth and the development of the faces that are associated with such splendid hearts and unusual physiques. I made studies of both adults and growing boys and girls, during the summer of 1931, and arranged to have samples of food, particularly dairy products, sent to me about twice a month, Summer and winter. These products have been tested for their mineral and vitamin contents, particularly the fat-soluble activators. The samples were found to be high in vitamins and much higher than the average samples of commercial dairy products in America and Europe, and in the lower areas of Switzerland."

"Hay is cut for winter feeding of the cattle, and this hay grows rapidly. The hay proved, on chemical analysis made at my laboratory, to be far above the average in quality for pasturage and storage grasses. . . . In the summer the cattle seek the higher pasturage lands and follow the retreating snow which leaves the lower valley free for the harvesting of the hay and rye. The turning of the soil is done by hand, since there are neither plows nor draft animals to drag the plows, in preparation for the next year's rye crop. A limited amount of garden stuff is grown, chiefly green foods for summer use. While the cows spend the warm summer on the verdant knolls and wooded slopes near the glaciers and fields of perpetual snow, they have a period of high and rich productivity of milk. The milk constitutes an important part of the summer's harvesting. While the men and boys gather in the hay and rye, the women and children go in large numbers with the cattle to collect the milk and make and store cheese for the following winter's use. This cheese contains the natural butter fat and minerals of the splendid milk and is a virtual storehouse of life for the coming winter. . . . The natives of the valley are able to recognize the superior quality of their June butter, and, without knowing exactly why, pay it due homage.(p. 26)

In my opinion the dairy products were superior because the soil of this valley was extraordinarily fertile and the farming system used was entirely natural--it must have been without any access to industrial materials. I ask the reader to beware at this juncture, and not to conclude as many have mistakenly done, that natural farming will create fertile soil. It will not. There is a belief in the Organic Farming and Gardening "religion" that you can take any old clay pit or gravel heap and turn it into a vertible garden of 'eatin if only enough compost is added. The actuality is that there are some places (unfortunately not the majority) where the soil is naturally very fertile and there are others where the soil is quite infertile. Proper farming techniques can preserve and enhance fertility that is already there. Modern civilization, with its ability to move huge quantities of materials at a relatively low cost, now has the ability to take less-than-ideally-fertile farmland and make it produce much more nutritious food than it otherwise would, but rarely does modern farming do this, because our focus is on profit and bulk production, not on health and quality production.

Over the course of several succeeding years, Price visited the African highlands, very isolated Peruvian coastal settlements, Native Americans in the Arctic and Seminoles in the swamps of Florida, Gaelics living on the Outer Hebridies of Scotland, Melanisans in Fiji and Polynesians in Polynesia, the Maori of New Zealand, aboriginals on the mainland and the Torres Straits Islanders living north of Australia. In each local he found people who, due to extreme isolation, were restricted to a self-sufficient dietary

which also happened to be of high nutritional quality. Price found the same qualities of health in all these places and realized that no one diet can be prescribed as the ideal human diet and that extremely healthy people were found eating all sorts of dietaries. Some of these people were primarily flesh and seafood eaters, others vegetarian, others ate large quantities of dairy. Some wheat, some oats, some vegetables and sea foods. Each people's dietary is described and considered in detail. His description of the highland Swiss will serve to illustrate the richness this book holds to those who will study it in its entirety.

"The nutrition of the people of the Loetschental Valley, particularly that of the growing boys and girls, consists largely of a slice of whole rye bread and a piece of the summer-made cheese (about as large as the slice of bread), which are eaten with fresh milk of goats or cows. Meat is eaten about once a week. In the light of our newer knowledge of activating substances, including vitamins, and the relative values of food for supplying minerals for body building, it is clear why they have healthy bodies and sound teeth. The average total fat-soluble activator and mineral intake of calcium and phosphorus of these children would far exceed that of the daily intake of the average American child. The sturdiness of the child life permits children to play and frolic bareheaded and barefooted even in water running down from the glacier in the late evening's chilly breezes, in weather that made us wear our overcoats and gloves and button our collars. Of all the children in the valley still using the primitive diet of whole rye bread and dairy products the average number of cavities per person was 0.3. On an average it was necessary to examine three persons to find one defective deciduous or permanent tooth. The children examined were between seven and sixteen years of age. . . ." (pp. 26-7)

"As one stands in profound admiration before the stalwart physical development and high moral character of these sturdy mountaineers, he is impressed by the superior types of manhood, womanhood, and childhood that Nature has been able to produce from a suitable diet and a suitable environment. Surely, here is evidence enough to answer the question whether cereals should be avoided because they produce acids in the system which if formed will be the cause of tooth decay and many other ills including the acidity of the blood or saliva. Surely, the ultimate control will be found in Nature's laboratory where man has not yet been able to meddle sufficiently with Nature's nutritional program to blight humanity with abnormal and synthetic nutrition. When one has watched for days the childlife in those high Alpine preserves of superior manhood when one has contrasted these people with the pinched and sallow, and even deformed, faces and distorted bodies that are produced by our modern civilization and its diets; and when one has contrasted the unsurpassed beauty of the faces of these children developed on Nature's primitive foods with the varied assortment of modern civilization's children with their defective facial development, he finds himself filled with an earnest desire to see that this betterment is made available for modern civilization. . . ."  
"(p. 31-32)

Price also demolished any notion that these isolated groups of unusually healthy people somehow had a unique hereditary resistance to disease and degeneration. He reasoned that had superior genes been the case, then following up people who abandoned life in a healthful community for the life of "civilization" should find them continuing in the same good condition. If genetically determined, then not only the adults who left should continue to be healthy, but when a married pair left, their children, carrying the exact same genetics, should also be found to be in good fettle. This proved not to be the

case. Resistance to dental degeneration was actually based on diet, not genes. Here are three little snippets from the book concerning this area of interest:

"Again and again we had the experience of examining a young man or young woman and finding that at some period of his life tooth decay had been rampant and had suddenly ceased; but, during the stress, some teeth had been lost. When we asked such people whether they had gone out of the mountains and at what age, they generally replied that at eighteen or twenty years of age they had gone to this or that city and had stayed a year or two. **They stated that they had never had a decayed tooth before they went or after they returned, but that they had lost some teeth in the short period away from home.**" (p.32)

"At this point of our studies . . . Dr. Gysi accompanied us to the Anniviers Valley, which is also on the south side of the Rhone. The river of the valley, the Navizenze, drains from the high Swiss and Italian boundary north to the Rhone River. Here again we had the remarkable experience of finding communities near to each other, one blessed with high immunity to tooth decay, and the other afflicted with rampant tooth decay.

"The village of Ayer lies in a beautiful valley well up toward the glaciers. It is still largely primitive, although a government road has recently been developed, which, like many of the new arteries, has made it possible to dispatch military protection when and if necessary to any community. In this beautiful hamlet, until recently isolated, we found a high immunity to dental caries. Only 2.3 teeth out of each hundred examined were found to have been attacked by tooth decay. Here again the people were living on rye and dairy products. We wonder if history will repeat itself in the next few years and if there, too, this enviable immunity will be lost with the advent of the highway. Usually it is not long after tunnels and roads are built that automobiles and wagons enter with modern foods, which begin their destructive work. This fact has been tragically demonstrated in this valley since a roadway was extended as far as Vissoie several years ago. In this village modern foods have been available for some time. One could probably walk the distance from Ayer to Vissoie in an hour. The number of teeth found to be attacked with caries for each one hundred children's teeth examined at Vissoie was 20.2 as compared with 2.3 at Ayer. We had here a splendid opportunity to study the changes that had occurred in the nutritional programs. With the coming of transportation and new markets there had been shipped in modern white flour; equipment for a bakery to make white-flour goods; highly sweetened fruit, such as jams, marmalades, jellies, sugar and syrups—all to be traded for the locally produced high-vitamin dairy products and high-mineral cheese and rye; and with the exchange there was enough money as premium to permit buying machine-made clothing and various novelties that would soon be translated into necessities." (pp. 32-3)

And here's another additional bit of evidence disproving the notion that certain small groups of only *highland* Swiss had especially good genetics:

"It is reported that practically all skulls that are exhumed in the Rhone valley, and, indeed, practically throughout all of Switzerland where graves have existed for more than a hundred years, show relatively perfect teeth; whereas the teeth of people recently buried have been riddled with caries or lost through this disease. It is of interest that each church usually has associated with it a cemetery in which the graves are kept decorated, often with beautiful designs of fresh or artificial flowers. Members of succeeding generations of families are said to be buried one above the other to a depth of many feet. Then, after a sufficient number of generations have been so honored, their bodies are

exhumed to make a place for present and coming generations. These skeletons are usually preserved with honor and deference. The bones are stacked in basements of certain buildings of the church edifice with the skulls facing outward. These often constitute a solid wall of considerable extent. In Naters there is such a group said to contain 20,000 skeletons and skulls. These were studied with great interest as was also a smaller collection in connection with the cathedral at Visp. While many of the single straight-rooted teeth had been lost in the handling, many were present. It was a matter of importance to find that only a small percentage of teeth had had caries. Teeth that had been attacked with deep caries had developed apical abscesses with consequent destruction of the alveolar processes. Evidence of this bone change was readily visible. Sockets of missing teeth still had continuous walls, indicating that the teeth had been vital at death." (pp. 33-4)

One of the most valuable lessons to be found in *Nutrition and Physical Degeneration* comes from studying its many illustrations and learning to immediately recognize what a healthy face and bone structure looks like. This is demonstrated by contrasting numerous pairs of photographs. Price introduces the lesson in this way:

"The reader will scarcely believe it possible that such marked differences in facial form, in the shape of the dental arches, and in the health condition of the teeth as are to be noted when passing from the highly modernized lower valleys and plains country in Switzerland to the isolated high valleys can exist. Fig. 3 shows four girls with typically broad dental arches and regular arrangement of the teeth. They have been born and raised in the Loetschental Valley or other isolated valleys of Switzerland which provide the excellent nutrition that we have been reviewing. They have been taught little regarding the use of tooth brushes. Their teeth have typical deposits of unscrubbed mouths; yet they are almost completely free from dental caries, as are the other individuals of the group they represent. In a study of 4,280 teeth of the children of these high valleys, only 3.4 per cent were found to have been attacked by tooth decay. This is in striking contrast to conditions found in the modernized sections using the modern foods." (p. 34)



**FIG 3.** Normal design of face and dental arches when adequate nutrition is provided for both the parents and the children. Note the well developed nostrils.

"It is of significance that a study of the child life in the Rhone valley, as made by Swiss officials and reported by Dr. Adolf Roos and his associates, shows that practically every child had tooth decay and the majority of the children had decay in an aggravated form. People of this valley are provided with adequate railroad transportation for bringing them the luxuries of the world. As we pass eastward over the pass through Andermatt, we are reminded that the trains of the St. Gotthard tunnel go thundering through the mountain a mile below our feet en route to Italy. To reach our goal, the beautiful modern city and summer resort of St. Moritz, we enter the Engadin country famed for its beauty and crystal-clear atmosphere. We already know something of the beauty that awaits us which has attracted pleasure seekers and beauty lovers of the world to St. Moritz. One would scarcely expect to see so modern a city as St. Moritz at an altitude of a little over a mile, with little else to attract people than its climate in winter and summer, the magnificent scenery, and the clear atmosphere. We have passed from the communities where almost everyone wears homespuns to one of English walking coats and the most elegant of feminine attire. Everyone shows the effect of contact with culture. The hotels in their appointments and design are reminiscent of Atlantic City. Immediately one sees something is different here than in the primitive localities: the children have not the splendidly developed features, and the people give no evidence of the great physical reserve that is present in the smaller communities.

"Through the kindness of Dr. William Barry, a local dentist, and through that of the superintendent of the public schools, we were invited to use one of the school buildings for our studies of the children. The summer classes were dismissed with instructions that the children be retained so that we could have them for study. Several factors were immediately apparent. The teeth were shining and clean, giving eloquent testimony of the thoroughness of the instructions in the use of the modern dentifrices for efficient oral prophylaxis. The gums looked better and the teeth more beautiful for having the debris and deposits removed. Surely this superb climate, this magnificent setting, combined with the best of the findings of modern prophylactic science, should provide a 100-per-cent immunity to tooth decay. But in a study of the children from eight to fifteen years of age, 29.8 per cent of the teeth had already been attacked by dental caries. Our study of each case included careful examining of the mouth; photographing of the face and teeth; obtaining of samples of saliva for chemical analysis; and a study of the program of nutrition followed by the given case. In most cases, the diet was strikingly modern, and the only children found who did not have tooth decay proved to be children who were eating the natural foods, whole rye bread and plenty of milk." (pp. 36-7)



**FIG 4.** In the modernized districts of Switzerland tooth decay is rampant. The girl upper left, is sixteen and the one to the right is younger. They use white bread and sweets liberally. The two children below have very badly formed dental arches with crowding of the teeth. This deformity is not due to heredity.

"Another change that is seen in passing from the isolated groups with their more nearly normal facial developments, to the groups of the lower valleys, is the marked irregularity of the teeth with narrowing of the arches and other facial features. In the lower half of Fig. 4 may be seen two such

cases. While in the isolated groups not a single case of a typical mouth breather was found, many were seen among the children of the lower-plains group. The children studied were from ten to sixteen years of age. . . .

"Bad as these conditions were, we were told that they were better than the average for the community. The ravages of dental caries had been strikingly evident as we came in contact with the local and traveling public. As we had at St. Moritz, we found an occasional child with much better teeth than the average. Usually the answer was not far to seek. For example, in one of the St. Moritz groups, in a class of sixteen boys, there were 158 cavities, or an average of 9.8 cavities per person (fillings are counted as cavities). In the cases of three other children in the same group, there were only three cavities, and one case was without dental caries. Two of these three had been eating dark bread or entire-grain bread, and one was eating dark bread and oatmeal porridge. All three drank milk liberally." (pp. 39-40)

One of the most valuable things I gleaned from *Nutrition and Physical Degeneration* occurred because of data that came from another small book called *Pottenger's Cats*, also published by the Price-Pottenger Nutrition Foundation. By combining the two books into one understanding I have obtained an ability to see how the human body adapts to inadequate nutrition, especially inadequate mineral nutrition. I suppose that's why the PPNF keeps *Pottenger's Cats* in print and why Francis Pottenger gave his support to the foundation.

Francis Pottenger was a medical doctor who probably lacked a sympathetic, profit-making bedside manner. So he developed a successful medically-related business instead of a clinical practice--he set up a testing laboratory behind a big old house in Pasadena, California, where he assayed the potency of adrenal hormone extracts. In his time (1920s) medical adrenalin was extracted from animal adrenals, but the potency of the extracts varied enormously. To be safely used in clinical work these extracts had have a measured potency.

To accomplish this with the technology available during the 1920s, Pottenger had to remove the adrenal glands of cats, and then find out how much of a particular batch of extract it took to keep his cats alive and in good condition. These cats, being precious to Pottenger, were given every possible support to health and longevity. They were carefully and hygienically housed, and Pottenger fed them on a diet of slaughterhouse meat and organs, carefully cooked to prevent parasite infestation. They were given Grade-A pasteurized whole milk and dosed daily with cod liver oil to prevent vitamin deficiencies. Unfortunately, despite all this good care, the cats frequently sickened and died, and generally did poorly. Pottenger attributed this to having no adrenals and to the cats having been through surgery to remove their adrenals.

But Pottenger's business did well anyway, and his need for cats grew and grew. Eventually he was housing so many that he build a new pen to hold the most recent lot of them, and to feed this batch, being overworked, he did not bother to cook their meat, but just fed it raw as it came from the slaughterhouse. Amazingly this batch of cats, even without adrenals, thrived and were very healthy. Francis Pottenger noticed this remarkable occurrence and decided to do a small cat nutrition study. He divided up his cats into four groups to observe the result of feeding the entire matrix of possibilities: raw meat/raw milk; raw meat/pasteurized milk; cooked meat/raw milk; cooked meat/pasteurized milk.

Not surprisingly, he found that the cats fed on cooked meat but who got raw milk did a little better

than those on all cooked food. The ones on raw meat and pasteurized milk did pretty well; the ones on all raw food did great. Pottenger concluded that cats have a digestive system that is not really capable of assimilating nutrition from cooked protein foods. He concluded that the cat illnesses he had been fighting were caused by mal-nutrition.

Dr. Pottenger also noticed that cats on raw food lived very long, often 20 years. They also had good temperaments and bred very successfully. When a cat that had been on raw food was placed on cooked food, its life was greatly shortened. The progeny of these cats began to change their appearance. Their overall size lessened, their teeth got poor, their reproductive organs did not develop well, they had smaller litters, and within three generations on all cooked food, they would barely reproduce, the females often refused to nurse or mother their young if they did get pregnant, and cooked-food cats developed nasty temperaments.

The one study Pottenger reported that had the most profound effect on my awareness was when he took some cats that he had intentionally degenerated by feeding all cooked food for three generations. This group worsened to the point that they would barely reproduce. Pottenger then took some of their young and began to feed them the ideal all-raw diet. After four generations of perfect feeding, only *some* of them began to look like fully-healthy cats. Degeneration is much easier to create than it is to recreate perfect health from degenerated stock. If these phenomena are expanded to include humans, then we could guess that after creating mass degeneration from mass mal-nutrition since the turn of the twentieth century, it will take humans several generations of near-perfect feeding to begin to virtually overcome the effects. This also suggests to me the reason why someone who has already developed a degenerative condition often can't cure it simply by adopting dietary reforms.

Pottenger also provided photographs of his groups of cats. They are amazingly like the photos in *Nutrition and Physical Degeneration*. The bodies of those humans Price studied expressed the same forms of degeneration when the humans were given inadequate nutrition.

Virtually all human bodies carry genes that would create a jawbone large enough to hold all the teeth the body is programmed for. *Would* create a large-enough dental arch if they *could* create one. When the body is starved for the raw materials to build its structures, at first it wisely robs areas that aren't immediately vital to survival and usually does so according to a sort of scale of "vitalness." At any price, the blood chemistry must be maintained perfectly, and the nervous system kept entirely intact. These can't be shortchanged, not at all. Then, the vital organs: heart, lungs, kidneys, etc, can't really be scrimped on either, or the body won't survive to reproduce. The bones that move the body, allow it to work and fight and flee, these must also receive as large an allocation of reserves as possible. But certain bone structures aren't nearly so vital. These include the jawbone, the facial bones, and the pelvic girdle. When a developing fetus is semi-starved during pregnancy, the result is a narrow, pinched face, small jaw and pelvis--an aquiline nose and crooked teeth. When that fetus is well-nourished and created by a mother's body that also has had a lifetime of good nutrition, a body carrying sufficient nutritional reserves in its tissues, the result is an infant with a broad face, wide jaw and broad hips--a stocky, stout appearance. If after being born, a well-nourished person is deprived of good nutrition during childhood, the result is not quite as bad, as this body at least had a good "start."

One nutritionally-oriented dentist who wrote prolifically named Melvin Page, concluded that when the body received at least 75% of ideal nutrition, the teeth and bone structures were maintained intact. When nutrition fell below 75% of ideal, dental disease manifested rapidly.

Please study the pictures that are to come and learn to notice the size of jaws and width of hips, the thin, delicate look or the strong, stocky look. (If you can't "see" what I am referring to after studying the photos I have reproduced to accompany this book review, I suggest you buy Price's book, wherein you'll find many other photos, including many of skulls and jaw bones that graphically explain the dental arch and how it functions.) What I find most remarkable is when I look at all the pictures of healthy people, of whatever race, nation, color, they all look fundamentally the same. They have a broad flat nose because narrow noses are caused by facial bones failing to be broad, thus pinching the nostrils together. They tend to be shorter and stockier. The females, even as children, all have adequately-sized "ovens" for the baking of babies. *They all look alike* except for skin color and hair texture.

Price also wondered if there were some special types of soils that made for good teeth? Regarding Switzerland, he said:

"It is of interest that the southern part of Switzerland including the high Alpine country is largely granite. The hills in the northern part of Switzerland are largely limestone in origin. A great number of people live in the plain between these two geologic formations, a plain which is largely made of alluvial deposits which have been washed down from the upper formations. The soil is extraordinarily fertile soil and has supported a thrifty and healthy population in the past.

"When I asked a government official what the principal diseases of the community were, he said that the most serious and most universal was dental caries, and the next most important, tuberculosis; and that both were largely modern diseases in that country.

When I visited the famous advocate of heliotherapy, Dr. Rollier, in his clinic in Leysin, Switzerland, I wondered at the remarkable results he was obtaining with heliotherapy in nonpulmonary tuberculosis. I asked him how many patients he had under his general supervision and he said about thirty-five hundred. I then asked him how many of them come from the isolated Alpine valleys and he said that there was not one; but that they were practically all from the Swiss plains, with some from other countries." (p. 41)

Price concluded of all this data:

**"High immunity to dental caries, freedom from deformity of the dental arches and face, and sturdy physiques with high immunity to disease were all found associated with physical isolation,** and with forced limitation in selection of foods. This resulted in a very liberal use of dairy products and whole-rye bread, in connection with plant foods, and with meat served about once a week.

"The individuals in the modernized districts were found to have widespread tooth decay. Many had facial and dental arch deformities and much susceptibility to diseases. These conditions were associated with the use of refined cereal flours, a high intake of sweets, canned goods, sweetened fruits, chocolate; and a greatly reduced use of dairy products." (pp. 42-3)

In this respect, I feel Price missed a vital truth about soil fertility and human health. Price can easily be excused for this limitation, after all, he was a dentist, not an agriculturalist. Fortunately the relationships between soil and health *were* fully appreciated by another remarkable being who also maintained an association with the Price-Pottenger circle--William A. Albrecht.

Albrecht found that the nutritional qualities of foods and the consequent health of the animals who ate these foods *were* enormously effected by the intrinsic fertility of the soil that grew them. And sadly, that most soils on Earth are not fertile enough to produce maximally nutritious food and thus, most regions of Earth will not produce the longest-possible living people whose health is maximized. Albrecht also provides insights about how to manage soil with the aim of improving the nutrition of the food it grows. But Albrecht's remedies for lack of soil fertility do not exactly allign with the Organic Farming and Gardening Religion as defined by J.I. Rodale and successor company. During his lifetime J.I. Rodale denegated Albrecht for non-conformity with organicism, and so, even today, Albrecht's writings are often overlooked. Fortunately, William Albrecht's works are kept in print by an organization called [Acres, USA](#). *The Albrecht Papers*, all three volumes of them, are available for order through any book store or at Acres' website, and many libraries have them or can get them through their interelibrary loan service. For starters I particularly recommend reading volume two.

In the [next section of this book review](#), I have reproduced a small selection of the photographs and a bit more narrative from *Nutrition and Physical Degeneration*. They'll take you a few minutes to download, but I strongly recommend that you do so and then *study* them, and the comments Price made about them. Then, go out to your local food market or mall or where ever people gather and observe faces, dental arches, and crooked teeth. If you see someone with perfect-looking straight teeth, but their face is narrow, take a chance, walk up to the person, introduce yourself as a student of human health, and ask if you might ask a somewhat personal question: have they been to an orthodontist?

And also please do this website a service. If you decide to [buy a copy](#) of *Nutrition and Physical Degeneration* from the PPNF, please tell them where you first learned of the book.

## **PART TWO**

### **A Potpourri of Price's Photos**

Reproduced below are only a few of the 134 plates in *Nutrition and Physical Degeneration* along with some of the comments that went with these photos. (Quotation marks are not used, as everything except the sub-titles found below, is a direct, unabridged quote from Price's book.) To enjoy and profit from the rest, and read a most interesting travelogue, [buy the book](#).

### **OUTER HEBRIDIES (SCOTS)**

Communication is very difficult among many of these islands. It would be difficult to find more complete isolation than some of them afford. We tried to get to the islands of Taransay and Scarpa on the west coast of the Isle of Harris, but were unable to obtain transportation since the trip can be made only in special, seaworthy crafts, which will undertake the passage only at certain phases of the tide

and at certain directions of the winds. On one of these islands, we were told, the growing boys and girls had exceedingly high immunity to tooth decay. Their isolation was so great that a young woman of about twenty years of age who came to the Isle of Harris from Taransay Island had never seen milk in any larger quantity than drops. There are no dairy animals on that island. Their nutrition is provided by their oat products and fish, and by a very limited amount of vegetable foods. Lobsters and flat fish are a very important part of their foods. Fruits are practically unknown. Yet the physiques of these people are remarkably fine.

It was necessary sometimes for us to engage skilled seamen and their crafts to make a special trip to some of these isolated islands. These seamen watch critically the tide, wind and sky, and determine the length of time it will be safe to travel in a certain direction under conditions existing in the speed of the running tide and the periodic change of the wind. Some of the islands are isolated by severe weather conditions for many months of the year.

These islands have been important in the whaling industry, even up to recent years. We visited a whaling station on the Isle of Harris, not active at this time, where monsters of the sea were towed into a deep bay.

In the interior of the Isle of Lewis the teeth of the growing boys and girls had a very high degree of perfection, with only 1.3 teeth out of every hundred examined that had even been attacked by dental caries.

An important part of the study of these islands was the observations made on conditions at the fringe of civilization. A typical cross-section of the residents of the seaport town of Stornoway can be seen assembled on the docks to greet the arrival of the evening boat, the principal event of the community. The group consists largely of adult young people. In a count of one hundred individuals appearing to be between the ages of twenty and forty, twenty-five were already wearing artificial teeth, and as many more would have been more presentable had they too been so equipped. Dental caries was very extensive in the modernized section of Stornoway. Since an important part of these studies involved a determination of the kinds and quantities of foods eaten, it was necessary to visit the sources available for purchasing foods in each town studied. In Stornoway, one could purchase angel food cake, white bread, as snow white as that to be found in any community in the world, many other white-flour products; also, canned marmalades, canned vegetables, sweetened fruit juices, jams, confections of every type filled the store windows and counters.

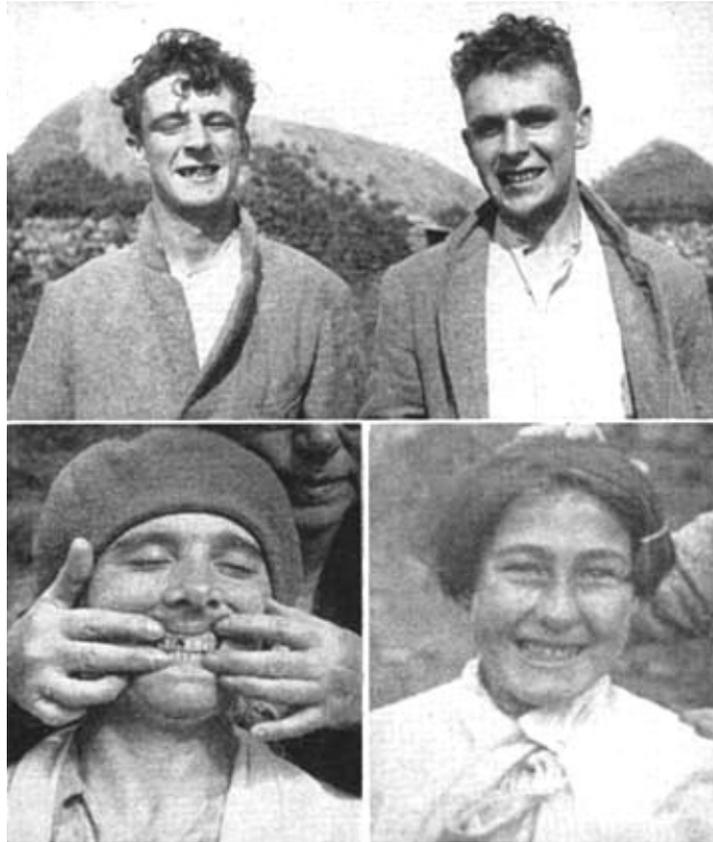
These foods probably made a great appeal both because of their variety and their high sugar content to the pallets of these primitive people. The difference in physical appearance of the child life of Stornoway from that of the interior of the Isle of Lewis was striking. We found a family on the opposite coast of the island where the two boys shown in the upper half of Fig. 6 resided. One had excellent teeth and the other had rampant caries. These boys were brothers eating at the same table. The older boy, with excellent teeth, was still enjoying primitive food of oatmeal and oatcake and sea foods with some limited dairy products. The younger boy, seen to the left, had extensive tooth decay. Many teeth were missing including two in the front. He insisted on having white bread, jam, highly sweetened coffee and also sweet chocolates. His father told me with deep concern how difficult it was for this boy to get up in the morning and go to work.

One of the sad stories of the Isle of Lewis has to do with the recent rapid progress of the white plague. The younger generation of the modernized part of the Isle of Lewis is not showing the same resistance

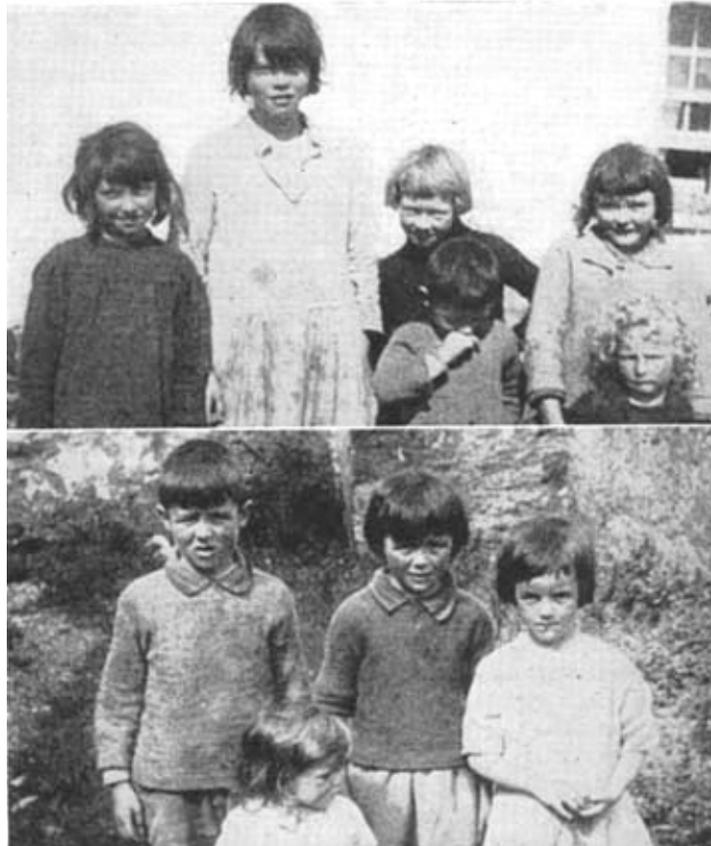
to tuberculosis as their ancestors. Indeed a special hospital has been built at Stornoway for the rapidly increasing number of tubercular patients, particularly for girls between twenty and thirty years of age. The superintendent told me with deep concern of the rapidity with which this menace is growing. Apparently very little consideration was being given to the change in nutrition as a possible explanation for the failure of this generation to show the defense of previous generations against pulmonary tuberculosis. In this connection much blame had been placed upon the housing conditions, it being thought that the thatched-roof house with its smoke-laden air was an important contributing factor, notwithstanding the fact that former generations had been free from the disease. I was told that the incidence of tuberculosis was frequently the same in the modern homes as it was in the thatched-roof homes. It was of special interest to observe the mental attitude of the native with regard to the thatched-roof house. Again and again, we saw the new house built beside the old one, and the people apparently living in the new one, but still keeping the smoke smudging through the thatch of the old thatched-roof house. When I inquired regarding this I was told by one of the clear-thinking residents that this thatch collected something from the smoke which when put in the soil doubled the growth of plants and yield of grain. He showed me with keen interest two patches of grain which seem to demonstrate the soundness of his contention.

I was particularly interested in studying the growing boys and girls at a place called Scalpay in the Isle of Harris. This Island is very rocky and has only small patches of soil for available pasturage. For nutrition, the children of this community were dependent very largely on oatmeal porridge, oatcake and sea foods. An examination of the growing boys and girls disclosed the fact that only one tooth out of every hundred examined had ever been attacked by tooth decay. The general physical development of these children was excellent, as may be seen in the upper half of Fig. 7. Note their broad faces.

This is in striking contrast with the children of the hamlet of Tarbert which is the only shipping port on the Isle of Harris, and the place of export of most of the famous Harris tweeds which are manufactured on looms in the various crofters' homes. These Tarbert children had an incidence of 32.4 carious teeth out of every hundred teeth examined. The distance between these two points is not over ten miles and both have equal facilities for obtaining sea foods, being on the coast. Only the latter, however, has access to modern foods, since it supports a white bread bakery store with modern jams, marmalades, and other kinds of canned foods. In studying the tragedy of the rampant tooth decay in the mouth of a young man, I asked him regarding his plans and he stated that he was expecting to go to Stornoway about sixty miles away in the near future, where there was a dentist, and have all his teeth extracted and plates made. He said that it was no use to have any teeth filled, that he would have to lose them anyway since that was everybody's experience in Tarbert. The young women were in just as poor a condition.



**FIG. 6.** Above: bothers, Isle of Harris. The younger at left uses modern food and has rampant tooth decay. Brother at right uses native food and has excellent teeth. Note narrow face and arch of younger brother. Below: typical rampant tooth decay, modernized Gaelic. Right: typical excellent teeth of primitive Gaelic.



**FIG. 7.** Above: typical rugged Gaelic children, Isle of Harris, living on oats and sea food. Note the breadth of the faces and nostrils. Below: typical modernized Gaelics, Isle of Bardsey. Note narrowed faces and nostrils.

## ESKIMOS

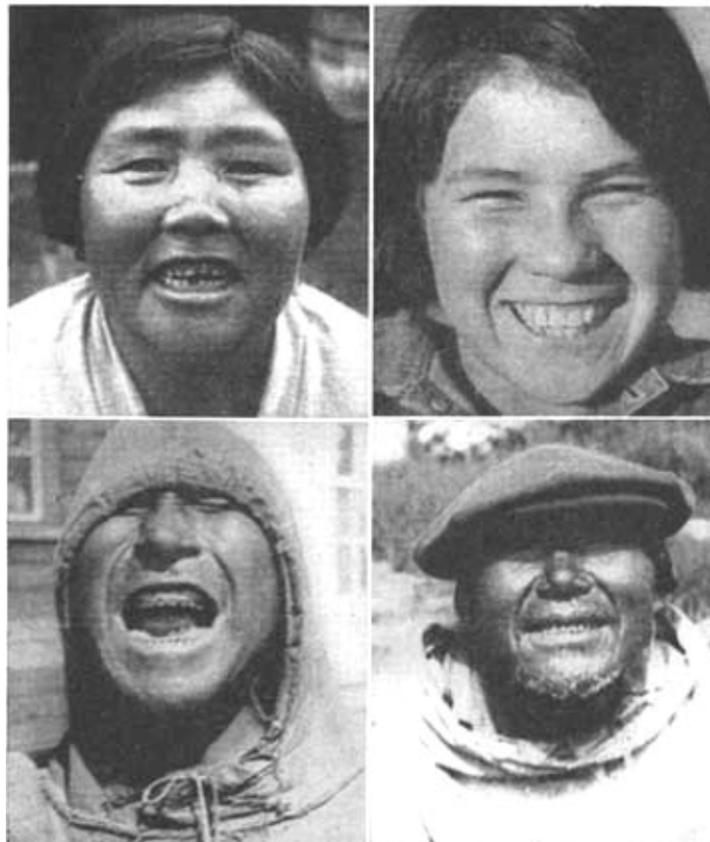
One important phase of modern degeneration, namely, change in facial and dental arch form and other physical expressions, is of interest. It is a matter of great significance that the Eskimos who are living in isolated districts and on native foods have produced uniformly broad dental arches and typical Eskimo facial patterns. Even the first generation forsaking that diet and using the modern diet, presents large numbers of individuals with marked changes in facial and dental arch form. In Fig. 12 will be seen four Eskimo girls who are of the first generation following the adoption of modernized foods by their parents. All have deformed dental arches. It is important to note the pattern of the settling inward of the lateral incisors and the crowding outward of the cuspids. This facial design is currently assigned to a mixing of racial bloods. These girls are pure-blooded Eskimos whose parents have normally formed dental arches.

We are particularly concerned with the foods used by these primitive Eskimos. They almost always have their homes on or near deep water. Their skill in handling their kayaks is most remarkable. During the salmon running season they store large quantities of dried salmon. They spear many of these fish from their kayaks; even young boys are very skillful. They land salmon so large that they can hardly lift them. They are expert in spearing seals from these light crafts. Seal oil provides a very important part of their nutrition. As each piece of fish is broken off, it is dipped in seal oil. I obtained some seal oil from

them and brought it to my laboratory for analyzing for its vitamin content. It proved to be one of the richest foods in vitamin A that I have found.

The fish are hung on racks in the wind for drying. Fish eggs are also spread out to dry, as shown in Fig. 13. These foods constitute a very important part of the nutrition of the small children after they are weaned. Naturally, the drifting sands of the bleak Bering Straits lodge upon and cling to the moist surfaces of the fish that are hung up to dry. This constitutes the principal cause for the excessive wear of the Eskimos' teeth in both men and women.

The food of these Eskimos in their native state includes caribou, ground nuts which are gathered by mice and stored in caches, kelp which is gathered in season and stored for winter use, berries including cranberries which are preserved by freezing, blossoms of flowers preserved in seal oil, sorrel grass preserved in seal oil, and quantities of frozen fish. Another important food factor consists of the organs of the large animals of the sea, including certain layers of the skin of one of the species of whale, which has been found to be very high in vitamin C.



**FIG. 9.** Typical native Alaskan Eskimos. Note the broad faces and broad arches and no dental caries (tooth decay). Upper left, woman has a broken lower tooth. She has had twenty-six children with no tooth decay.



**FIG. 12.** While dental arch deformities or crowded teeth are practically unknown among many of the primitive groups of Eskimos, they occur frequently in the first generation of children born after the parents have adopted the white man's foods. Note the narrow nostrils and changed facial form of these children. This is not due to thumb sucking.



**FIG. 17.** Wherever the Indians were living on their native foods, chiefly moose and caribou meat, their physical development including facial and dental arch form was superb with nearly complete immunity to dental caries. These two women and two girls are typical.



**FIG. 19.** The blight of the white man's commerce is seen everywhere in the distorted countenances of even the first generation after the adoption by the parents of the foods of modern commerce. These young people with their deformed dental arches are typical. Note the faulty development of the facial bones as evidenced by the narrow nostrils and crowded teeth.

## FIJI

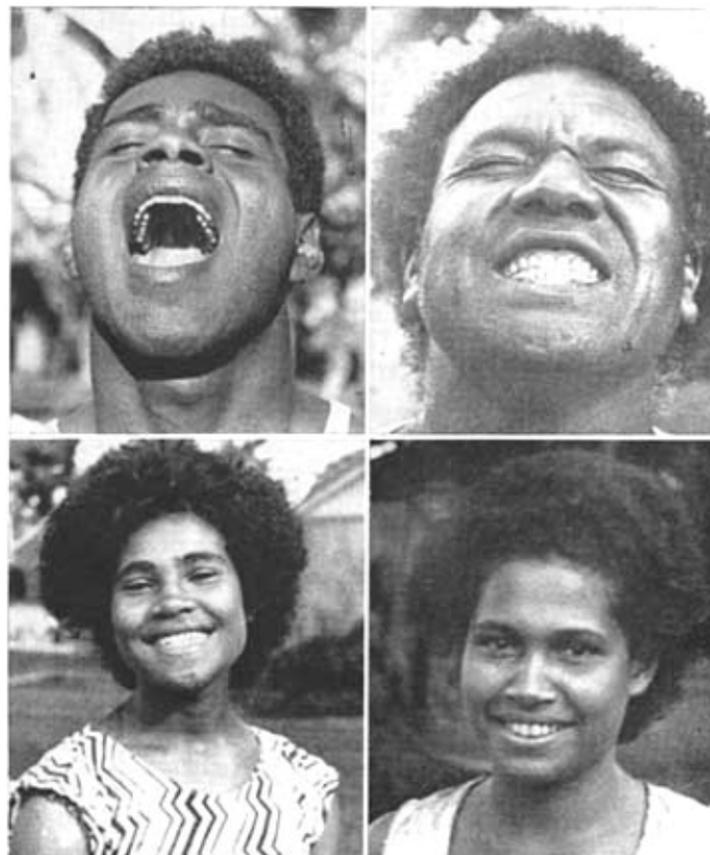
"There has been a very extensive development of sugar plantations on the larger islands of several of the Pacific archipelagos. The working of these plantations has required the importation of large numbers of indentured laborers. These have been brought chiefly from India and China. Since they are nearly all men, those who have married have obtained their wives from among the natives. This, the Chinese have done quite frequently. Since they are excellent workers they provide good homes and are good business men. They are, in many districts, rapidly becoming the landowners and are men of influence. This influx of Asiatics, together with that of Europeans, has had an important influence upon the purity of the native race around the ports and provided an opportunity to study the effect of intermingling of races upon the susceptibility to dental caries. No differences in extent of tooth decay due to ancestry were disclosed. The incidence of dental caries at the points of contact with imported foods was 30.1 per cent of teeth examined as compared with 0.42 for the more isolated groups living on the native foods of land and sea.

"The physical changes which were found associated with the use of the imported foods included the loss of immunity to dental caries in practically all of the individuals who had displaced their native

foods very largely with the modern foods. Dental caries was much worse, however, in the growing children and motherhood group due to the special demands of these individuals. These conditions are illustrated in Figs. 31 and 32. The boy shown in Fig. 32 (upper, left) typifies the suffering brought by modernization. Abscessed teeth often cause suicide.

"Another important phase of the studies included a critical examination of the facial form and shape of the dental arches which include very definite and typical changes represented by the narrowing of the features and the lengthening of the face with crowding of the teeth in the arch. These are illustrated in the lower half of Fig. 32.

"The members of the Melanesian race living on the Fiji Islands of the Pacific, whether volcanic or coral in origin, have developed a very high immunity to dental caries and well formed faces and dental arches. Their native foods consisted of animal life from the sea eaten with plants and fruits from the land in accordance with a definite program of food selection. In their primitive state only 0.42 per cent of their teeth were attacked by tooth decay. In the modernized groups this incidence increased to 30.1 per cent. The change in the nutrition included a marked reduction in the native foods and their displacement with white-flour products, sugar and sweetened goods, canned foods and polished rice. In the succeeding generations after the parents had adopted the modern foods, there occurred distinct change in facial form and shape of the dental arches."



**FIG. 29.** [Fijians] The development of the facial bones determines the size and shape of the palate and the size of the nasal passages. Note the strength of the neck of the men above and the well-proportioned faces of the girls below. Such faces are usually associated with

properly proportioned bodies. Tooth decay is rare in these mouths so long as they use an adequate selection of native foods.



**FIG. 31.** These natives of the Fiji Islands illustrate the effect of changing from the native food to the imported foods of commerce. Tooth decay becomes rampant and with it is lost the ability to properly masticate the food. Growing children and child bearing mothers suffer most severely from dental caries.

## **POLYNESIANS**



**FIG. 36.** Note the marked difference in facial and dental arch form of the two Samoan primitives above and the two modernized below. The face bones are undeveloped below causing a marked constriction of the arches with crowding of the teeth. This is a typical expression of inadequate nutrition of the parents.