SHALL WE SLAY TO EAT
A VEGETARIAN.

A FLESH EATER.
SHALL WE SLAY
TO EAT?

J. H. KELLOGG, M. D.

Illustrated

GOOD HEALTH PUBLISHING COMPANY
BATTLE CREEK, MICHIGAN
1899
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By J. H. Kellogg, M. D.
PREFACE.

THIS booklet is not intended as an exhaustive treatise upon the subject with which it deals, but rather as a popular summary of a question which has been prominently before the people for more than half a century, and which is now being more generally discussed and with greater interest by the intelligent public than at any other period in recent times.

The question of the non-use of flesh food as an article of diet is not a new one, however, but is a question which has before been most earnestly discussed, as is evidenced by the steadfast enthusiasm of millions of non-flesh-eating Buddhists of India, China, and Japan during more than three thousand years.

The question of diet is just at the present time receiving more attention than ever, not only in scientific discussion by physicians, but by inquiries on the part of the general public, thousands of whom are learning by dearly bought experience the truth of the old German adage, "As a man eateth, so is he." Within the last ten years, especially, there has been an increased interest in that particular phase of the diet question which is considered in this little work. It is this interest and the numerous inquiries growing out of it that have led the writer to present in this form a sort of epitome of facts and observations relating to this subject which he has gathered during nearly thirty-five years' practical observation in his own individual experience, and for the last twenty-five years as a practitioner with more than usually wide opportunities for the study of dietetic habits and their relation to health and disease.
The author thinks it proper to state that while he considers this question one of the most important in dietetics, it does not in his opinion overshadow all others; nor will the disuse of flesh, in his opinion, atone for dietetic errors of other sorts. There are, without doubt, other faults in diet which produce more apparent and immediately harmful effects than are ordinarily observed in connection with the use of flesh food.

As this work is chiefly addressed to non-medical readers, the writer, while attempting to deal with the question in a thoroughly scientific way and to present only scientific facts, has sought to avoid such technicalities as seemed to him unnecessary, or likely to be confusing to the mind of the ordinary reader. He has sought to present plain, unvarnished facts without exaggeration, trusting to the power of simple truth to win its own recognition.

While not unconscious of the fact that in championing a cause which to-day is in little esteem because not in harmony with prevalent custom, and opposed to popular prejudices, the writer feels that his feet are planted upon a truth which, as Sir John Herschel said of all truth, is capable of "enduring the test of universal experience," and which, when the false theories which now oppose it have crumbled into the sand of which they are composed, will be found standing like a rock of adamant "among the wrecks of time."
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The Ethics of Diet

Vegetarianism is not a modern fad or cult. From the earliest ages down to the present it has been practised by the larger proportion of the human family, and at the present time, taking the race as a whole, there are, without doubt, four or five vegetarians to every flesh eater. Almost from the dawn of history there have been those who have stoutly defended the practise of vegetarianism, and who have earnestly maintained the physical and ethical error of flesh eating.

The Golden Age. Hesiod, eight centuries before Christ, pictured the "golden age" in which flesh foods were unknown. As the result of this simple and natural fare, the people of the golden age, according to this writer, enjoyed the happy state which the poet describes in the following lines:

"Like gods, they lived with calm, untroubled mind,
Free from the toil and anguish of our kind,
Nor did decrepit age misshape their frame."

The Pythagorean Philosophy. Pythagoras, who lived in the fifth century before the Christian era, was perhaps the most enthusiastic of all the ancient defenders of a natural dietary. To demonstrate his faith in the reforming influences of a non-flesh dietary, it is said that he tamed a formidable bear which had become the terror of the country round, and by subjecting it to a simple, non-flesh dietary, rendered it amiable and harmless for the remainder of its life. In the following translation from the Latin poet Ovid, the reader will find
a lucid and graphic presentation of the views of Pythagoras and the telling arguments presented by him in defense of his doctrine, few of which could be materially improved upon at the present time:—

"From whence, O mortal man, this lust of blood
Have you derived, and interdicted food?
Be taught by me this dire delight to shun,
Warned by my precepts, by my practise won;
And when you eat the well-deserving beast,
Think on the laborer of your field you feast!

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"Ill customs by degrees to habits rise;
Ill habits soon become exalted vice.
What more advance can mortals make in sin,
So near perfection who with blood begin?
Deaf to the calf that lies beneath the knife,
Looks up, and from her butcher begs her life;
Deaf to the harmless kid, that ere he dies,
All methods to procure thy mercy tries,
And imitates in vain thy children's cries.
Where will he stop who feeds with household bread,
Then eats the poultry which before he fed?
Let plow thy steers, that when they lose their breath,
To nature, not to thee, they may impute their death.
Let goats for food their loaded udders lend,
And sheep from winter cold thy sides defend;
But neither springs, nor nets, nor snares employ,
And be no more ingenious to destroy.
Free as in air let birds on earth remain,
Nor let insidious flue their wings constrain;
Nor opening hounds the trembling stag affright.
Nor purple feathers intercept his flight,
Nor hooks concealed in baits for fish prepare,
Nor lines to heave them twinkling up in air.

"Take not away the life you can not give;
For all things have an equal right to live;
Kill noxious creatures, where 't is sin to save;
'Tis only just prerogative we have:
But nourish life with vegetable food,
And shun the sacrilegious taste of blood."
Plato, in his famous dialogue, "The Republic," written in the fourth century before Christ, represents Socrates as describing a model city, and prescribing for the inhabitants therein a dietary consisting simply of fruits, grains, vegetables, and nuts. Replying to an objector who thought the fare suggested too simple, Socrates is represented as saying: "Now, it appears to me that the city which we have described is the genuine, and, so to speak, healthy city. But if you wish us also to contemplate a city that is suffering from inflammation, there is nothing to hinder us. Some people will not be satisfied, it seems, with the fare or the mode of life which we have described, but must have, in addition, couches and tables and every other article of furniture, as well as viands. . . . Swineherds again are among the additions we shall require,—a class of persons not to be found, because not wanted, in our former city, but needed among the rest in this. We shall also need great quantities of all kinds of cattle for those who may wish to eat them, shall we not?"

"Of course we shall."

"Then shall we not experience the need of medical men also to a much greater extent under this than under the former régime?"

"Yes, indeed."

"The country, too, I presume, which was formerly adequate to the support of its then inhabitants, will be now too small, and adequate no longer. Shall we say so?"

"Certainly."

"Then must we not cut ourselves a slice of our neighbors' territory, if we are to have land enough for both pasture and tillage? while they will do the same to ours if they, like us, permit themselves to overstep the
limit of necessaries, and plunge into the unbounded acquisition of wealth.'

"" It must inevitably be so, Socrates.'

"" Will our next step be to go to war, Glaukon, or how will it be?"

"" As you say."

It is interesting to note that Socrates traces the origin of both war and disease, and all the human ills growing out of these gigantic evils, to the use of flesh food.

A careful reading of the ninth chapter of Genesis suggests the same thought. The unlawful taking of life for the mere gratification of unnatural and perverted instincts, carries with it its own penalty in the development of disease and the introduction of war, bloodshed, and all the horrors of human carnage.

Seneca, who lived in the first century after Christ, dying A.D. 65, the contemporary of Paul, and perhaps not unacquainted with the great apostle, a victim also of Nero's insatiable cruelty, maintained that "vegetables are sufficient food for the stomach, into which we now stuff valuable lives." The following wise words by this just and thoughtful man apply as appropriately to the present time as to the age in which he wrote:—

"In the simpler times there was no need of so large a supernumerary force of medical men, nor of so many surgical instruments or of so many boxes of drugs. Health was simple for a simple reason. Many dishes have induced many diseases. Note how vast a quantity of lives one stomach absorbs—devastator of land and sea. No wonder that with so discordant a diet, disease is ever varying. . . . Count the cooks: you will no longer wonder at the innumerable number of human maladies."
One of the most interesting of all the ancient defenders of vegetarian principles was Plutarch, the author of "Plutarch's Lives." Plutarch wrote an essay on flesh eating, from which, and from some of his other works, we quote a few words:

"Ill digestion is most to be feared after flesh eating, for it very soon clogs us, and leaves ill consequences behind it. It would be best to accustom one's self to eat no flesh at all, for the earth affords plenty enough of things fit not only for nourishment but for delight and enjoyment."

"All species of lower animals, according to their kind, feed upon one sort of food which is proper to their natures—some upon grass, some upon roots, and others upon fruits. Neither do they rob the weaker of their nourishment. But man, such is his voracity, falls upon all to satisfy the pleasures of his appetite, tries all things, tastes all things; and, as if he were yet to seek what was the most proper diet and most agreeable to his nature, among all animals is the only all-devourer. He makes use of flesh not out of want and necessity, seeing that he has the liberty to make his choice of herbs and fruits, the plenty of which is inexhaustible; but out of luxury, and being cloyed with necessaries, he seeks after impure and inconvenient diet, purchased by the slaughter of living beings; by this showing himself more cruel than the most savage of wild beasts. For blood, murder, and flesh are proper to nourish the kite, the wolf, and the serpent; to men they are superfluous viands."

"You ask me upon what grounds Pythagoras abstained from feeding upon the flesh of animals. I, for my part, marvel of what sort of feeling, mind, or reason that man was possessed who was the first to pollute his mouth with gore, and to allow his lips to touch the flesh.
of the murdered being; who spread his table with the mangled forms of dead bodies, and claimed as his daily food what were but now beings endowed with movement, with perception, and with voice.

"How could his eyes endure the spectacle of the flayed and dismembered limbs? How could his sense of smell endure the horrid effluvium? How, I ask, was his taste not sickened by contact with festering wounds, with the pollution of corrupted blood and juices? The very hides began to creep, and the flesh, both roast and raw, groaned on the spits, and the slaughtered oxen were endowed, as it might seem, with human voice.' This is poetic fiction; but the actual feast of ordinary life is, of a truth, a veritable portent—that a human being should hunger after the flesh of oxen actually bellowing before him, and teach upon what parts one should feast, and lay down elaborate rules about joints and roastings and dishes. The first man who set the example of this savagery is the person to arraign; not, assuredly, that great mind, which, in a later age, determined to have nothing to do with such horrors. . . .

"Why do you belie the earth, as if it were unable to feed and nourish you? Why do you do despite to the bounteous goddess Ceres, and blaspheme the sweet and mellow gifts of Bacchus, as if you received not a sufficiency from them? Does it not shame you to mingle murder and blood with their beneficent fruits? Other carnivora you call savage and ferocious,—lions and tigers and serpents,—while yourselves come behind them in no species of barbarity. And yet for them murder is the only means of sustenance; whereas to you it is a superfluous luxury and crime. For, in point of fact, we do not kill and eat lions and wolves, as we might do in self-defense; on the contrary, we leave them unmolested; and yet the innocent and the domesticated and
helpless and unprovided with weapons of offense,—these we hunt and kill, which nature seems to have brought into existence for their beauty and gracefulness.

"Alas for our savage inhumanity! It is a terrible thing to see the tables of rich men decked out by those layers-out of corpses, the butchers and cooks; a still more terrible sight is the same table after the feast; for the wasted relics are even more than the consumption. . . .

"Well, I have taken away the excuse of those who allege that they have the authority and sanction of nature. For that man is not, by nature, carnivorous is proved, in the first place, by the external frame of his body, seeing that to none of the animals designed for living on flesh has the human body any resemblance. He has no curved beak, no sharp talons and claws, no pointed teeth, no intense power of stomach or heat of blood which might help him to masticate and digest the gross and tough flesh substance. On the contrary, by the smoothness of his teeth, the small capacity of his mouth, the softness of his tongue, and the sluggishness of his digestive apparatus, nature sternly forbids him to feed on flesh.

"If, in spite of all this, you still affirm that you were intended by nature for such a diet, then to begin with, kill you yourself what you wish to eat,—but do it yourself with your own natural weapons, without the use of butcher's knife, or ax, or club. No; as the wolves and lions and bears themselves slay all they feed on, so, in like manner, do you kill the cow or ox with a grip of your jaws, or the pig with your teeth, or a hare or a lamb by falling upon and rending it there and then. Having gone through all these preliminaries, then sit down to your repast. If, however, you wait until the living and intelligent existence be deprived of life, and if it would disgust you to have to rend out the heart and
shed the life-blood of your victim, why, I ask, in the very face of nature, and in despite of her, do you feed on beings endowed with sentient life? But more than this: not even after your victims have been killed will you eat them just as they are from the slaughter-house. You boil, roast, and altogether metamorphose them by fire and condiments. You entirely alter and disguise the murdered animal by the use of ten thousand sweet herbs and spices, that your natural taste may be deceived and be prepared to take the unnatural food.

"Flesh eating is not unnatural to our physical constitution only. . . . The wits of Athens, it is well known, bestow on us Boeotians the epithets 'gross,' 'dull-brained,' and 'stupid,' chiefly on account of our gross feeding. We are even called 'hogs.' Menander nick-names us the 'jaw-people.' Pindar has it that 'mind is a very secondary consideration with them.' 'A fine understanding of clouded brilliancy' is the ironical phrase of Heraclitus."

Porphyry, the noted Greek philosopher of the third and fourth centuries, although he wrote against Christianity, recognized clearly the influence of dietetic habits upon the character. He said:

"And let such a man tell me whether a rich flesh diet is more easily procured, or incites less to the indulgence of irregular passions and appetites, than a light vegetable dietary. But if neither he, nor a physician, nor, indeed, any reasonable man whosoever, dares to affirm this, why do we persist in oppressing ourselves with gross feeding? And why do we not, together with that luxurious indulgence, throw off the encumbrance and snares which attend it? It is not from those who have lived on innocent foods that murderers, tyrants, robbers, and sycophants have come, but from eaters of flesh. The necessaries of life are few and easily pro-
cured, without violation of justice, liberty, or peace of mind.'

Tertullian, in the second century of our era; Clement of Alexandria, who died early in the third century; and numerous others of the early church Fathers, defended the simple, natural, and bloodless fare. Said Clement, “For is there not, within a temperate simplicity, a wholesome variety of eatables—vegetables, roots, olives, herbs, milk, cheese fruits, and all kinds of dry food?”

Chrysostom, of Antioch, writing in the latter part of the fourth century, denounced flesh eating in the following vigorous terms: “The unnatural eating of flesh meat is of demoniacal origin, and was introduced by those giants, who, from their bastard nature, took no pleasure in pure nourishment, and only lusted after blood. Therefore, the eating of flesh is as polluting as the heathen worship of demons, with its sacrifices and its impure feasts, through participation in which a man becomes a fellow dietist with demons.”

A Buddhist friend, a native of Japan, a few years ago wrote us as follows respecting the teaching of Buddhism in relation to vegetarianism:

Several hundred years before the beginning of the Christian era, a religious teacher arose in India who instituted a most vigorous propaganda against the system of animal sacrifices which was at that time practised by the followers of the religion of Brahma. Buddha was a reformer. He taught the sacredness of life, basing his claims for the sacred inviolability of animal life upon the ground that God dwells in every living, sentient being.

“In one of our Buddhist scriptures are these words: ‘You, the Buddha’s sons, should not voluntarily eat
flesh food of any kind. If you eat it, it destroys all the spiritual seeds of great compassion. All living beings seeing you eat flesh, walk away with contempt. For this reason all the Bodhisatovas are not allowed to live on any flesh food.' In view of this, we Buddhists abstain from flesh eating.

"Vegetable diet is called by our Buddhist teachers, sho-zin-mono, or, literally, 'diet that promotes spiritual progress.' Therefore, say we Buddhists, those that aspire after spiritual enlightenment should not eat even the least flesh food. But why can not flesh-eating men attain the spiritual enlightenment? Why can not we reach the final goal—the Buddhahood—if we live on animal food?—Because, according to the wisest investigation and experience, animal food destroys our spiritual aspirations, and gives rise to gross thoughts, and so to gross, vulgar doings. If we live upon flesh food, we must necessarily be the murderers of certain beings. And we believe that ruthlessly to take the life of any living creature is to commit one of the greatest sins. The true enlightenment is a state free from all sins and vulgar thoughts. Thus it is evident that we must abstain strictly from meat eating if we aspire to reach enlightenment and Nirvana—the Buddhahood. These are the reasons given by our Buddhist teachers for the practise of vegetarianism, it being their opinion that flesh eating is not only harmful to the bodily health, but also to the mental, besides necessitating the needless taking of life, an act which we Buddhists are careful not to commit."

"In our country, vegetarianism was once the universal practise, but some five hundred years ago, certain of the lowest classes of Chinese people came and settled in this country. These men began to hunt wild animals, to kill domestic ones, and to eat them greedily. Their brutish doings made the pure native Japanese who
were Buddhists refuse to receive them, and they called them etta, the literal meaning of which is ‘men full of dirt,’ or ‘dirty race;’ and these ‘men full of dirt’ were not allowed to marry with pure natives, or to associate with them in any way.”

The followers of Buddha have, for more than twenty-five hundred years, earnestly promulgated the doctrines that he taught, among all the nations of the Orient and the far East, and at the present time Buddhists are to be counted by millions among the nations of India, Burma, Siam, Persia, China, and Japan, probably not less than four hundred million in all. For the following translations of the teachings of Buddha in relation to flesh eating, copied from ancient Hindu and Buddhist writings, we are indebted to the Harbinger, an East Indian publication:

"Those are skilful cooks who don't use their utensils for meat." — The Rig Veda.

"Human beings live upon the products of agriculture." "Thou shalt not kill the cow." "Thou shalt not kill the sheep or goat." "Thou shalt not kill the bipeds" (birds and men). "Protect animals." "O Purifier! thou protectest grain food." "The vegetable world supports wise men." — The Yajur Veda.

"Surely hell-fire and repentance are in store for those who for their pleasure and gratification cause the dumb creatures to suffer pain." — The Zend Avasta.

"General Bishma, the commander-in-chief of the Kooroos, said to Emperor Yudhishthir: 'Unslaughter is the supreme virtue, supreme asceticism, golden truth, from which springs up the germ of religion.'" — The Mahabharata.

Buddhist priests are constantly active in China, Japan, and other Eastern countries, preaching and circulating tracts and leaflets condemning the use of flesh foods and
inculcating the principles of kindness to animals. One of these missionary priests a few years ago wrote and circulated very widely at his own expense a poem entitled, "The Cow's Complaint," for an English translation of which we are indebted to a medical friend in China, and from which we quote the following stanzas:

"Despite my long and useful life
They give me to the butcher's knife.
He ties me up without a tear,
And cuts my throat from ear to ear.

"My mouth is dumb, unformed for cries,
But hot tears glisten in my eyes.
Soon all my luckless flesh and bone
Ungrateful mortals fatten on.

"My murderers shall come to grief,
Along with all who relish beef;
When I'm a man and you a cow,
I'll treat you as you treat me now."

In India to-day there are "cow-preachers," who go about extolling the virtues of the cow, and appealing to the people in most eloquent terms to protect this gentle and useful animal. A Hindu was recently awarded damages for having been called a "cow eater."

It thus appears that vegetarianism, as we have previously said, is by no means a modern idea. The practise of flesh eating has been denounced by the good and the noble of all ages, and it is indeed not a little surprising that in this modern age of enlightenment and philanthropy, the age of associations for the prevention of cruelty to animals, of anti-vivisection societies, of altruistic fraternities,—an age in which civilized men, perhaps more than in any previous time, have come to recognize, in theory at least, the universal brotherhood of man,—in such an age it is indeed a matter of amaze-
ment that so gross an inconsistency should be tolerated as the maintenance of slaughter-houses, the wholesale butchery of helpless brutes, and the almost universal prevalence of flesh eating among those who count themselves the most intelligent, refined, cultured, and religious of mortals.

One can not but smile at the absurdity of the naive account which John Williams gives of the celebration of the tenth anniversary of his arrival in the South Sea Islands, when, for the first time in ten years, English roast beef was served upon the table, a fine ox that had been sent out from England being slaughtered for the purpose. The missionary describes the woeful disappointment the company felt when they discovered that the flavor of beef was no longer agreeable to them, but was so horridly repulsive that one of their number, Mrs. Williams, "shed tears because she had become so much of a barbarian that she could not eat English beef." Our modern civilization may, in diet at least, learn something from barbarism.

We are doubtless all born into the world savages, and, as such, with simple tastes. It is only by a long process of education that the child can be taught to tolerate the taste of flesh food or to commit such an atrocity as to swallow a live animal, as in the eating of a raw oyster. The natural instincts are hard to kill, and sometimes are still more or less alive after the individual has attained to adult years. It is said of Thackeray that on one occasion, when he had swallowed a particularly large and plump oyster and some one asked him how he liked it, he replied, "I feel as if I had swallowed a baby."

Children readily accept vegetarian principles because of their sympathy with the humble creatures that are most commonly killed for food. A Scotch clergyman relates an experience he had while on pastoral duty in a
rural district. On the occasion of making a second call at a farmhouse where he had previously dined upon chicken, he noticed, as soon as he came in sight, a sudden activity on the part of the youngsters about the place, who, while making frantic efforts to get the chickens out of sight, were shouting at the top of their voices, "Rin, rin! here comes the man that ate your father!"

Among the modern defenders of vegetarianism may be reckoned the poets Shelley, Gray, Pope, Thomson, Milton, and numerous lesser lights. Haller, Rousseau, Paley, and Hufeland, the famous Dr. Abernethy, Dr. Lamb, Dr. Cheyne, Lamartine, Michelet, Buffon, Schopenhauer, and many others within the last two centuries might be mentioned as being earnest advocates of the vegetarian regimen.

The poet Milton describes the proper regimen for a poet:

"Simply let those, like him of Samos, \(^1\) live:
Let herbs to them a bloodless banquet give.
In beechen goblets let their beverage shine,
Cool from the crystal spring their sober wine!
Their youth should pass in innocence, secure
From stain licentious, and in manners pure."

Sir Henry Thompson, the greatest living authority on food and dietetics, said, referring to legumes:

"Let me recall the fact that there is no product of the vegetable kingdom so nutritious, holding its own in this respect, as it well can, even against the beef and mutton of the animal kingdom. . . . By most stomachs, too, haricots are more easily digested than meat is, and consuming weight for weight, the eater feels lighter and less oppressed, as a rule, after the leguminous dish."

\(^1\) Pythagoras, one of the most celebrated of the philosophers of the ancient world.
"All [the elements of food] are found in the vegetable kingdom, and may be obtained directly therefrom by man in feeding on vegetables alone. . . . The vegetable eater, pure and simple, can therefore extract from his food all the principles necessary for the growth and support of the body, as well as for the production of heat and force, provided that he selects vegetables which contain all the essentials named."

The late Sir Benjamin Ward Richardson, one of the most eminent English physicians of the present century, was for many years before his death a vegetarian.

Dr. John Bell, another learned and distinguished English physician, was an earnest advocate of vegetarian principles.

Professor Newman, of the University of London, world-famous for his learning, was for many years president of the vegetarian society of England.

Richard Wagner, the wonderful musical composer, was, during the last years of his life, a vegetarian.

Remenyi, the marvelous violinist, declared that he could not execute the entrancing melodies that he drew forth from his violin on other than a pure dietary, untainted with blood.

Benjamin Franklin became a vegetarian when about sixteen years of age, and tells the story in a brief and characteristic manner in his autobiography, from which we quote as follows:

"When about sixteen years of age, I happened to meet with a book written by one Tryon, recommending a vegetable diet. I determined to go into it. My brother, being yet unmarried, did not keep house, but boarded himself and his apprentices in another family. My refusing to eat flesh occasioned an inconvenience, and I was frequently chid for my singularity. I made myself acquainted with Tryon's manner of preparing some of
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his dishes, such as boiling potatoes or rice, making hasty pudding, and a few others, and then proposed to my brother that if he would give me, weekly, half the money he paid for my board, I would board myself. He instantly agreed to it, and I presently found that I could save half of what he gave me. This was an additional fund for buying books. But I had another advantage in it. My brother and the rest going from the printing-house to their meals, I remained there alone, and despatching presently my light repast, which often was no more than a biscuit or a slice of bread, a handful of raisins or a tart from the pastry cook's, and a glass of water, had the rest of the time, till their return, for study, in which I made the greater progress, from that greater clearness of head and quicker apprehension which usually attend temperance in eating and drinking."

Bronson Alcott, Margaret Fuller, Charles Dana, Hawthorne, Emerson, Thoreau, Horace Greeley, and the other thinkers who were associated in the Brook Farm experiment, were all vegetarians, as that was one of the principles dominant there. The world-famous "Little Women" were reared vegetarians.

All of these intelligent, thinking men and women, after careful study of the principles of the natural dietary, and after a thorough trial of its merits, commended it most earnestly and enthusiastically.

Vegetarianism in America. The active propaganda in behalf of vegetarianism which has accomplished so much within the last half century had its origin with Cowherd, an English clergyman of Manchester, England, who became acquainted with the writings of Dr. Cheyne upon this subject. His disciple, Metcalfe, came to the United States in 1817, and located in Philadelphia with more than forty associates, all vegetarians of the strictest sort, making the principle of vegetarianism a cardinal point in their religious creed.
In 1847 the Vegetarian Society of Great Britain was founded, and three years later the American Vegetarian Society was organized. Sylvester Graham, becoming acquainted with vegetarian principles from Mr. Metcalfe, published, in 1839, a work entitled, "Lectures on the Science of Human Life," which contained an able and comprehensive presentation of vegetarian principles. Mr. Graham, through his publications and lectures, doubtless accomplished more than has been accomplished by any other man in modern times in making converts to vegetarian principles.

At the present time numerous vegetarian societies exist in Germany, England, France, and other European countries, and a few organizations have been formed in this country. Several periodicals are devoted, in part or exclusively, to the promulgation of the principles of vegetarianism, and the doctrine of a pure, natural, and bloodless dietary is without question making rapid progress among the more intelligent classes of people in all civilized countries.

Vegetarian Periodicals, Associations, Etc.

The following periodicals, issued in different parts of the world, are committed to the principles of vegetarianism, being devoted wholly or in considerable part to their advocacy:—

There are doubtless other vegetarian periodicals not known to the writer. Quite a considerable list of books upon this subject have been written by various authors, English, French, and American, and there is at the present time rapid development of literature upon questions pertaining to the natural dietary.

Vegetarian restaurants have been very popular abroad for many years. Thousands of persons dine daily at these restaurants in London, Berlin, and other European cities. Vegetarian restaurants have also been more recently established in various cities of the United States. Such are now in operation in Detroit, San Francisco, Salt Lake City, Des Moines, Portland, Ore., Chicago, and it is hoped that one will soon be opened in New York City.

**MAN'S NATURAL DIET CONSIDERED FROM A SCIENTIFIC POINT OF VIEW.**

One of the most interesting features of the intellectual development of the present day is the growing interest in nature and natural methods, and the increasing suspicion that a large share of the evils, physical, mental, and moral, from which civilized man suffers, may be correctly attributed to the artificial conditions imposed by the highly civilized state in which he lives. That civilization, notwithstanding its priceless advantages and blessings, is not an unmixed good, is evidenced by the fact that the human race is clearly deteriorating physically and morally, notwithstanding the marvelous achievements which the last few centuries have witnessed. That we are a dying race the writer has undertaken to show by an array of undisputed facts in a paper entitled, "Are We a Dying Race?"
The causes of this physical decadence include many wide departures from those simple customs and habits to which man is by nature adapted. It is the purpose of this paper to consider a single one of the numerous questions that arise in the discussion of the perversion of the civilized state; viz., the question of the use of flesh foods: in other words, what is the natural diet of man,—the flesh of animals, or the natural products of the earth? In this discussion the question is considered from three standpoints; viz.:—

1. History, or the teachings of human experience.
2. Science, or the teachings of nature.
3. Ethics, or the study of the divine order.

Does Science Teach that Man is Naturally a Flesh Eater?

The basis of all study upon this subject, from a scientific standpoint, is the fact that the diet of an animal in its natural state is always found to agree both with its anatomical structure and with its several digestive processes and other bodily functions.

This fact is so strongly recognized by comparative anatomists that animals have been classified, according to their dietetic habits, into four great classes,—herbivorous, frugivorous, carnivorous, and omnivorous. This classification, of course, chiefly refers to the higher classes of animals, although it may be applied also to birds, fishes, and other lower orders of animal life. Various other subdivisions have been made, as, the graminivora, or grain-eaters; the rodentia, or gnawers; the ruminants, or cud-chewers; and the edentata. The graminivora are commonly understood as being included with the frugivora, as most frugivorous animals also eat grain.

In order to ascertain to which of these classes any animal belongs, it is only necessary to make a careful examination of its physical structure. But this presupposes,
of course, a knowledge of those peculiarities of structure which are characteristic of the several classes of animals into which the various members of the animal kingdom are subdivided in accordance with their dietetic habits. In order that we may have the necessary facts for such a classification before us, let us briefly enumerate the special characteristics of the several classes:—

**The Teeth of Herbivorous Animals.**

This class of animals, represented by the ox, the horse, the sheep, and all other animals which feed upon grass and herbs, have teeth precisely adapted to the mastication of their coarse and bulky food. In the ox, the teeth are: twenty-four molars, six on each side in each jaw; eight incisors, or cutting teeth, all in the lower jaw, the incisors being absent from the upper jaw, in place of which there is simply a horny plate upon which the long incisors of the lower jaw impinge when the jaws are closed.

The structure of the teeth is also peculiar; instead of being covered with enamel, as in most other classes of animals, they consist of alternate layers of enamel and a soft bony substance known as dentine. The soft, bony substance lying between the plates of enamel wears away more rapidly than does the enamel, leaving projecting cutting surfaces exactly adapted to the crushing and grinding of grass and herbs.

**The Teeth of Carnivorous Animals.**

Carnivorous animals include those which eat flesh. A special characteristic of the entire class is the canine teeth, of which the animal has four,—two in each jaw, placed upon the sides,—with the incisor teeth in front and...
the saw-shaped molars behind. In the pure carnivora, like the lion, the canine teeth are very long, and, as in all canine animals, are set considerably apart from the other teeth. In the dog they are less prominent. The appearance of these teeth is well shown in the accompanying cut. (Fig. 1.) In animals which, like the bear, feed largely upon vegetables and fruits, the development of the canine teeth is still less prominent than in the dog.

Animals belonging to this class, which is represented by the chimpanzee, the orang-outang, and the gorilla, subsist wholly upon fruits, grains, and nuts. There are thirty-two teeth in all, sixteen in each jaw — four incisors, or cutting teeth; two pointed teeth known as cuspids, one in each jaw; four small molars, known as bicuspids; and six large molars. The cuspids are a little larger than the other teeth, and are separated slightly from the others. In addition to the monkeys, there are numerous tribes of frugivorous animals, bats and kangaroos, and other classes of animals, the teeth of which are essentially similar to those of the higher apes, which we have described. (Fig. 2.)

The teeth of omnivorous animals are peculiarly characteristic. This class of animals, which subsist upon all classes of foods, but which are essentially scavengers in their habits, is best represented by the hog. The most characteristic features of the teeth are the projecting incisors...
in front, and the long upward-turned canines, constituting
the tusks, which are used both in destroying and in tear-
ing to pieces other animals, alive or dead, and in digging
out the roots which constitute a part of the dietary of
these animals in a wild state. (Fig. 3.)

It is only necessary to glance at the represen-
tation of human teeth, presented in Fig.
4, to note the great contrast between the
teeth of man and those of the classes of animals which
have been mentioned. Two characteristics are peculiar
to the human animal,—the dental arch is complete; that
is, there is no space left anywhere between the teeth;
and secondly, the teeth are all practically of equal length.
The number of teeth is thirty-two,—in each jaw four
incisors, two cuspids, four bicuspids, and six molars.

If now we have ascertained to which class of animals
man belongs, as judged by the structure of the teeth, we
have only to refer to the foregoing description of the
several classes of animals which we have studied to find
our question answered. In making this comparison we
must divest ourselves of preconceived opinions and
prejudices, and for a moment consider man as a fossil
animal; the habits must be ascertained by a comparison
of his skeleton with the skeletons of other animals whose
habits are known. In comparing the teeth of man with
those of the herbivorous animal, we find no resemblance.
Compared with those of the purely carnivorous animal,
we note the entire absence of teeth resembling the long, sharp teeth of the lion and wolf, capable of service in tearing the flesh of other animals. When compared with the teeth of omnivora, we find still greater disparity as regards the form and general arrangement of teeth in the jaw. But when comparison is made between the teeth of man and those of the frugivora, as represented in the higher apes, we find not only an exceedingly close resemblance but an absolute identity in number, in form, in grouping, and in arrangement in the jaw,—the only difference in form being that the eye-teeth, or cuspids, are, in the ape, a little larger than the other teeth, and are set a little apart from the others, so as to allow of an overlapping and closing of the jaw. They are quite unlike the canines of the carnivora, however, which are long, sharp, and pointed, and adapted to the tearing of flesh, while the cuspids of the ape have beveled surfaces, which, fitting accurately together, are perfectly adapted to cracking nuts and removing the husks of the fruits on which they subsist.

A comparison not only of the teeth, but of other organs as well, shows that they are characteristic of, and adapted to, the dietary of the different classes of ani-
mals. A brief consideration of these peculiarities and of their bearing upon the question in hand will be found interesting.

Huxley divides all mammals into three classes as regards their extremities; viz., hoofs, claws, and hands. The hooved animals are either herbivorous or omnivorous. Animals possessed of claws are usually carnivorous. Animals provided with hands, of which the human feet are a modification, are frugivorous, the only exception to the latter rule being found in a few degenerate types of monkeys which subsist in part upon insects when other food is scarce. So, as before, we find that man belongs to the fruit- and grain-eating class. His hands are entirely unprepared for tearing flesh, for which the claws of the carnivora are used, neither do they in any respect resemble the hoofs of the herbivora and the omnivora.

One of the most interesting comparisons which has been made by comparative anatomists is the length of the alimentary canal. This is very short in the carnivora, and long in the herbivora. When compared to the length of the body in the different classes of animals, the proportion is found to be as follows: In the carnivora, the alimentary canal is three times the length of the body; in the herbivora, as the sheep, thirty times the length of the body; in the monkey, twelve times; in the omnivora, ten times; in man, as in the frugivora, twelve times. Here, as before, we see that anatomy places man strictly in the frugivorous class. Some writers have made the amusing blunder of making the proportionate length of the alimentary canal in man 1 to 6, instead of 1 to 12, by doubling the height through measuring him while standing erect. This measurement is evidently wrong, for it includes the length of the lower
extremities, or hind legs, whereas in other animals the measurement is made from the tip of the nose to the end of the backbone. In omnivorous animals the alimentary canal is shorter than in the apes and in man, thus affiliating this class more nearly with the carnivora than with the herbivora.

A curious fact has recently been observed by Küttner, as related by him in an article published in Virchow's Archives. This author has made very extensive anatomical researches respecting the length of the small intestine in different classes of persons. He finds that in the vegetarian peasants of Russia, the small intestine measures from twenty to twenty-seven feet in length, while among Germans, who use meat in various forms quite freely, the length of the small intestine varies between seventeen and nineteen feet. The author attributes the difference in these two classes of persons to the difference in diet. Of course differences of this sort must be the result of the influence of diet exerted through many generations. This observation would seem to suggest that the special anatomical characteristics of the carnivorous class of animals is due to the modifying influence of their diet acting through thousands of years. If the length of the intestine in man may be shortened by the use of flesh with other foods for a few hundred years, more extensive modifications may easily result from the longer experience of animals that subsist upon an exclusively carnivorous diet.

Professor Huxley has pointed out the interesting fact that animals may be classified according to the peculiarities of the structure by which they are nourished before birth, as follows:

1. Those in which the placenta, or organ through which nourishment is derived from the mother of the
unborn infant, is not thrown off at birth. To this class belong the hooved animals,—the herbivora and the omnivora.

2. Those in which the placenta is thrown off at birth, and has the form of a zone. To this class belong the flesh-eating, or carnivorous animals.

3. Those in which the placenta is thrown off at birth, and has the shape of a disk. This form is characteristic of apes, man, and other frugivorous animals. Here again we have a remarkable anatomical testimony to the affinity between man and the higher animals rather than the lower forms of animal life represented by the lion, the dog, and the hog.

The Mammary Glands.

In carnivorous, omnivorous, and herbivorous animals, the mammary glands are located upon the abdomen, while in the higher apes and man they are located upon the chest. This is an interesting anatomical fact to which there is no exception.

The Colon.

In carnivorous animals the colon is smooth and non-sacculated. In the higher apes and man the colon is sacculated. In herbivorous animals the colon is sacculated, as in man.

The Tongue.

In carnivorous animals the tongue is very rough, producing a rasping sensation when coming in contact with the flesh. In the higher apes and man the tongue is smooth.

The Skin.

In carnivorous animals the skin is not provided with perspiratory ducts, hence the skin does not perspire in the dog, the cat, and allied animals. In the ape the skin is provided with millions of these glands, and in man they are so numerous that if spread out their walls would cover a surface of eleven thousand square feet. In the pig, an omnivorous animal, only the snout sweats. In horses, cows,
and other vegetable-eating animals, the whole skin sweats, as it does in man.

The Tail. Carnivorous, herbivorous, and omnivorous animals are all supplied with an extension of the back-bone—a tail. In the higher apes, as well as in man, the tail is wanting.

Attitude in Walking. Carnivorous, herbivorous, and omnivorous animals go on all fours, and their eyes look to either side, while many of the higher apes walk nearly or entirely upright, as does man, and their eyes look forward.

The Nails. Carnivorous animals have claws, herbivorous and omnivorous have hoofs, while apes and man have flat nails, not found in any other animal. Carnivorous, herbivorous, and omnivorous animals are all quadrupeds, or four-footed, while the higher apes and man are provided with two hands and two feet. The hinder or lower extremities of the ape are sometimes erroneously called hands; according to Dr. Huxley, they are, from both bony and muscular structure, properly classified as feet, and not as hands.

Salivary Glands. In carnivorous animals the salivary glands are small, and the saliva which they secrete has little effect upon starch, while in the apes and man the glands are well developed and the saliva is active.

The Teeth. The fact that man has four cuspid teeth affords no evidence whatever that he is either partially or wholly carnivorous as regards his dietary. If in diet he is naturally omnivorous, his teeth should have the structure and arrangement of those of omnivorous animals, as exhibited in the hog, for example. As previously intimated, canine teeth in carnivorous animals diminish in size in proportion to the diminution of flesh food in the animal's dietary; that is, the less
proportion of flesh he uses, the shorter and the less prominent are the canine teeth. The canines in the dog are thus much smaller than in the lion.

In the ape, in which the cuspid teeth, corresponding to the canines in the carnivora, are but little larger than the other teeth, it is found that flesh does not appear in the dietary, the animal subsisting wholly upon fruits, grains, and nuts. In man, the cuspids are still smaller, even, than in the ape, which indicates that his dietary is still more decidedly frugivorous in character, not only meat, but also the coarser vegetables and perhaps raw grains, being excluded. It is clearly evident that the cuspid teeth of man could afford no service whatever in tearing the raw flesh of animals.

That the cuspid teeth do not thus indicate a flesh dietary, either in whole or in part, is further shown by the presence of so-called cuspids in purely herbivorous animals, as in the stag, the camel, and the so-called "bridle teeth" of the horse.

From the foregoing it is clearly evident that the dictum of science and nature as presented in man's anatomical structure, is most unequivocally in favor of a non-flesh dietary. This fact might be emphasized by many other anatomical evidences, but the proofs presented are so overwhelmingly convincing that it is not necessary to devote further space to this phase of the argument.

THE TESTIMONY OF PHYSIOLOGY RESPECTING THE NATURAL DIETARY OF MAN.

As function is based upon structure,—that is, since the activity of an organ depends upon its anatomical construction,—it is evident that we may reasonably expect to find the testimony of physiological facts in
perfect accord with what we have seen to be the incontrovertible evidence offered by the structure of the human body when compared with that of other animals.

In this section we shall especially consider the following functions in their bearing upon the question under consideration:

1. Digestion, including prehension, or the act of taking food; mastication; salivary digestion; gastric digestion; intestinal digestion.
2. The excretions.
3. Other poisons.

**Prehension.** The act of taking food, or prehension, the first act of nutrition, is closely related to the character of the food material. For example, herbivorous animals simply walk about and take their food precisely as nature has made it for them. They find a table spread before them, so to speak, in the fertile plain and in the forest.

The carnivorous animal, on the other hand, takes its food by violence, suddenly springing upon some defenseless or unresisting beast, by preference a vegetable-eating animal, and tearing it in pieces with its sharp claws and teeth.

The frugivorous animal uses that wonderful organ, the hand, to pluck its food, which it finds in the form of fruits and nuts, prepared for its immediate use so long as it adheres to a strictly natural dietary. Man appears to be about the only creature which has departed from the natural bill of fare indicated by its structure.

**Mastication.** The process of chewing food, the first of the active processes of digestion, is also characteristic of each class of animals. In the herbivora, as the ox, the movements of the jaws in mastication are very free. There are three distinct motions,— the vertical, the lateral or sidewise, and a movement forward and
backward. By this means the large grinding teeth can be used in a most effective manner in reducing to a pulpy mass the twigs and coarse herbage upon which this class of animals feeds.

Carnivorous animals, on the other hand, are able to move their jaws in only one direction. The jaws open and shut like a pair of scissors, so that the animal eats with a chopping movement, hatcheling its food by means of the trenchant or saw-shaped surfaces of its molars, after having first reduced it to coarse fragments by means of its claws and tearing teeth. The carnivora do not, in a proper sense, masticate or grind their food. They simply shred it to a slight extent, then send it to the stomach to be acted upon by the powerful gastric juice with which nature has provided this class of animals.

In the frugivorous animal the movements of mastication are of three kinds, as in the herbivorous, though the latitude of the movement is not quite so great. The teeth and jaws are by their structure admirably adapted to grinding and reducing to a soft, pasty mass the food substances upon which the animal naturally feeds; viz., fruits, nuts, and soft grains.

We find in man, organs of mastication and masticatory movements corresponding exactly to those in the higher apes, the orang-outang, the chimpanzee, and the gorilla.

Man and herbivorous animals drink by drawing the liquid into the mouth by suction; carnivorous animals take their liquid by lapping.

**The Saliva.** Herivorous animals secrete a large amount of diluted saliva, which appears to be useful chiefly as a means of macerating the coarse foodstuffs upon which these animals subsist.

In the carnivora, as, for example, the dog, the salivary glands are small, and the amount of saliva secreted
is scanty. The saliva, also, has comparatively little activity in the digestion of starch, its most important function in the frugivorous class.

In frugivorous animals the salivary glands, while not so large as in the herbivora, are well developed, being much larger than in the carnivora, and are very active in the formation of a saliva which is highly effective in character, and capable of rapidly converting starch into a form of sugar known as maltose.

The stomach in herbivorous animals is an exceedingly complicated organ, consisting of four distinct parts, or compartments. The process of digestion is very slow, as might naturally be expected from the fact that the alimentary canal is, in this class of animals, often from twenty to thirty times as long as the body.

In the carnivora the stomach is simple and the alimentary canal short. The substances on which carnivorous animals subsist are almost identical in character, and are generally readily dissolved by the powerful gastric juice with which these animals are provided.

Another property possessed in a high degree by the gastric juice of carnivorous animals is its antiseptic or germicidal element. When exposed to conditions of warmth and moisture, flesh, whether that of mammals, birds, or fish, readily decomposes or decays, giving rise to poisonous substances of the most offensive character. The gastric juice of the dog is capable of preventing this putrefactive change while the food is undergoing the process of stomach digestion. That such changes occur later, however, while the food residue is lying in the colon previous to expulsion from the body, is evidenced by the extraordinarily offensive character of the fecal matters of this class of animals.
In frugivorous animals the structure of the stomach, while less complicated than in the herbivora, is somewhat less simple than in carnivorous animals, being evidently adapted to food requiring a longer time for the extraction of its nutritive elements. The gastric juice provided by the stomach of the frugivora is less powerfully active than that of the carnivora, and less highly antiseptic; consequently it is less adapted to the digestion of such food substances as flesh, which is likely to undergo decay in the stomach, especially if taken in considerable quantities, and in which putrefactive processes are likely to be in progress when it is eaten. The stomach and gastric juice of the frugivora are, however, exactly adapted to the digestion of the foods that are natural to this class of animals. The farinaceous food substances, which are represented in the starchy seeds, or cereals, are best digested in a stomach in which the gastric juice is not too highly active and acid, for the reason that such acidity interferes with the digestive action of the saliva. This remark applies not only to starch when it has been cooked, but to other farinaceous substances, such as dextrin, in the form in which they are abundantly furnished in fruits, like the apple and the banana.

Intestinal Digestion.

The alimentary canal in herbivorous animals is not only very long, but is so constructed as to delay as much as possible, without actually obstructing, the movement of the intestinal contents along the canal, thus giving opportunity for complete digestion and absorption of the nutritive elements contained in the coarse material upon which these animals feed. This purpose is beautifully shown in the sacculated structure of the capacious colon of the ox and the sheep.
In carnivorous animals the alimentary canal is not only short,—only three or four times the length of the body,—but smooth also. By this arrangement the movement of the readily soluble and decomposable food substances along the canal is facilitated to the greatest possible extent.

In frugivorous animals, including man, the alimentary canal, although three or four times as long as in the carnivorous, is less than half the proportionate length found in the herbivorous, but, like the latter, is so formed as to delay to the necessary degree the movement of the alimentary mass, the colon being sacculated as in the herbivorous class. This fact alone is sufficient to condemn the use of flesh foods in any form by frugivorous animals, since the less active antiseptic and germicidal properties of the gastric juice in these animals render unsafe the long retention of such easily decomposable substances as flesh.

The liver of carnivorous animals is not only much larger in proportion to the size of the animal than in the other classes, but is also more highly developed, its five lobes being far more distinctly shown than in herbivorous and frugivorous animals.

The amount of bile secreted by the large, active liver of carnivorous animals is much greater than in either herbivorous or frugivorous animals. That the greater secretion of bile is due to flesh eating has been clearly shown by experiments made by Bouchard and other investigators. By means of a surgical operation, the bile duct in dogs has been made to discharge the secretion outside of the body in such a way that it could be collected, and the amount accurately measured. Such dogs have been fed upon various dietaries, and the amount of
bile carefully determined. When kept upon a meat diet, the quantity has been uniformly found to be increased fifty per cent. or more. In an operation for the removal of gall-stones, made by the writer several years ago, this influence of diet upon the secretion of bile was very clearly shown. Thus it appears that the use of a meat diet requires a far greater degree of activity on the part of the liver than any other diet. In carnivorous animals, this additional work is provided for by a larger and more perfectly constructed bile-making organ; but as such provision for the secretion has not been made in the case of man, it is evident that he was not intended to subsist upon a dietary requiring an excessive amount of work by the liver.

According to Landois and Sterling, the amount of uric acid excreted through the kidneys daily is 32.5 grains on a flesh diet, and from three to ten grains on a non-flesh diet. When we recognize the fact that uric acid is a product of imperfect nutrition, that it is the result of the flooding of the body with an excessive amount of nitrogenous waste substances; and when we take into account the further fact that uric acid has been shown to be, when taken in connection with other poisons which are always found present with it, one of the most active of all known disease-producing agents, the figures cited become exceedingly significant. If a meat diet increases the amount of uric acid found in the urine to from three to ten times the amount found when a pure natural dietary is used, it is evident that the question is well worth careful and earnest consideration.

In man, as in herbivorous animals,—the horse, the ox, etc.,—the skin perspires freely, while perspiration in dogs, cats, and other carnivorous animals is confined to the soles of the feet. In the case of the hog, an omnivorous animal, it is only the snout that perspires. In
this respect, as in the method of taking liquid substances into the alimentary canal, man closely resembles the herbivora, and is quite unlike the carnivora.

Other Poisons.

Succinamic acid, creatin, creatinin, and other poisons are increased in quantity in proportion to the increase of uric acid as the result of a flesh diet. As before remarked, the presence of these poisons in excess in the urine is evidence of their presence in excess in the body. It needs, then, no argument to impress the fact that the body of the flesh eater must be contaminated with tissue poisons to a much greater extent than that of an animal or a person subsisting upon a non-flesh diet. That this is really the case has been abundantly proved by numerous investigators. For example, Bouchard showed that the fecal matters of a person subsisting upon a mixed dietary were twice as poisonous as those of a person subsisting upon a non-flesh dietary. This fact accounts for the extraordinarily offensive character of the fecal discharges of all carnivorous animals, such as the cat or the dog, as compared with those of herbivorous animals, as the sheep or the rabbit.

Another fact that emphasizes this point is the strong odor which characterizes carnivorous animals. This odor is evidently due to the absorption of poisonous matters from the decomposing contents in the colons of these animals. The flesh of carnivorous animals is always strong and repulsive to the smell and taste. It is doubtless for this reason that carnivorous animals very rarely seize or destroy for food other carnivorous, or flesh-eating animals. A lion does not molest when alive, or eat when dead, other lions, panthers, leopards, or wildcats. The dog may catch and kill a cat, but he will not eat it. The flesh of hogs which have been fed upon flesh food is strong and offensive in flavor. No reason can be adduced for supposing that the flesh of human
beings does not, by the use of flesh food, become so tainted with the products of decay and other poisons which that flesh contains as to acquire the same obnoxious properties that render the flesh of all carnivorous animals offensive even to rapacious beasts of prey.

The fundamental difference between a plant and an animal is that the former has the ability, under the influence of light and the vital principle of organization, to store up energy by bringing together the inorganic elements of water, earth, and air into new combinations known as organized substances, such as starch, fat, sugar, albumen, and cellulose, or wood; these substances — the products of vegetable growth — are magazines of energy. Under proper conditions, they may be made to combine with oxygen in producing heat, which may, in turn, by the production of steam or otherwise, be converted into mechanical energy, and utilized to perform work, as in the pulling of a train, the running of a factory, the propelling of a steamship.

Animals differ from vegetables in that they are unable to store energy by combining the original elements into organic forms. They must take the stores of energy which have been collected by plants, and through the aid of digestion and assimilation transform them into similar substances, which are in turn converted into heat and energy in the human body. It is interesting to note that nearly all the energy utilized in the world in human industries, in the heating of homes, hotels, hospitals, is derived from the vegetable kingdom. This is the original source of our enormous coal-beds and deposits of coal-oil, as well as of other fuel of various kinds. The sunlight which shone ages ago, storing up energy in trees and other plants, we now see shining forth again in our oil and electric lamps.
Food substances sustain the very same relation to the human body that fuel does to the locomotive. They are the source of all the heat and energy manifested by it. In this respect the animal body differs from other machines only in the delicacy of its mechanism and in the more intricate series of processes by which the store of energy is utilized. The human body is the most economical of all known means of utilizing stored energy. The best engine is able to make use of only one sixth of the energy stored in coal, the remainder being lost as heat; whereas the human body uses one fifth of the energy found in food substances, consuming but four fifths as heat.

When fuel is consumed in a locomotive as the result of combustion, there are produced two classes of wastes; viz., gas products, which escape through the smoke-stack in the form of smoke, and solid wastes, which fall through the grate in the shape of ashes. So, likewise, in the human body, as the result of the combustion, or oxidation, of food which is constantly taking place, there are produced gaseous poisons which escape through the lungs and skin, corresponding to the smoke of the locomotive, and solid poisons, which, dissolved in water, escape through the excretory organs.

From the foregoing considerations, it must be apparent that animal substances are not properly foods, but mechanisms for consuming foods; for one animal to eat another animal in order to maintain life is exactly analogous to the consuming of one engine or force-utilizing machine by another. An engine might be constructed partly of combustible material, so that when burned, energy would be derived from it as well as from the fuel contained in it; but such fuel would evidently be of the most expensive kind, and at the same time of the very poorest quality, since it would contain more or
less incombustible and other material which had already been burned. When an animal makes use of another animal as food, it subjects itself to all these inconveniences. Flesh food contains, in common with vegetable foods, some non-usable material, but it especially contains quantities of poisonous substances resulting from force-expending processes, such as brain and nerve activity, muscle activity, heart and glandular activity. In fact, every vital process results in the production of poisonous or excretory substances.

In vegetable food-products we have a pure source of stored energies. In animal bodies we have only vegetables at second hand in process of oxidation or deterioration, going down the scale of organization, combined with poisonous substances which have resulted from the various forms of vital animal activity.

Plants build up; animals tear down. In the flesh of even a healthy animal is always present a large or small amount of broken-down products which are on their way out of the body as excretions naturally removed by the kidneys, the liver, the skin, and other organs. It is impossible, under the most favorable conditions, to eat flesh without taking these poisons along with it, unless, indeed, the flesh is first carefully washed.

By long washing, the waste matter which the flesh contains may be removed, leaving behind a tough, elastic substance, consisting of the tissue which was really alive before the death of the animal. Live tissue is not soluble in water. It is the waste matter resulting from tissue work that is soluble. The food material which is introduced into the body is stored up in the muscles, the liver, and other parts, in insoluble forms. If it were not for this, it would be unsafe for an animal to enter the water, as it would dissolve like a lump of sugar. Beef tea is simply a solution of the wastes and poisons left in the flesh after the death of an animal.
When an animal is killed by cutting its throat or sending a bullet through its brain, it does not instantly entirely die. It loses consciousness, its heart ceases to beat, its individual, or somatic life ends, but its tissues still continue to live—for several hours in the case of warm-blooded animals, for even days in the case of cold-blooded animals like the snake and the turtle. During the time which elapses between death, so called, and the actual death of the cells and tissues of the body, the activity of the living animal consumes the soluble food material which is in contact with these cells and tissues, at the same time continuing to produce the waste substances, which, during life, are rapidly removed from the body through the kidneys, lungs, and other excretory organs. The rate at which these substances are produced during life is so great that death ensues within a few minutes when the avenues through which they escape are closed; as, when respiration is interrupted by submergence in water or constriction of the throat, death in these cases occurring not by the simple absence of air, but by the accumulation of poisonous matter within the body, which destroys the activity of the living cells.

By the accumulation of these poisons after death the tissues are killed. During life the tissues are continually washed by a stream of pure blood, which not only bathes but feeds them, and at the same time gathers up the waste substances and carries them to the liver for distribution to the kidneys, lungs, and skin for elimination. When the heart ceases to beat, this cleansing process ceases, and the poisons which are ever forming at a rapid rate accumulate until the vital fluids are so saturated that every living structure is killed. The arteries continue to contract after death until all the blood which they contain is forced on into the tissues, and still farther
on into the veins, so that the flesh of a dead animal contains nothing but venous blood and poisonous juices, in addition to the organized tissues which have not yet been broken down.

**Beef Tea.** Beef tea has long been recognized as a stimulant. As such, it has been introduced into the British army as a substitute for whisky and other stimulating liquors. Its stimulative properties, however, are wholly due to the tissue poisons, or excretory substances, contained in it.

Dr. Haig has lately shown that uric acid and allied poisons, which are the chief constituents of meat juices, are stimulants in the popular sense, and produce, when administered, a feeling of well-being and exhilaration which is highly delusive in character, in this respect exactly resembling the effects of alcohol, which, though producing a sense of stimulation, actually lessens the power to work.

We have in this fact an explanation of the stimulating properties of meat, to which the great popularity of flesh food must be attributed, since, as is well known, the human appetite readily acquires a taste for stimulants of any sort. But this very property is a most important argument against its use, for the reason that stimulants do not impart force or energy, but only compel the nerve-centers to discharge to an abnormal and unsafe extent the energy which they hold in store. Pavey, the distinguished English physiologist, in his work on food and dietetics, quotes the following paragraph from Johnson's "Travels in Southern Abyssinia," as evidence of the stimulating and even intoxicating effects of the flesh of animals, which by these people is often eaten raw:

"Travelers who have witnessed their 'brunde' feasts can attest the intoxicating effects of this kind of food,
and they must have been astonished at the immense quantity that can be eaten in the raw state compared to that when the meat is cooked, and at the insensibility which it sometimes produces."

From these facts it is clearly evident that beef tea can in no sense be regarded as a food. It is simply a decoction of flesh, and contains the poisons and excretory products which are always present in raw meat.

Liebig's extract of beef and all similar preparations are pure stimulants. This fact was pointed out by Professor Liebig himself, who particularly stated that the preparation which has so long been known by his name must be regarded, not as a food, but as a stimulant, allied to tea and coffee.

In all living organisms, matter is present in three forms: (1) Living matter; (2) nutrient matter, or food; (3) waste matter, or dead and poisonous elements. The living matter is the working, active part of the organism; the nutrient matter is preparative material which the organism has taken in, but has not yet assimilated; the waste matter is the result of work. The waste products of vital activity are poisons, their presence interfering with the activity by which they are produced. In a normal animal the amount of waste matter produced each day is exactly equal to the amount of nutrient matter received.

In an animal suffering from rheumatism and many other phases of chronic disease, there is an excessive accumulation of waste matter, and when waste matter exceeds nutrient matter, disease of some sort always results, through the toxic or destructive influence of waste matter upon all the vital activities. This is well shown in the feeling of fatigue; the tired muscle is simply a poisoned muscle, waste matters having accumulated
faster than they have been removed, and the muscle is poisoned,—paralyzed. A weary brain is in the same condition.

In the vegetable the amount of waste matter present is exceedingly small, while the amount of nutrient matter is enormous, compared with the waste matter,—infinitely greater, in fact, at least in all those substances which we call foods. This is due to the fact, already pointed out, that the animal is an engine for consuming energy in the form of nutrient material, whereas it is the function of the vegetable to store up nutrient material for use by the animal.

When an animal eats vegetable food, it adds to its store of nutrient matter without increasing the proportion of waste or dead matter. When, however, one animal eats the flesh of another animal, it not only adds to its store of nutrient material, but at the same time increases the proportion of waste matter by adding to its own that of the animal eaten.

From these facts it is apparent that it is impossible for one animal to subsist upon another animal without increasing the amount of waste matters in its own tissues. It is for this reason, in part at least, that physicians invariably forbid the use of meat by fever patients. Flesh foods can not be eaten without increasing the amount of waste matter beyond the normal proportion. Dr. Haig has shown that by using flesh food in the ordinary way, in connection with other foods, one may easily store up two or three grains of uric acid in a day, or nearly half the amount ordinarily eliminated with a natural dietary. The sure result of such an accumulation is grave disease sooner or later, and premature decay and death.
In infancy, nutrient matter predominates over waste matter, for the reason that at this period of life development, or building up of the body, is actively taking place. In old age there is deficient elimination of waste substances, and this accumulation of wastes is really the cause of the degeneration of the arteries and other organs which is characteristic of old age, and to which its infirmities, and the disorders to which aged persons are subject, are chiefly attributable.

The Animal Body a Factory of Poisons.

The researches of Liebig, Lehmann, Claude-Bernard, and especially those of Brieger, Gautier, and other recent explorers in the mine of physiological chemistry, have developed a vast fund of novel and interesting facts which have a most important bearing upon practical dietetics, and especially upon the question of the consumption of animal flesh as food. As the result of these laborious and painstaking laboratory studies, a remarkable fact has been developed,—that the animal body is a manufactory of poisons. The production of CO$_2$, urea, and a few other poisons, has long been known, and the modes of their production and elimination have been carefully studied; but it has remained for the present generation of physiological chemists to discover the fact that the poisons named, and others which have long been known, are comparatively non-toxic and harmless when contrasted with any one of a multitude of newly discovered bodies which are found to pervade the tissues of all classes of animals.

Brown-Sequard discovered, many years ago, in the breath of human beings and other animals, a poison which in the most minute doses produces deadly effects upon lower animals, a fact which I saw experimentally demonstrated by him in his laboratory in Paris a few years ago.
Bouchard, another French physiologist and chemist, has within a few years demonstrated in the urinary secretions of human beings, as well as in those of lower animals, the existence of half a dozen most deadly poisons in addition to the urea, uric acid, and other less toxic bodies previously known. One of the poisons in most minute doses produces death with violent spasms; another causes rapid fall of temperature until death occurs; another influences animal temperature in the opposite direction; still another produces death with most profound coma. These substances are so small in quantity that they are not discoverable by any of the means employed in ordinary chemical analysis of the urine, but their presence and deadly properties are quickly demonstrated, as shown by Bouchard, by the injection of a small quantity of urine into the veins of a rabbit or other small animal.

The Study of Tissue Poisons.

As Bouchard and other investigators have clearly shown, the urine may be considered as an extract of the tissues, constituting the residuum resulting from the vital work of the body. The kidneys do not manufacture poisons de novo, but simply separate from the blood, poisons found in solution therein, which have been washed by the blood current from the tissues which it bathes in passing through the capillary network of the systemic circulation. Taking this fact for a starting-point, Bouchard has formulated a new method of investigating the poison-making and poison-eliminating functions of the body. The method consists of the following procedure:

The person or animal to be studied is carefully weighed, and the urine is collected for twenty-four hours, accurately measured, rendered neutral, and filtered. A live rabbit is provided and carefully weighed. By means of a suitable injecting-apparatus the prepared urine is
slowly introduced into one of the veins of the ear of the rabbit until the animal dies. The symptoms produced are carefully noted in the order of their occurrence, and also the exact amount of urine required to produce death. The symptoms observed give a clue to the nature of the poison which is dominant in the urine, and consequently in the tissues of the person or animal investigated.

A great number of exceedingly interesting facts have been discovered through this method of investigating urinary and tissue toxicity, although the method has thus far been employed only in special laboratories fitted up for physiological investigations.

In his investigations of the toxicity, or poisonous property, of the urine, Bouchard noted that the use of a flesh diet increased urinary toxicity—that is, the amount of urine required to kill a rabbit of a given weight—more than fifty per cent. Further investigations made in other laboratories have since shown that in a person subsisting upon a purely flesh diet the toxicity may be increased to fourfold the normal amount.

In consumption, typhoid fever, diphtheria, scarlet fever, pneumonia, cholera, and other infectious maladies, the patient is suffering from an invasion of the body by germs producing highly poisonous substances, to which the symptoms characteristic of the particular disease from which the patient may be suffering, are due.

Among the most interesting results of recent investigations on this subject is the discovery of the fact that in all infectious or contagious diseases accompanied by systemic disturbances, there are produced specific poisons resulting from the activity of the special microbes which constitute the exciting cause of the disorder. So long as these poisons are rapidly
eliminated from the body, the case progresses favorably; but when the kidneys fail to do their work of elimination, dangerous or fatal symptoms appear. In the early stage of pneumonia, for example, the toxicity of the urine is very greatly diminished, because of the failure of the kidneys to eliminate in proper quantity either the specific poison of this disease or those ordinarily produced in the tissues. When the crisis of the disease is passed, however, if the case progresses favorably, the toxicity of the urine is found for a short time to be five times as great as in the early stages of the disease.

The poisons produced in the diseased tissues have been shown to be, in some cases at least, derived from less toxic substances normally produced within the tissues. Griffiths, of Edinburgh, has recently discovered that an extremely poisonous substance found in the urine in scarlet fever and diphtheria is derived from creatin, a very much less poisonous substance normally produced in the tissues and always present in the flesh of animals. Klebs, another eminent investigator, has shown that the poison produced in cholera morbus, to which the peculiar symptoms of this disease are due, is derived from guanidin, a slightly toxic substance found in the body.

It may be mentioned in passing, that in view of these facts the administration of flesh food, beef tea, or animal broths of any sort in cases of diphtheria and scarlet fever, is practically equivalent to administering a dose of poison, as these substances always contain a great quantity of creatinin and guanidin, which are converted into the most deadly poisons by the specific germs present in these diseases.
Pasteur and his students have shown that at least thirty or forty different species, and perhaps a much larger variety, of microbes are to be found in the human alimentary canal. Here they are constantly producing in greater or less quantities the poisons characteristic of each species when the conditions are favorable. It has been found by experiment with these germs outside of the body that those that are the most dangerous and deadly to human life grow with the greatest rapidity in beef tea and other preparations of animal tissues. It is this fact that gives rise to the peculiar offensiveness of decomposing processes in animal products, especially the tissues of animals, as compared with the same processes in vegetable products. Compare, for example, the processes of decay in the apple, peach, or a loaf of bread, with those in birds, fish, a piece of beefsteak, or an oyster. That the same thing is true respecting these processes within the human body is shown by the peculiar and extraordinary offensiveness of the feces of a carnivorous animal, as a dog or a cat, when compared with the excreta of a herbivorous animal, as a cow or a horse. If the excreta of a cow or a horse were as obnoxious and offensive as that of a dog, a stable or a dairy as ordinarily kept would be absolutely unendurable in proximity to human dwellings.

A diet which gives rise to fecal matters so offensive as those of a carnivorous animal or carnivorous man must be a prolific source of blood and tissue contamination from the absorption of these toxic and poisonous products. Evidence of this tissue poisoning is to be found in the strong odor of carnivorous animals as well as in the strong odor of the fecal matters of this class of animals. The flesh of vegetable-eating animals becomes strong and unpalatable when they are fed upon flesh food.
Still another source of contamination of the tissues with poisonous ptomains through the food supply, is decomposition taking place in the food before it has been introduced into the body, as in the case of old cheese, and especially flesh in which decomposition has begun.

Dr. Segri Trombetta has recently shown by an extensive series of carefully conducted experiments, that putrefaction begins in animals within twenty-four hours after the death of the animal, even when the carcass is placed in an ice-chest. If left exposed to the air at the ordinary temperature, putrefaction begins within six or eight hours after death, or practically as soon as the tissues are thoroughly and completely dead, which is indicated by the presence of rigor mortis. That great quantities of food are swallowed by human beings in a very advanced stage of decomposition is evidenced by the distinct taint possessed by the greater portion of beef-steak offered for sale in the markets, the haut-gout of which is much esteemed by gourmets. I was informed several years ago by the manager of one of the largest abattoirs in Chicago that the so-called “Christmas” beef sold by that establishment was always kept three months before being offered for sale. The amount of ptomains present in such food can be easily imagined.

The undressed game often seen in the markets is frequently so far advanced in decomposition as to be stained green or blue by putrefactive products.

Brieger has shown that the livers of oysters and other shell-fish always contain, and sometimes in notable quantities, a poison which he has termed mytilotoxin. It is this poison which often gives rise to acute and fatal illness from the eating of shell-fish. Some persons are so susceptible to this poison that they can never eat shell-fish without suffering serious consequences.
Sometimes, also, the tissues of animals contain specific poisons in addition to those referred to in consequence of disease from which the animals were suffering at the time of death, as in cases of lumpy-jaw disease and tuberculosis.

In view of the above facts the inquiry may arise: How is it possible for human beings to live at all, especially those who consume flesh food? The answer is to be found in the fact that nature has supplied us with remarkable means of defense against both microbes and their poisonous products.

The body defends itself against germs by means of the germ-destroying activity of certain of its cells. The white blood-corpuscles, by means of a property termed phagocytosis, are able to capture germs found in the blood, and destroy them. This property is also possessed to a high degree by giant cells found in various parts of the body. It is upon the activity of these cells that we especially depend for protection against the myriad of microbes which invade the alimentary canal. It has recently been determined, also, that the blood serum possesses the power to destroy microbes in a very remarkable degree.

The poisons produced by microbes, and to a great extent those produced in the body itself, are destroyed by the liver. This poison-destroying property is, indeed, one of the chief functions of the liver. Bouchard and other investigators have shown that an animal deprived of the influence of the liver requires only half as large a dose of strychnia, nicotin, and other poisons, to produce death, as is required when the liver is intact. This poison-destroying property of the liver is found to depend upon the glycogen, or liver starch, contained in its cells. When glycogen is absent, the protective power of the
liver is lost. It is for this reason that a poison or a toxic drug administered when the stomach is empty, is much more powerful in its effect than when administered after a meal, twice as large a dose being required after a meal as before.

The significance of these facts in relation to vegetarianism is apparent when we consider that the germ-destroying activity of cells and of the blood serum, and the poison-destroying property of the liver are not unlimited. The blood cells, the intestinal phagocytes, and the blood serum can destroy a certain number of germs, but an indefinite number overpowers them. It is unquestionably true that the juices of flesh, and also the poisons produced in flesh undergoing putrefaction, paralyze the white cells of the blood and other of the classes of cells upon which the defenses of the body depend, rendering them incapable of exercising their most essential function in the destruction of germs and germ-poisons.

That the meat extractives, or waste matters, which constitute the whole substance of so-called beef extracts, are poisonous in character, has been demonstrated scientifically in a variety of ways. The following facts afford incontestable evidence that these substances are highly poisonous, and from their very nature necessarily productive of endless mischief when introduced into the vital domain:

Physiologists sometimes, for experimental purposes, separate from its bony attachments one of the muscles of a frog’s leg, and arrange it in such a manner in connection with a battery and a suitable device that by a repetition of electric shocks the muscle may be made to contract and lift a small weight. After being thus made to work for a longer or shorter period, the muscle becomes fatigued
to such a degree that it no longer contracts in response to the electric stimulus. This is shown to be due to the accumulation of the waste matters of which mention has been made. If at this point the muscle is washed with a weak saline solution, it at once recovers its ability to work. If now a fresh muscle be thus prepared, and strong beef tea or solution of beef extract applied to it, the muscle at once becomes exhausted or unable to contract, the same as if it had been working for a long time, but without having done any work whatever. The reason for this is that the beef tea or beef extract is simply a solution of the same poisons which are developed in the muscles by work, and to the paralyzing effect of which its fatigue and inability to contract are due.

In experiments which have been made by Horsley and others, it was found that when portions of the skull of a monkey were removed, exposing the brain by application of electricity to certain portions, there was induced contraction of the muscles of remote parts, as the legs, the arms, etc. It was observed, however, that if a solution of beef extract is applied to a brain thus exposed, it at once loses its power to contract, this being due to the poisonous and paralyzing effects of the waste matters of which the beef extract consists. The brain is, in other words, by the application of these substances, brought into the same condition which is induced by prolonged and severe mental effort or mental exhaustion.

By the injection of the fluid obtained by compressing a piece of beefsteak, or so-called beef-juice, into the veins of a rabbit, it has been proved to be highly deadly in character. The quantity of beef-juice required to kill a rabbit of given weight is less than the amount of urine required to produce the same effect.
In the series of experiments in which this fact was demonstrated, comparison was made between beef-juice and the juice obtained from the lean muscle of a dog, for the purpose of determining the comparative amount of poisonous matter contained in each. On natural grounds, it would be expected that the tissues of an animal fed upon flesh would contain a larger proportion of these tissue poisons than those of an animal deriving its food from the vegetable kingdom, since in the former case, the animal, by subsisting upon flesh, adds to the poisons which are in his own body those which have been generated in the body of the animal upon which it feeds. The results of the experiments referred to fully confirm the correctness of this theoretical conclusion: it was found that the tissue juice obtained from the flesh of a dog was twice as poisonous as that obtained from ox flesh; in other words, it required twice as much beef-juice to kill an animal of given weight as the juice obtained from the flesh of a dog.

From these facts there is no escaping the conclusion that the human being who subsists upon flesh food contaminates his tissues with poisonous matters, the effect of which must be to lessen activity of thought and endurance of muscle, to impose an extra amount of labor upon the excretory organs, especially the liver and kidneys, to render the blood and tissue juices impure, and thus to deteriorate all the vital processes of the body.

**DISEASES RESULTING FROM THE USE OF FLESH FOODS.**

Enormous sums are annually expended by state and city governments in all civilized countries for the purpose of preventing disease. No expense is spared to secure an abundant supply of pure water. Great attention is given to the suppression of coal-smoke, fumes from
chemical works, and the odors arising from decomposing animal and vegetable matter, sewer-gas, and other sources of air contamination. A government inspector takes care to see that the beer and whisky manufactured is up to the standard. But in many countries, especially in the United States, little or no attention is given to the fact that in the use of the flesh of animals as food, far greater risk of infection is incurred than in any other way.

If a leper is known to exist in a community, and his whereabouts are learned, he will be avoided with the most scrupulous care. Those whose business compels them to pass through the street on which he lives will take care to ‘‘pass by on the other side;’’ and yet these same persons will swallow without question the flesh of dead animals which were never inspected, either when alive or after death, notwithstanding the assertion of Professor Gamgee, the eminent English sanitarian, that disease among animals has become ‘‘so common that at least one fifth of the meat which is sold in the public markets is diseased.’’ In a number of European countries, animals are inspected with great care before killing, and their dead carcasses are examined afterward, yet this examination is so superficial that it is generally admitted by sanitarians that the amount of diseased and unwholesome meat seized and condemned, constitutes but a very small fraction of that sold and eaten.

In the great markets of London more than four hundred tons of meat are sold daily. The report of the inspector shows nearly a thousand tons of diseased meat condemned annually, but the amount eaten is doubtless far greater than this. The Romans required inspection of all meat offered for sale, and the Jews have from the time of Moses made a very careful inspection of animals used for food, both before and after death. All
orthodox Jews still observe the ancient laws in this particular, and absolutely refuse to eat flesh which has not first been examined by a "bodek." A learned Jew who had acted in the capacity of "bodek" for many years in Chicago, stated to the writer some years ago that he was compelled to condemn fully nineteen out of every twenty animals which he subjected to examination. The condemned animals were of course sold to the general public.

In view of the great care that is taken to prevent the extension of such infectious diseases as smallpox and scarlet fever, it is certainly singular that greater pains is not taken to prevent the consumption of diseased animals as human food, since it must be apparent that the taking into the body of infected flesh must be the most effective possible means of infection. Nevertheless, we have no particular plea to make in favor of inspection, as there is no method of inspection whereby the consumption of diseased flesh can be altogether prevented. While jaundice, fever, tuberculosis, and a few other maladies leave behind them evidences of disease sufficient to condemn the flesh of an animal which has suffered from one of these maladies, there are numerous other diseases which are so subtle and inconspicuous in character that they may be easily overlooked. Indeed, there are maladies arising from the use of flesh against which the most critical chemical investigation and the most careful microscopical examination would be no protection.

A Deadly Alliance. The association and relationship existing between human beings and the so-called food animals is such as to tend in the highest degree to the development of disease in both. Most domestic animals are subject to many of the diseases from which human beings suffer. The reverse is also true. By means of the intimate association
between man and the domestic animals and the artificial conditions of life to which the poor brutes are exposed in fattening and otherwise preparing them for consumption as food, the best possible opportunity is offered for an interchange of maladies; that is, man communicates disease to the lower animals, and they, in turn, communicate to him either the same disease or others of equally grave character. In other instances, as in the case of tapeworm, the relation existing is such that this association between man and the lower animals is a necessary condition for the perpetuation of disease, each animal playing its part in the development of the parasite and the completion of its life history. In the case of the disease named, both men and animals would cease to suffer if the flesh of animals were no longer used as food.

The diseases resulting from the use of flesh food may be divided into several classes: —

1. Those which are directly communicable, as parasitic diseases and diseases due to specific germs.
2. Those which result from the use of decomposing flesh or fish.
3. Those which result from the use of the flesh of healthy animals.

We will briefly consider each of these classes of disorders, and the specific causes that give rise to them: —

**Tapeworm.** There are many varieties of tapeworm, some of which inhabit the human body, others being found only in the bodies of lower animals. Of the few parasites to which human beings are subject, most are derived from the use of infected meat. This fact is so well known at the present time that it is not even necessary to quote authority for its support. The tapeworm does not inhabit the stomach, as is generally supposed, but the small intestine, in which the animal sometimes grows to enormous length. The parasite is
made up of short sections, each of which is provided with means for holding on to the walls of the mucous membrane. Each section of the worm is continually throwing off eggs, which, finding their way through sewers into streams, are swallowed by cattle and other domestic animals. In the bodies of some of these animals the young tapeworms develop active embryos, which work their way into the blood-vessels, and are by this means distributed throughout the body. Reaching the muscles, they become established, and undergo further development. Beef or pork which contains these cysts, or tapeworm embryos, is said to be "measly." When measly flesh is eaten, the cyst walls are digested off by the gastric juice, and the embryo is set free; passing into the intestine, it fastens itself to the mucous membrane, where it commences rapid growth, and produces all the distressing and inconvenient symptoms arising from the presence of the parasite in the alimentary canal.

Contrary to the general supposition, as pointed out by Dr. Leidy, the famous Philadelphia anatomist, the tapeworm is, in the great majority of cases, derived from the use of raw or underdone beef. In only about one tenth of the cases is the disease derived from pork.

From this brief sketch of the natural history of the tapeworm parasite, it is apparent that the use of flesh food by man and the intimate association of men and domestic animals afford the best possible opportunity for the perpetuation of this disease. A person who carries about with him a tapeworm is continually throwing off into sewers and similar places immense numbers of tapeworm eggs. When these sewers empty into rivers and other bodies of water, the water becomes infected. Cattle, hogs, and other animals drink the water, and the use of their flesh by men becomes a mode by which the
disease is rapidly dispersed over a large territory. When it is understood that every human being having a tape-worm may discharge from his body daily many thousands or even millions of tapeworm eggs, each of which is capable of giving rise to tapeworm in another human being, it no longer remains a matter of surprise that the disease is so rapidly spreading at the present time. The writer has encountered a number of cases of tapeworm infection in which the history of the case showed very clearly that the parasite was derived from the use of slightly cooked scraped beef.

Tapeworm in Fish. Some years ago the secretary of the Michigan State Board of Health received from a correspondent of the board two fishes (bass) containing parasites of some sort. Accompanying the fishes was a request for an opinion as to whether or not they were dangerous to public health in consequence of parasitic infection. Professor Cook, of the Michigan Agricultural College, made an examination of the parasites, and reported as follows:

"This is the cysticercus stage, or encysted form, of the tapeworm, probably the *bothriocephalus latus*, but we can not tell from this stage. That is the broad tapeworm of man, and it works in fish. Such fish should be well cooked." (Cooked tapeworm is a harmless diet.)

The popular idea that fish are safe from infection is thus shown to be false. As a matter of fact, fish are more exposed to infection than almost any other class of animals, especially those living in rivers receiving the sewage of towns or cities. The water of such streams invariably contains great numbers of eggs and living embryos of various parasites which infest the alimentary canal of human beings. By eating these eggs, or embryos, fish as well as other animals may be contaminated. A New York naturalist some years ago made a careful
study of the fish of New York harbor; he found more than fourteen varieties of parasites affecting fish in that locality alone.

From the rate at which the tapeworm infection is at present extending, it would seem likely that the time is not far distant when people of civilized countries will be in the situation of the dogs of Iceland,—every dog has his tapeworm. These parasites are, in fact, becoming so common that there are specialists who devote themselves entirely to the business of removing tapeworms, publishing their advertisements in the newspapers under such headings as, "I kill tapeworms;" "Tapeworms extracted, the head guaranteed," etc. The only safety for those who object to furnishing free board and lodging for these offensive parasites, is to abstain altogether from the use of flesh food.

**The Deadly Trichina.**

This parasite, first discovered in the human body in a German medical institution about half a century ago, has become now so wide-spread and so well known that a description of it is scarcely necessary. It is more than probable that the majority of cases of trichinosis are never recognized as such. In its symptoms the disease so closely resembles cerebro-spinal meningitis, muscular rheumatism, winter cholera, and other maladies, that it is very likely to be overlooked.

This disease is almost universally contracted by the use of lean pork, most commonly in the form of ham and sausage, although within the last few years instances have been reported in which trichinae have been found in fish and fowls. In its natural history the trichina somewhat resembles the tapeworm. In flesh infected with trichinae, the parasites will be found enclosed in small cysts. The cyst walls are dissolved by the gastric juice when the flesh is eaten, and the parasite is thus set free.
It soon develops numerous young parasites, and these quickly bore their way into the blood-vessels, in which they are swept along by the blood to the muscles. Here they lodge, becoming encysted in little capsules, where they may remain in a quiescent state for years, giving rise in some cases to no further inconvenience than rheumatic or neuralgic muscular pains. In severe cases, however, other symptoms arise, such as purging and vomiting, set up by the irritation of the millions of parasites boring their way through the intestinal walls. During the migration of the parasites through the body, the patient suffers from fever, severe muscular pains, perhaps cramps or spasms, and other symptoms resembling rheumatism, spinal meningitis, and other maladies.

Not infrequently many scores of persons have been made sick simultaneously by the consumption of pork in the form of ham sandwiches or sausages on the occasion of some great feast. The infection of American pork by this parasite has become so general and so well known that at present it is forbidden entrance to several important European countries until first thoroughly inspected. In order that the great pork industry might not suffer, the government has established an inspection service in connection with the great pork-packing establishments of our large cities, by the aid of which an attempt is made to have a microscopical inspection of every slaughtered hog before preparing the same for shipment to European markets. Strange to say, however, no such protection has ever been proposed for the benefit of the American people. At least there exists no established system of inspection by means of which the public may be protected. When we remember that the disease is incurable, and that the parasites, when once they have obtained a foothold in the system, can never be ejected, the gravity of the danger to which the public is continually exposed
will be appreciated. The public is constantly advised, through the newspapers, works on dietetics, and other writings, to avoid the use of raw pork because of the imminent risk of trichina poisoning. The government inspectors admit a finding of two per cent. of trichinous hogs; and Dr. Sutton, of Indiana, reported, some years ago, a proportion of ten per cent. What becomes of the infected pigs?—They are eaten by American citizens! Germany, France, and even Spain protect their citizens from trichinous American pork, but Americans are expected to look out for themselves.

Certainly it is safer to eat cooked trichinae than to swallow the parasite alive, but the only wholly wise and reasonable course is to discard the use of pork altogether, as a food utterly unfit for human consumption. The hog is by nature a scavenger, and should be allowed to pursue unmolested his divinely appointed calling.

A brief history of trichinae has been said to be the following: Rats sometimes visit death houses and cemeteries, and thus become infected with trichinae. The rat, after a time, dies of infection. A hog eats the rat, and thus in turn becomes infected with trichinae. A man kills the hog, eats him, and he also suffers the penalty of his crime by trichina infection. Thus one scavenger eats another, and so passes the trichinae around.

While it is probable that tuberculosis is more frequently communicated by the use of milk of tuberculous cows than by eating the flesh of these animals, it is nevertheless a fact that numerous cases of tuberculosis have been reported in which the infection could be directly traced to the use of the flesh of tuberculous animals, Sheep, as well as larger cattle, are subject to this disease,
and also swine and poultry. In one instance reported a few years ago, the bodies of tuberculous cows were fed to swine. The swine were afterward eaten, and several of those who partook of their flesh became tuberculous. In a similar way, chickens became tuberculous by eating the flesh of cows that had been killed by order of the government inspector because of tubercular infection. The chickens, in turn, communicated the disease to several persons by whom they were eaten. Tuberculosis of the throat, stomach, and intestines is the form of the disease which most commonly occurs from the use of tuberculous flesh.

There is reason to believe that a large number of tuberculous cattle are killed and eaten in our large cities annually, and many more are doubtless consumed in small towns and villages, where there is no inspection. Experiments have shown that the germs are not destroyed by the process of salting, smoking, etc., ordinarily employed for the preservation of meat.

There is no direct evidence that typhoid fever can be contracted by the use of the flesh of warm-blooded animals, but it has been for some years perfectly well known that the oyster is a frequent means of communicating this disease. Numerous epidemics of typhoid fever in France, England, and the United States have been traced to the use of oysters. The bacteriological investigations made by Chantemesse, Cohn, and others have shown that typhoid fever germs, when placed in water containing oysters, are quickly taken up by them and retain their vitality in the stomach and other portions of the alimentary canal of the animal for several weeks. The fact that these animals live upon filth, their office in the world being that of scavengers, ought to be sufficient to condemn their use by human
beings. But man has by the perversion of his appetite descended so low in the scale in his eating habits that he has finally come to be the great scavenger of scavengers, counting among his greatest dietetic delicacies, on the one hand, the oyster, the scavenger of the seas, and on the other, the pig, the king of quadrupedal scavengers. The author is in full sympathy with the anonymous poet who wrote:

"That man must had a palate covered o'er
With brass or steel who on the rocky shore
First broke the oozy oyster’s pearly coat,
And risked the slimy morsel down his throat."

Dr. Segers, of Buenos Ayres, in 1895 called attention to the fact that disease resulting from the use of oysters is so prevalent among the natives of Terra del Fuego that the extinction of the race is threatened thereby. Outbreaks of typhoid fever contracted from oysters have been reported from Naples, Dublin, and numerous other places. In the month of October, 1894, twelve students of the Wesleyan University, Middletown, Conn., were attacked with typhoid fever as the result of eating oysters at a college banquet.

The custom of eating oysters must be a relic of savagery. It is hardly conceivable that the practice could have originated otherwise than in a time of famine, when no other food was obtainable.

The exposure to the danger of contracting typhoid fever, as well as other maladies, in the use of oysters, has within the last three or four years, according to the British Medical Journal, diminished the consumption of oysters in England more than two thirds, as the result of which the oyster dealers have been led to petition Parliament for an oyster inspection service, but it is scarcely probable that either the British government or any other government will undertake to carry on a
system of inspection likely to afford any degree of pro-
tection to lovers of the bivalve. To look at every
oyster's tongue, to feel his pulse, take his temperature,
or subject him to any other examination which would
determine certainly whether or not he had been infected
by typhoid fever germs, is a task evidently too Hercu-
lean for even so great a bureaucracy as the English gov-
ernment.

Cooked typhoid fever germs are not likely to give rise
to typhoid fever, but they must certainly be regarded as
not the most appetizing of viands. Would it not be
better for the scavenger oyster to pursue the even tenor
of his way unmolested? He does a useful work in con-
suming the ooze and slime of the ocean bottom, eating
up the disease germs that find their way into the water
through sewers and otherwise, laboring as a sort of san-
tary policeman, to clean up the ocean bottom and prevent
its waters from becoming stagnant and unwholesome.

A disease closely resembling the malady
known as hog cholera in swine has been
observed in human beings as the result of
the use of lard obtained from the bodies of hogs that
have been killed while suffering from this disease. Such
a case was reported a few years ago to the Michigan
State Board of Health, and the examination of the lard
showed the germs of hog cholera to be present in great
numbers. It is noticeable that whenever this disease
breaks out in a community, great numbers of hogs are
immediately hurried off to the nearest live-stock market,
so that the butcher may be able, if possible, to get the
start of nature by a day or two. Thus many thousands
of carcasses of diseased animals are, to use the pungent
words of a prominent English health officer, "annually
buried in the catacombs of the human stomach." The
stomach is a poor place in which to bury dead animals of
any kind, and certainly the unwisdom of making the stomach a grave for the carcass of a sick beast is too apparent to require further emphasis.

Other parasites and various other maladies have been pointed out from time to time, which may be communicated to human beings by using the flesh of animals as food. Nothing is plainer than that in the association of human beings and domestic animals for the purpose of rearing the latter for food, the conditions are such as naturally tend to increase disease in both. Indeed, no more ingenious scheme for weakening and ultimately exterminating the human race could be devised than that which is in almost universal operation among civilized human beings. Human beings and lower animals, being more or less subject to similar maladies, live together in such association as leads to the communication of disease from one to the other, and its propagation, both through contact or infection, and, in the case of man, by the actual swallowing of the carcasses of diseased animals. Man invites such diseases as tuberculosis and typhoid fever by his artificial modes of life; then, after communicating these diseases and others to the lower animals that he maintains about him in friendly association, he turns upon, slays, and eats the animal that he has previously infected.

Meat Eating a Cause of Decay of the Teeth. The rapid decay of the teeth among civilized nations is both a consequence and a cause of the race deterioration that is at present going on with such rapidity, and is an evidence of the constitutional failure that lies at the bottom of all structural degeneration. That flesh eating is a most active cause of decay of the teeth no one at all acquainted with the facts will deny. The fibers of lean flesh retained between the teeth undergo decay, harboring and encouraging the development of the germs that produce decay of the teeth.
Thus it is seen that flesh food begins its mischievous work as soon as it enters the alimentary canal. In the mouth the teeth are destroyed. In the stomach and the intestines, poisons are formed which are absorbed into the blood, and which set up morbid processes of a most destructive character in all parts of the body.

**Deadly Meat Poisons.**

An eminent German chemist pointed out years ago that decomposition, or decay, in animal substances is always accompanied by the production of deadly poisons. These are generally known as ptomains and toxins. Many of these poisons are so subtle in character that a very minute quantity will produce poisonous effects. Certain savage tribes poison their arrows by sticking the points into the bodies of decomposing animals. It is to these poisons that are due so-called dissection wounds, which sometimes prove fatal to medical students and physicians. Butchers not infrequently suffer from wounds of the same nature, as the result of cutting themselves with knives that have been used in cutting meat. Medical journals and other papers are constantly calling attention to cases of poisoning resulting from the use of decomposing meat.

In a case of this sort, which occurred not long ago in Sheffield, England, a whole family became violently ill, suffering from abdominal pain and vomiting. The younger members of the family quickly recovered, but in the case of the father, gangrene of the leg occurred, requiring amputation above the knee.

The *British Medical Journal*, which reported the above case, has called attention to many similar cases, and an English gentleman, Mr. Plimsoll, has recently made public the fact that putrid meat that has been in barrels for years, among old army stores, and has been discarded and sold for soap-grease, is often scraped, pared, put into fresh brine, and sold as food for sail-
ors, branded "Best Navy Supplies." A ship recently arrived in San Francisco that had been provisioned with this putrid meat. Twelve of the sailors, out of a crew of twenty-five, had died, and of the remainder, only three were able to stand upright, the rest being obliged to crawl about on their hands and knees. Of the thirteen survivors, one died after removal to a hospital. The rest revived when proper food was given them.

Another vessel that arrived in San Francisco recently, had lost eight of its crew from the same cause. There is nothing more poisonous than putrid meat, and yet there are persons whose tastes have become so depraved that they actually prefer the flavor of decayed flesh.

The common practise of keeping flesh until it is tender is simply waiting for decomposition to advance to such a stage that the muscular tissues have lost their natural tenacity; in other words, until they are softened by the process of decay. The haut-gout so much enjoyed by French and English gourmends is nothing more or less than the flavor of rottenness. The superintendent of a large Western packing-house stated to the writer a few years ago that it was the custom of his firm to keep its choicest beef three months after killing before offering it for sale. This so-called "Christmas" beef was considered particularly tender and toothsome. The so-called maturing of beef is simply reducing it to a state of putrefaction.

Game, such as rabbits, partridges, and other small animals, is generally sent to market without being "drawn." In consequence, decomposition sets in earlier, and progresses much more rapidly than when the animal is dressed. The extent to which decomposition has advanced is generally apparent enough in the "gamy" flavor of such meats, and in the greenish coloration of certain portions of the carcass.
An official of the Agricultural Department, Washington, D. C., has recently published an official opinion that beef should be hung for three weeks before it is offered for sale, in order that there shall be opportunity for decomposition to advance far enough to render it tender and highly flavored. The same authority commends the old custom of allowing fowls to hang before eating until the heads drop off from putrefaction. The carcasses of animals thus treated will certainly fall easily to pieces between the teeth, but it would seem that a person who can enjoy such a scavenger diet must somehow have acquired the palate of a turkey-buzzard.

A prominent Chicago gentleman who was many years ago largely interested in the warehouse business, stated to the writer that he had frequently had in his warehouses thousands of ducks and other fowls, which had been dead more than two years. What a spectacle! to behold intelligent men and women surrounding a festal board, greedily picking the bones of these antique corpses! Is it any wonder that a stomach made the sepulcher for the decaying bodies of beasts long dead but by neglect of the public scavenger not buried, should so often become the hold of every unclean and hateful germ, and the seat of gastritis, gastralgia, gastric catarrh, gastric ulcer, and all other sorts of gastric distresses, and of peristaltic woes unnumbered?

Fish and oysters, when dead, decompose much more readily than do the bodies of other animals. On this account a large proportion of cases of poisoning from the use of animal food is directly traceable to the eating of fish and shell-fish. The poisonous effects resulting from the eating of oysters in which decay has begun are not infrequently so severe that death occurs in spite of the most prompt and efficient medical aid. In two instances that have come under the writer’s immediate observation,
the patients have suffered from symptoms as violent as those observed in Asiatic cholera. While both of these patients recovered after several hours of most intense suffering, not all are so fortunate. A prominent Chicago surgeon died from obstruction of the bowels resulting from this cause, notwithstanding that he received all the assistance that could be afforded by the most skilled physicians and surgeons.

It is not too much to say that the so-called ripe, or seasoned, game — duck, snipe, plover, partridges, etc.—commonly furnished at the restaurants in our large cities, together with such preparations of fish as finnan-haddock, much of the codfish, and other animal products of the sea, belong properly to the dietary of the turkey-buzzard or hyena, rather than to that of human beings. A close inspection of quite a large proportion of the meats hung up for sale in the butcher shops, especially in the summer season, will show the characteristic greenish tinge indicating that decomposition is far advanced.

The human body in a similar state, if kept in a room overnight, would be supposed to have so polluted the apartment as to render fumigation or thorough disinfection of some sort essential as a means of purification; but the corpse of an ox, a pig, a bird, a rabbit, or a fish, notwithstanding the fact of its rank, malodorous condition, affording equal evidence of advanced putrefaction, is taken into the house without protest, and even served up on the table and swallowed with avidity as a savory titbit. The odors of putrescent bodies are poisonous in comparatively slight degree, but the ptomaines and toxins that these substances contain are so intensely poisonous that even the minutest quantities are fatal to small animals. In a series of experiments conducted some years ago, it was found that so small a dose as $\frac{1}{100}$ of a grain was sufficient to kill a small rabbit.
The idea that these poisons may be destroyed by cooking is wholly erroneous. Cooking will destroy the germs that produce the poisons, provided it is continued for a sufficient length of time and at a sufficiently high temperature, but the poisons themselves are not destroyed by cooking.

Canned meats are undoubtedly the most common of all sources of meat poisoning. It is perhaps not generally known that canned meats decompose with very great rapidity, and develop deadly poisons, often within a few hours after the can is opened, so that deadly effects may be produced by eating of the contents of a can opened and partially consumed at a previous meal. Numerous cases of this sort have been reported. The only certain safety from this source of disease and death is in the total disuse of flesh foods, especially since it is now well understood that in certain forms of decomposition that take place in flesh, non-odorous substances are formed that are most deadly poisons, so that neither smell nor taste can give warning of the existing danger.

Americans read with disgust of the gnapppee of Burma, which consists of a sort of paste made by rubbing together curry powder and the flesh of fish which have been dead and buried in the ground anywhere from two weeks to three months, forgetting that many of our own eating customs are not a whit cleaner, and that if gnapppee consists chiefly of rotten fish, finnan-haddock is almost exactly the same thing, and cheese is simply decayed milk instead of decayed fish.

In the words of Holy Writ, "All flesh is grass;" that is, animals derive their sustenance originally from the vegetable kingdom. Animal tissue is nothing more nor less than vegetable tissue animalized, and the changes which take place in the tissues of vegetables by their
incorporation into the body of an animal are not those of an improving character from a dietetic standpoint, but the very opposite, since those substances that in the vegetable are in a pure state, ready to impart energy to the animal body, are in the animal mixed with poisonous substances of various sorts, which not only do not afford energy, but which have the effect of paralyzing the bodily energies, contaminating the tissues, interfering with all the vital functions, and opening the door to disease.

How much better for one to take an ear of corn, for example, in its original condition, as it comes sweet and pure from the hand of nature, than to take it at second hand, after it has been swallowed by a hog and rolled about in the mire for six months or more!

It was long ago shown by Quincke (see Landois and Sterling's Physiology) that the free use of meat gives rise to a great increase in the quantity of urine. The great German chemist, Dr. Lehmann, of Leipsic, showed many years ago that the increase in the quantity of urine produced by a flesh diet is due to the increased amount of poisonous matters, particularly in the form of urea, which the kidneys are required to eliminate. For example, he showed that while the amount of urea produced in twenty-four hours was 346.5 grains in a man living upon a purely vegetable diet, a diet of flesh gave rise in the same man to much more than double this quantity, or 819.2 grains. On a mixed diet, the quantity of urea was 500 grains. The amount of uric acid resulting from an animal diet was increased from 15.7 to 22.64 grains in twenty-four hours. As the urine is simply an extract of the tissues, it is evident that the appearance in the urine of such a large increase of poisonous matters is an evidence of contamination of the body by the use of flesh foods.
The accumulation of waste substances within the body, as the result of idleness or excessive feeding, is a most prolific source of disease. When the flesh or tissues of another animal, with their poisons and waste matters, are taken into the body, precisely the same effect is produced as that resulting from deficient exercise; hence the combination of sedentary habits with a flesh diet is in the highest degree productive of disease.

English gout, formerly attributed to the free use of wine, is now well known to be due to English roast beef. The blood becomes so saturated with the waste substances derived from the flesh of dead animals in addition to those generated within the body that uric acid and allied substances, representing the excrementitious elements, are deposited in the vicinity of the joints and other structures, giving rise to the protean symptoms of gout.

The so-called rheumatic diathesis and the multiple manifestations of disease associated with this condition, are due to the same cause. This fact has been very clearly pointed out by Haig and other English writers who have traced not only rheumatism and gout, but nervous headache, epilepsy, Bright's disease, some forms of insanity, and in fact a large proportion of functional nervous disorders, and the diseases of degeneration in nerve cells and other structures, to this same cause.

This term might be most appropriately applied to the condition of quite a large proportion of city dwellers in both England and America. The consumption of flesh foods by those residing in large cities and towns has created a class of chronic semi-invalids, who, while able to engage in the activities of life after a fashion, are nevertheless largely incapacitated for the enjoyment of healthful existence by what might be termed a meat cachexia which is
characterized in many cases by a dingy, sallow skin, languor, depression, often insomnia, nervousness, irritability, bilious attacks (a bilious attack is simply an acute systemic poisoning from substances developed within the body), and premature senility. These persons sooner or later fall victims to rheumatism, Bright's disease, epilepsy, melancholia, apoplexy, and similar maladies. That these conditions are not more frequently traced to flesh eating is due to the almost universal use of flesh foods. The causes of disease that are most likely to be overlooked are not those that are most rarely encountered, but rather those that are constantly present, and which, from their universality, are imagined to be either inert or inappreciable.

In not a few instances of meat toxemia which the writer recalls, the condition was the result of following the unwise advice of some physician in adopting the so-called "Salisbury," or lean meat diet. Unquestionably, numerous persons have been hurried to untimely graves by a mistaken philosophy that led to the use of an almost exclusive meat dietary in the treatment of certain forms of indigestion and maladies resulting therefrom. This method, which scarcely deserves to be designated as a system, often produces apparent cures within an incredibly short space of time. Annoying symptoms that have long been present often quickly disappear, especially those that result from the fermentation of starch. This fact leads readily to the supposition that a real cure has been effected, whereas no real change has been accomplished, fermentation having been suppressed only by the withholding of the substances upon which germs capable of producing acetous and alcoholic fermentation depend for sustenance. The improved condition in which the patient finds himself may apparently last for some months or even a longer time, but sooner or
later, if the exclusive meat diet is persisted in, the patient finds his condition to be worse than before, not in the same way, but in a worse way. The stomachic disturbance which before was inconvenient but not positively dangerous in character, has been replaced by a cachexia that manifests itself through various symptoms now well recognized as due to uric-acid poisoning, or lithemia.

Dr. Haig, an eminent English medical authority, asserts that "Bright's disease is the result of our meat-eating and tea-drinking habits, and as these habits are common, so also is the disease, and much more common, I believe, than available statistics at all serve to demonstrate." Bright's disease is rapidly increasing in all civilized countries, and, as Dr. Haig intimates, is doubtless much more common than is generally supposed.

After the death of the late czar of Russia, who died of Bright's disease, the newspaper reports called such wide attention to this disease that a large number of men who supposed they were in good health placed themselves in the hands of physicians for an examination upon this point, and it was reported by one of the leading physicians of Paris that the results of his examination showed that about four per cent. of men who were apparently in good health were in fact suffering from incipient Bright's disease, indicated by the presence of albumin in the urine.

In a recent interesting paper on the treatment of Bright's disease, Sapelier, an eminent French physician of Nanterre (Bulletin Général de Thérapeutique), in describing the dietetic regimen suited to patients suffering from this disease, absolutely prohibits the use of bouillon and all juices and extracts of meat, remarking of bouillon that it is a "veritable solution of ptomaines."

The late Dr. Austin Flint many years ago gave expression to similar views, asserting that thousands of
fever patients had lost their lives because of the dependence placed upon beef tea as a nutrient. Professor Bunge, of Basel, Switzerland, in his admirable work on physiological and pathological chemistry, a standard authority, asserts that "beef tea contains, outside of a minute quantity of gelatin, which is excluded from beef extracts, only decomposing products of foodstuffs," which "can not be regarded as nutritious."

Creatin and creatinin are the two waste substances most abundant in the tissues. The muscles of the body contain of these waste matters a total of about three ounces, or one third of one per cent. The tissues also contain uric acid and a variety of other substances, the poisonous character of which has been clearly pointed out by Bouchard, the eminent French physiologist. Taking these substances into the body must to some degree deteriorate it, since they add to the waste substances already in the body, which result from its own work, others that have been generated in the bodies of other animals.

Putrefaction in the Stomach.

The readiness with which animal substances undergo decay when deprived of life is well known. In warm countries and in hot weather in temperate climes, the presence of a dead body becomes intolerable within a few hours after life is extinct. This is not so in the case of vegetable substances. Notice the contrast between the condition of a piece of beefsteak or other moist animal substance, placed in a jar and kept in a warm place for a day or two, and an apple, a potato, or other vegetable substance placed under the same conditions. On opening the two jars, the contents of the one containing the animal substance will be found in the highest degree loathsome and repulsive, while the contents of the other jar will be scarcely at all offensive.
The same difference maintains in the human stomach. Were it not for the disinfecting power of the gastric juice, flesh foods could not be tolerated by human beings. Decomposition and the development of poisons that might even prove fatal would occur whenever flesh should be taken into the stomach. Sometimes the gastric juice loses its disinfecting power, as in case of extreme dilatation of the stomach, cancer of the stomach, and fevers. Under these circumstances, physicians are agreed in discarding flesh foods. It is not so generally recognized, however, that a similar decomposition of animal substances in the stomach is a constant aggravation in such maladies as epilepsy, melancholia, gastric catarrh, so-called biliousness, dyspepsia, nervous headache, and a variety of such conditions. Nevertheless, the experience of the writer in the treatment of many thousands of chronic invalids within the last twenty-five years has convinced him that the extensive use of flesh foods is largely responsible for the development of a growing multitude of maladies that are the result of the contamination of the body by poisons generated within the body itself.

These poisons are to some extent destroyed by the liver and eliminated by the kidneys. So long as the liver is able to destroy the larger share of poisons generated, and the kidneys to eliminate the remainder, no very serious systemic effects follow, although the individual may occasionally suffer from bilious attacks, offensive stools, and loss of appetite; but when the liver has been so long overwhelmed that it has lost its power to cope with the unnatural and unreasonable task imposed upon it in the destruction of poisons resulting from decay of flesh, as well as that naturally found in animal substances, and that generated within the body itself, the individual begins to suffer from the symptoms commonly...
attributed to "a torpid liver." A reddish or pinkish sediment appears in the urinary secretion, the skin and the white of the eyes become dingy and bilious looking, the general health is impaired, a variety of nervous disturbances frequently make their appearance, and the meat cachexia is fully developed. Next comes Bright's disease.

The fecal matters of carnivorous animals are most disgustingly repulsive in character, while those of herbivorous animals are far less offensively odorous. Bouchard found that the fecal matters of a carnivorous animal were at least twice as poisonous as those of an herbivorous animal. This fact he determined by injecting into rabbits and other animals, solutions made from known quantities of each. The same investigation showed that the fecal matters of a man when given a mixed diet were twice as poisonous as those of the same man when given a dietary consisting exclusively of substances of vegetable origin.

The fact that the tissues of an animal subsisting upon flesh contain twice the amount of poisonous substances was shown by an experiment conducted a few years ago by an experienced physiologist, in which it was determined that the juice extracted from the flesh of a dog possessed twice the toxic power of ordinary beef-juice; that is, it required but one half as much dog-juice to kill a rabbit, when injected into its veins, as was required of beef-juice to destroy the life of a rabbit of the same weight. The animals died in spasms.

Still further evidence is afforded by the strong odor attached to carnivorous animals of all species, at least when fed upon meat. It is well known that a cat or a dog, when fed upon meat, soon acquires a very strong odor that is not possessed by the animal when fed upon a vegetarian or bread-and-milk diet. It is doubtless for
this reason that carnivorous animals will not, as a rule, eat other carnivorous animals, but invariably select vegetable-eating animals. Lions eat deer, not panthers, wild-cats, and other flesh-eating beasts. Dogs eat rabbits, but not cats, though they sometimes kill the latter. We have frequently been told by butchers that they can at once detect by the odor or taste the flesh of a hog fed upon dead animals, a practice not uncommon among those who raise hogs.

From the above facts it is clearly evident that the tissues of an animal, in consequence of flesh eating, become saturated with waste and excrementitious substances to such an extent that the fact can be detected by the flavor of the tissues as well as by the urinary and fecal discharges, the poisonous properties of which, as well as of other tissue-juices, are doubled by flesh eating, as has already been shown.

A diet of vegetable foods, and particularly a fruit diet, on the other hand, promotes purity of the body. Fruit-juices are, in fact, excellent disinfectants, and raw fruit especially has the power to resist to a considerable degree the action of microbes. Experience has shown that an exclusive diet of raw fruit, such as grapes, apples, peaches, strawberries, and similar fruit, is the best of all means of producing intestinal asepsis. The writer and his colleagues have demonstrated this in many hundreds of cases of persons suffering from dilatation of the stomach, biliousness, nervous headache, and similar conditions. The pink-and-white complexion of the Trappist monks, which has been noted by so many travelers, and the clearness of complexion that speedily follows the abandonment of a flesh diet, are in themselves evidence of the purifying influence of a non-flesh dietary, and the contaminating influence of a diet of flesh.
The extent to which we are poisoned by a diet of flesh is well illustrated by an interesting fact incidentally discovered during experiments in relation to the thyroid gland. Breisacher, of Leipsic, observed that after removal of the thyroid gland in dogs, beef tea and meat extracts produced decidedly poisonous effects. Ewald found that the removal of the thyroid gland from pigeons and rabbits had no unpleasant effect upon the health. The latter observer attributed the difference in the effects of the removal of this gland in these two classes of animals to the difference in their dietary, rabbits and pigeons being vegetarians, while the dog is carnivorous. These experiments showed that it is one duty of the thyroid gland to destroy the poisons found in flesh.

Dr. Thompson, one of the leading physicians of New York City, very reasonably argues from these facts that flesh food should be withheld in cases of diseases of this gland in which its normal activity is diminished. His experience has shown him that highly beneficial results may be obtained by withholding flesh in such cases. In the treatment of many cases of this kind during the past twenty years, the writer also has found the restriction of diet in these cases to vegetable products highly conducive to recovery.

The amount of poisons produced in the body and the extremely poisonous nature of these substances may be inferred from the rapidity with which death occurs when there is any serious interruption in the process of poison elimination; for example, suppression of the action of the kidney results in death within a little more than forty-eight hours, from the accumulation within the body of the poisons which it is the special duty of the kidneys to eliminate. Interruption of the normal activity
of the skin by a coating of varnish produces death in a few hours by the accumulation in the body of the various poisons that are eliminated by the skin. Interruption of the action of the lungs results in death within a few minutes, not directly because the supply of oxygen is cut off, but because of the failure of the lungs to expel from the body the deadly toxic substance which Brown-Sequard demonstrated to be a constant constituent of the breath.

**Flesh Eating Predisposes to Disease.**

That the use of flesh food must lessen the resistance of the body against disease, is apparent from the facts which have been already adduced. A great share of both acute and chronic maladies from which human beings suffer may be said to be due almost exclusively either to germs directly or to the poisons produced by them. All infectious maladies, whether acute or chronic, have been traced directly to germs. Tuberculosis, smallpox, scarlet fever, diphtheria, cholera, pneumonia, typhoid fever, and the plague are but a few of the list of maladies that must be attributed to the direct influence of germs. Nevertheless, it is clearly evident that these maladies are not capable of affecting a perfectly healthy human body. The healthy man is superior to germs of all sorts. It is only when his system has been weakened by the infraction of nature's laws that he becomes a prey to these enemies of life and health. Flesh eating unquestionably, almost more than any other practise, leads to that deterioration of the tissues whereby the system loses power to destroy germs, or to resist their attacks upon the body.

As regards scarlet fever, diphtheria, and smallpox, while it can not be demonstrated that a strictly non-flesh dietary is capable of rendering a person incapable of contracting these maladies, it is certainly a clearly estab-
lished fact that a non-flesh diet lessens the liability to the disease, and to a wonderful extent mitigates the severity of these maladies.

The healthy body is perfectly able to destroy any germs which may come in contact with it. The skin, while healthy, is impervious to germs. The mucous membrane of the nose, throat, lungs, stomach, and intestines is capable of destroying the germs that come in contact with it. The white cells of the blood are capable of destroying germs, so also is the spleen, and perhaps various other organs of the body. However, diseases resulting from the development of germs within the body are not, as a rule, directly due to the germs themselves, but rather to poisons which they produce, and which, when absorbed and circulated in the blood, give rise to fever, pain, and a great variety of symptoms, and ultimately even degenerations and destructive changes. Some of these poisons are so deadly that they kill the cells with which they come in contact, and in some cases completely destroy them by a liquefying process. The body is also provided with organs by which these germ poisons are destroyed. The liver, the thyroid gland, perhaps also the lymphatics and other glands in the body, are actively engaged in the destruction of poisons of various sorts, including those resulting from the growth of germs. It is poisons of this character that give rise to the high temperature and other of the distressing symptoms which accompany typhoid fever. The symptoms present in cholera are also due to this fact, likewise the fever, emaciation, and other characteristic symptoms of pulmonary tuberculosis, or consumption. The poisons that flesh eating introduces into the body lessen the ability of the body to destroy the poisons of disease, and actually encourage the formation of these poisons, as
shown by Brieger, who called attention a few years ago to the fact that the very deadly poison of scarlet fever is formed from creatin, a substance that abounds in lean meat and beef tea.

**Fattening a Disease-Producing Process.**

The conditions necessary for producing the most rapid accumulation of fat in an ox or other animal are precisely those that are recognized as in the highest degree productive of disease in human beings. When a farmer desires to fatten an animal quickly, he shuts the creature up in a warm stable where it is protected from the cold, and supplies it with an abundance of the most fattening food. The larger the amount of fat which the animal can be made to accumulate within a short time, the greater the profit. What is true of the ox and pig is true also of fowls. They must be shut up to be fattened. A sagacious correspondent of an agricultural journal remarked, "It is hopeless to attempt to fatten chickens while they are at liberty." He recommended that a dozen chickens be placed in a coop three feet long and one and one-half feet wide, in which he guaranteed they would fatten, if well fed, in two weeks! This is almost equivalent to the Strasbourg method, in which the geese are confined in boxes in a warm, darkened room, and are fed at frequent intervals with an apparatus by which the prepared food is forced into the stomach. As the result of this forced feeding, within a few weeks the livers of these geese become enormously enlarged. The geese are killed for the livers only, which are made into a sort of paste, and sold under the name of *pâté de foie gras*. A similar process of disease production results when animals of any sort are fattened for the market. The liver, the heart, the muscles, and the entire body become diseased. It is this diseased condition, in fact, that gives to such meat the peculiar flavor which the gourmand regards so
toothsome. *A stall-fed ox is always a diseased ox; a fat pig is always a mass of accumulated excrementitious matter.* Fruit-juices are so antagonistic to cholera that it seems hardly possible that a person using regularly a fruit diet and abstaining from meat should contract this disease.

Dr. Koch has pointed out the fact that citric acid in small quantities will destroy the cholera germ. Certain it is that the vegetarian millions of India, while more or less subject to cholera because of the unsanitary conditions under which they live and the extraordinary opportunities for infection, manifest a resistance to the malady which would not be seen in this country. Although this disease is very often present with them, it rarely assumes the proportions of a serious epidemic, and its fatality, when patients have anything like reasonable care, is far less than in this country.

The liability to contract malarial fever is certainly to a large degree increased by flesh eating. Captain Sanderson, the famous elephant hunter and trainer of India, who for many years had charge of the government elephant service in that country, told the writer while under his care as a patient a few years before he died, that through reading a work by the author advocating a vegetarian diet, he had been led to abandon flesh-eating habits. As a result, he was immediately relieved of a chronic malarial affection that had followed him for years, and which renewed its attacks whenever he ventured into the jungle on his elephant-hunting expeditions. Captain Sanderson remarked, in speaking of his experience, "I found that when I followed the monkey in diet, I could follow him everywhere else. When I eat as a monkey eats, I can live anywhere a monkey can live."
Malarial parasites are doubtless usually introduced into the system through the medium of water. In the protection against this sort of infection, we depend, as in the case of other animal and vegetable parasites, upon the destructive or digestive action of the gastric juice. With a flesh diet, the free hydrochloric acid is completely taken up by the proteid substances of the meat with which it enters into chemical combination, so the free hydrochloric acid is not present during the digestion of the meat, consequently the unlimited use of flesh food, while it stimulates the secretion of hydrochloric acid, at the same time neutralizes it thus destroying its antiseptic properties.

The last-named fact bears upon the liability to contract tuberculosis, cholera, cancer, and other similar maladies, as well as malaria. In the case of cancer, the advantage of a non-flesh diet seems to be particularly clear.

A surgeon in the French army in Africa recently reported that he found French soldiers one hundred times more liable to suffer from typhoid fever than the native Arab soldiers, a circumstance that can not be traced to any other cause than the difference in dietary, the Arabs living upon a most frugal and simple fare, from which pork is entirely discarded, and in which other meats seldom appear.

Nencki has shown that in dogs whose livers have been rendered inactive by an operation, those who are fed meat develop symptoms of poisoning and die much sooner than those whose diet excludes flesh foods of all kinds. Doubtless vast multitudes of persons whose livers have been crippled by the use of tobacco, tea and coffee, condiments, excessive use of fats, neglect of exercise, and other evil habits, die annually from meat poisoning, through Bright's disease and other fatal forms of
Systemic poisoning, while countless numbers are daily suffering from so-called nervous prostration, rheumatism, nervous or sick-headache, and other conditions due to chronic meat poisoning.

It requires no argument to demonstrate that if the body is saturated with waste matters derived from a flesh diet, either through the excess of proteid matters received into the body or through the formation of poisons from the decomposition of animal foods in the stomach and intestines, the resistance of the body to disease, produced either by germs or by the insufficient elimination of ordinary tissue poisons or wastes, must be very greatly lessened, and the liability to disease correspondingly increased. That the effect of flesh food is to diminish the resistance of the body to the germ causes of fever is well shown by the influence of a meat diet in increasing febrile action. This is so well known that meat is always forbidden in fevers by all intelligent physicians. Curiously enough, however, although beef and flesh food of all sorts is strictly prohibited in typhoid and other fevers, the use of beef tea in these conditions has, until recently, been almost universal. The fact seems to have been overlooked that beef tea contains all the waste and poisonous elements of meat, with practically none of its nutritive properties. The withholding of flesh food during a febrile attack is evidence of a pernicious influence whereby it lessens the ability of the body to cope with the germ causes of disease when they have once entered the vital domain. It is evident that the same principle must apply before the germs have obtained a foothold; that is, if a flesh diet interferes with the process whereby the body expels germs which have invaded it, and whereby it destroys the poisons produced by them, such a dietary must likewise weaken the ability of the body to resist the attacks of these germs before they have established themselves within the vital citadel.
Meat Poisoning in Dyspepsia.

The fact that during fever little or no free hydrochloric acid is formed is the reason usually given for withholding flesh food. This reason is certainly a good and sufficient one. Hydrochloric acid is absolutely necessary, not only for the digestion of flesh food, but for its disinfection. As eaten, flesh food is always in a state of more or less advanced putrescence, as elsewhere shown in this booklet. But there are other conditions in which free hydrochloric acid is absent. In hypopepsia, one of the most common forms of dyspepsia, free hydrochloric acid is either absent, or is present in such small amount that its disinfecting and digestive powers are certainly insufficient to cope with decomposing flesh. In chronic catarrh of the stomach, in dilatation and prolapse of the stomach, and in many other conditions that are exceedingly common among dyspeptics, there is the same inability to deal with a food substance like meat, irrespective of the poisons that it contains. This vast multitude of persons are daily swallowing quantities of flesh food in various forms, which they can not possibly digest, and which necessarily decays in the stomach and colon, and invites and multiplies disease.

Of course, other things besides a flesh diet may operate in the same way. Anything whatever that reduces the vitality or vital resistance of the body must operate in this manner. Flesh eating weakens the vital resistance to disease, not only by causing an accumulation of wastes within the tissues, but by saturating the blood with waste substances, and thus lessening the power of the white cells to combat germ invaders. The liver is likewise overwhelmed with poisons derived from the meat and from the decomposition of flesh foods in the alimentary canal, producing a condition which is familiarly known as torpid liver, or biliousness. Such a
state is simply an open invitation to disease; for the crippled liver can not arrest and destroy the poisons brought to it in the blood, and the poison-laden blood carries to every tissue and cell in the body the noxious substances that it contains. Every organ is disturbed, every function interfered with, and the bodily structures themselves are changed, and in time these changes become degenerations, and show themselves in paralysis, hardened arteries, fatty liver and kidneys, weak heart, swollen joints, and other grave morbid conditions.

Captain Sanderson tells us, in his fascinating book, "Fourteen Years among the Wild Beasts of India," that he frequently found elephants, wild buffaloes, and other vegetable-eating animals, which had suffered from various severe wounds from the bullets of hunters or from the attacks of wild beasts, who were still apparently enjoying good health, notwithstanding their wounds in some instances, were in a festering and most loathsome condition in consequence of the attacks of millions of flies; whereas, on the other hand, lions, tigers, and other flesh-eating animals rarely escaped death, even though slightly wounded, blood-poisoning being almost certain to result from wounds even quite trivial in character.

Verneuil, of Paris, and Roux, of Lausanne, have recently announced the startling theory that the use of pork is the cause of cancer. M. Verneuil some time ago stated that his observations had convinced him that the use of meat as a regular food was the most probable cause of cancer, and the further study of the subject has led him to the conclusion that pork, if not the sole cause of cancer, is at least a very common factor in the etiology of this disease. He had especially noted that orthodox
Jews, who adhere closely to the laws of Moses, are rarely, if ever, subject to cancer. M. Roux confirms these observations of Verneuil.

The grossness of blood resulting from the use of unhealthful food of any sort, particularly the flesh of diseased animals, we believe may prepare a soil suitable for the development of the parasite to which this dreadful disease is doubtless directly due. Experiments in inoculation with cancer virus have shown that while the disease is easily propagated by inoculation in a person who is already affected by it, new foci being readily established by this means, attempts to transmit the disease from an infected person to a non-infected person usually fail. This indicates that the system of a person already suffering from the disease affords favorable conditions for the development of the disease.

The free use of flesh, whether pork or other flesh food, must have a decided influence in opening the way for cancer as well as for other infectious maladies. Dr. W. Allan Jamieson, F. R. C. P., physician for diseases of the skin at the Edinburgh Royal Infirmary, in discussing the causes of these diseases, calls attention to the fact that the frequency of cancer has greatly increased within the last fifty years, an opinion with which Mr. Christopher Heath, an eminent English surgeon, also agrees. This author expresses the belief that the increase in the consumption of butcher's meat, and especially the extensive use of beef, are causes of this great prevalence of cancer in modern times.

Dr. Burney Yeo is quoted as declaring that "among other evils attending an animal dietary, one is, that it favors the tendency, where it exists, to the development of cancer."

The free use of meat is also known to be a cause of eczema and other skin diseases.
These observations are confirmed by Dr. Trisk, who found no symptoms of cancer in between two and three hundred specimens of monkeys which he subjected to examination, although it is well known that this disease occurs in carnivorous animals as well as in human beings.

A physician who had practised many years among the Arabs, who make no use of pork and eat little or no meat, encountered no cases of cancer; and another physician who had spent a number of years among the Indians of Old Mexico, who subsist almost wholly upon corn-cakes, or tortillas, gives a similar report.

In the London Lancet of Aug. 20, 1898, W. Roger Williams, F. R. C. S., a leading English physician, points out in a very clear and decided manner the relation of flesh eating to cancer. We quote his exact words upon the subject, as follows:

"Many indications point to the gluttonous consumption of meat, which is such a characteristic feature of this age, as likely to be especially harmful in this respect. Statistics show that the consumption of meat has for many years been increasing by leaps and bounds till it has now reached the amazing total of 131 pounds per head per year, which is more than double what it was half a century ago when the conditions of life were more compatible with high feeding. When excessive quantities of such highly stimulating forms of nutriment are ingested by persons whose cellular metabolism is defective, it seems probable that there may thus be excited in those parts of the body where vital processes are still active such excessive and disorderly cellular proliferation as may eventuate in cancer. No doubt other factors co-operate, and among these I should be especially inclined to name deficient exercise and probably, also, deficiency in fresh vegetable food."
In 1840 cancer caused 2,786 deaths, the proportion being one in 5,646 of the total population, and one in 129 of the total mortality, or 177 per million living. In 1896 the deaths due to it numbered 23,521, or one in 1,306 of the total population, and one in 22 of the total mortality, or 764 per million living. Thus the proportionate mortality from cancer now is four and a half times greater than it was half a century ago. In this respect its position is unique, for no other disease can show anything like such an immense increase.

The attempt to explain the increasing cancer mortality as due to the average age of the population having advanced, and the consequent liability to greater numbers of cases of cancer will not bear critical examination, for the saving of life in modern times has been mainly confined to early years. The death-rates of males over thirty-five years and of females over forty-five years have either remained stationary or increased, while the number of those who attain old age has decreased. This heavy mortality at post-meridian ages is no doubt largely due to the survival in augmented numbers of weakly lives artificially prolonged by improved conditions of existence, but not more than a small fraction of the increased cancer mortality can be thus accounted for. Besides, it is a mistake to assume that increased cancer mortality is a necessary corollary of the survival of augmented numbers to the cancer age; for instance, the average age of the population of Ireland is much higher than that of the population of either England or Scotland, owing to the large number of elderly people left behind after the younger ones have emigrated, yet the cancer mortality of Ireland is much less than that of either England or Scotland. In most civilized countries where statistical records have been kept, similar increases, although less pronounced, have been observed.
Dr. T. P. Smith, an English physician, tells us that in 1882 the average amount of meat consumed in England was one hundred and ten pounds per capita of the population. At the present time, according to Dr. Williams, the per capita consumption is one hundred and thirty-one pounds, an increase of twenty-one pounds. Dr. Williams also calls attention to the interesting fact that although the average age of the population of Ireland is much higher than in England, so that the number of persons especially subject to cancer by reason of age is much greater, the proportion of deaths from cancer as the result of population is very much less than in England,—exactly what we should expect to find if the consumption of flesh food prepares the way for cancer, since, as Dr. Letheby has told us, the average Irishman eats less meat in a week than the average Englishman eats in one day.

This rapid increase in the consumption of flesh food seems not to be confined to England. The same has been noted for France, and although no statistics have been gathered upon the subject, there has evidently been a similar advance in this country. The increase is less in the rural districts than in the cities, the rate being more than double in cities. The rate of increase seems also to be growing: in France in 1780 the average rate of meat consumed was a little less than forty pounds; in 1860, after the lapse of eighty years, the per capita consumption was about sixty-two pounds, or an increase of a little more than fifty per cent. Within the past twenty-three years, the amount of meat consumed per capita of the population was nearly trebled, the average amount consumed annually being in 1883 one hundred and eighty pounds.

Dr. Williams notes that the increased number of cancer cases reported is not due to increased skill in diagnosis, for the reason that the rate of increase is almost
absolutely uniform, and that the increase in the frequency of cancer occurring in different parts of the body is also uniform. The increased frequency in the occurrence of cancer in men has been almost twice as great as in women, which may be fairly attributable to the fact that men consume meat in larger quantities than do women.

These significant facts are certainly very well worthy of consideration. Our purpose in calling attention to the relation of flesh eating to the causation of cancer is to give special emphasis to the deteriorating influence of flesh eating upon the body as a whole. Cancer is not contracted directly from the lower animals by flesh eating, but by the use of flesh food the blood is rendered impure, the tissues become saturated with tissue poisons, the standard of vitality of the tissues is lowered, the resisting power is diminished, and thus the body becomes a ready prey, not only to cancer, but to other degenerative and parasitic disorders.

Dr. Haig suggests that cancer "may often have its way paved for it by the chronic and recurrent local irritation produced by urates in the tissues," and he has clearly shown that the accumulation of urates in the tissues is to a greater extent encouraged by the use of flesh foods than by any other means.

Paget, in his "Lessons on Clinical Surgery," asserts that the higher death-rate from operations in cities (in England) as compared with rural districts, is due to the fact that inhabitants of cities live so largely upon meat.

Dionis, an eminent French surgeon, nearly two hundred years ago advised bleeding before an operation of importance, basing his recommendation upon the assertion that the blood of most people living in Paris had become impure in consequence of "the sumptuous living
in Paris in the large number of new kinds of dishes which had been recently invented." This surgeon had evidently discovered that the resisting power of the body was lessened by a diet which filled the system with excrementitious matter.

Bouchard says, "It is desirable to practise intestinal antisepsis before each and every operation."

Lucas-Championnière also observed that a high proportion of urea was unfavorable to recovery after an important operation or an injury.

Flesh eating is absolutely incompatible with intestinal asepsis, since portions of the flesh eaten remain in the colon long enough to become putrescent. The use of flesh food always increases the amount of urea, sometimes to three or four times the normal quantity.

Lauder Brunton's theory is that a flesh eater who dies under anesthesia is really killed by the ptomains and toxins in his system rather than by the chloroform, the effect of the chloroform being simply to lessen vital resistance and the elimination of poisons. The same principle must apply to surgical shock or any other depressing cause.

The facts to which I have called attention show the reason why flesh eating, and whatever tends to an increase of excrementitious matter in the system and the development of ptomains in the alimentary canal, is especially unfavorable in abdominal operations, in consequence of the development of ptomains in the fluids of the peritoneal cavity, which, together with the toxins and ptomains of intestinal origin, undergo absorption and elimination through the kidneys.

A careful consideration of the facts already pointed out led the writer, a number of years ago, to exclude meats and all preparations of meats from the hospital of which he has charge, and he believes that to this fact may
be attributed, in considerable part at least, the extraor-
dinary results which have been obtained in this hospital
in operations of grave character. A brief summary of
these operations has been published elsewhere.\footnote{1 "The Importance of Intestinal Asepsis and Antisepsis in Abdominal Surgery."}

Briefly stated, the results in a single class of cases are
as follows: In 165 cases in which the abdomen was
opened and diseased organs removed, no death occurred;
in 233 cases in which the abdomen was opened for
removal of diseased organs, and in which suppuration
was not at the time present, all but one recovered; in
361 cases requiring opening of the abdomen for removal
of diseased appendages (261), ovarian tumors (87), uter-
ine fibroids (4), and several cases of intestinal surgery
(5) there were three deaths—a mortality of five sixths
of one per cent.

As these results are far better than any that have ever
been attained with the ordinary dietary of beef tea, beef
extracts, etc., and as the author claims no extraordinary
skill above other surgeons of equal experience, he deems
it fair to attribute the results obtained chiefly to the
exclusion of the poisonous influence of a flesh diet for
some days prior to and immediately after the operation.

\textbf{Flesh Diet and Epilepsy.}

A few years ago Dr. Warner, of the Eastern
Illinois insane asylum, called the writer's
attention to the profound influence of a
flesh dietary upon epileptics. This fact
had been partially recognized by the medical profession
previously, but Dr. Warner's experience shows conclusively that flesh food has the most pernicious influence,
not only in aggravating the conditions present in epilepsy,
but in causing this disease. Dr. Warner called special
attention to the fact that cats fed upon meat or allowed
to eat the mice they catch, soon become epileptic.
Haig has called attention to the fact that epileptic attacks are due to an increase of uric acid in the blood, whereby the circulation in the brain is interfered with. He has found that the avoidance of flesh foods, together with tea, coffee, cocoa, and similar beverages which contain poisonous elements similar to those found in meat, is one of the most effective means of controlling epileptic attacks.

Dr. McGugan, a member of the medical staff of the State hospital for the insane located at Kalamazoo, Mich., recently stated in connection with a public discussion of this question that in his experience the number of epileptic attacks occurring in a given time in a certain number of cases of epilepsy, was diminished one half by the adoption of a non-flesh dietary.

Dr. Bulkley calls attention to the causative relation of a flesh dietary to certain chronic skin diseases, such as eczema in its various forms.

Many other facts of similar character might be adduced as evidence that flesh food predisposes to disease, and that its continued use in many grave and chronic maladies, such as rheumatism, Bright’s disease, migraine, epilepsy, and kindred maladies, is a certain means of perpetuating the disease.

It is a fact well known to all bacteriologists that beef tea is one of the best culture media for disease germs. Typhoid and cholera bacilli and other disease-producing microbes grow luxuriantly in beef tea, while incapable of multiplying to any great extent in the juices of fruits and cereals. Indeed, typhoid and cholera bacilli are quickly killed by the acids of fruit-juices. It is hence evident that a non-flesh dietary, and especially a dietary consisting largely of fruit, must be of the highest value as a preventive of cholera, typhoid fever, and similar
maladies, and in these disorders fruit-juice should be used instead of beef tea.

It is interesting to note in this connection the comparative innocuousness of the cholera in India. Although the disease is constantly present in some portions of India, and notwithstanding the exceedingly bad sanitary conditions which prevail in that country, the mortality rate is not to a very great degree affected by it. Similar conditions in this country would result in the almost complete depopulation of such thickly settled districts as harbor the disease year after year in India. This fact may be fairly attributed to the almost universal employment of a non-flesh dietary by the natives of India, two thirds, or about two hundred million, of whom are Hindus, who are by their religious faith prohibited the use of flesh food.

The superintendent of an extensive mission located on the coast of Liberia wrote to the author some years ago that after adopting a vegetarian dietary, both the teachers and the pupils of the school were no longer subject to the jungle fevers which had previously greatly interfered with their work, and the teachers found it possible, by adhering closely to a vegetarian regimen, to penetrate the interior for work among the natives, although previously they had been wholly unable to do this on account of the deadly character of the malarial fevers prevailing in that region.

Some years ago, in visiting a specially malarious locality in Indiana, the writer was informed by a gentleman whose family adhered strictly to a vegetarian regimen, that although he had lived in the vicinity for more than three years, not a single member of his family had suffered from any form of malarial disease, whereas every other family in the community had suffered severely, in some cases fatally.
THE TESTIMONY OF HUMAN EXPERIENCE.

Having seen that science speaks in the clearest and most emphatic terms in favor of a non-flesh dietary, let us now turn our attention to the lessons that may be drawn from human experience respecting the comparative value of a flesh dietary and a diet composed of the natural products of the earth.

First of all, let us note the fact that a vegetarian is not necessarily one who lives upon coarse vegetables. The ordinary understanding of the word "vegetarian" is "a vegetable eater;" but even if "librarian" should mean "book eater," and "antiquarian" an eater of antiques," still the word "vegetarian" would not necessarily mean "an eater of vegetables;" for the word is derived from the Latin verb *vegetere*, which means "to make strong, to make vigorous, to make lively, to cause to flourish." From this verb we have *vegetus*, which means "live, brave, strong, sound, whole, vigorous, agile." And from *vegetus* we have *vegetarious*, from which comes the word "vegetarian." Now the word "vegetable" is remotely related to the word "vegetarian;" it is derived from the same root: we have also the words "vigor" and "vigilant;" and even the words "hygiene" and "hygienic" are derived, although remotely, from the same word. To interpret the word "vegetarian" as meaning simply "a vegetable eater" would be about as consistent as the definition of the word "hygienic" given by a New York health officer, who said it was "a bad smell arising from dirty water."

But a very superficial knowledge of physiology is necessary for a recognition of the fact that the vegetable kingdom is the original source of all the energy manifested by animals. It has been very clearly shown that muscular energy is the result of the oxidation of glycogen, a sort
of muscle starch or sugar derived from the saccharin and farinaceous elements of the food. The flesh of animals of course contains a certain amount of unused glycogen, and the fat of animals is also capable of supplying energy to the body; nevertheless it is now known to physiologists that fats and oils can become a source of muscular energy only after they have been converted into glycogen, or muscle starch.

It is thus evident that the products of the vegetable kingdom lend themselves more readily and efficiently to support the energies of the body than does the flesh of animals. The popular notion that lean meat is particularly valuable as a force producer was long ago recognized as an error by physiologists. The inferiority of meat as a flesh producer is very clearly shown by the facts presented in the following table, based upon the most recent researches, the results of which are presented at length by Landois and Sterling and other reliable authorities:

<table>
<thead>
<tr>
<th>Food units in one pound.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>512</td>
</tr>
<tr>
<td>Potatoes</td>
<td>445</td>
</tr>
<tr>
<td>Milk</td>
<td>339</td>
</tr>
<tr>
<td>Corn</td>
<td>1,915</td>
</tr>
<tr>
<td>Rice</td>
<td>1,944</td>
</tr>
<tr>
<td>Peas</td>
<td>1,711</td>
</tr>
<tr>
<td>Bread</td>
<td>1,688</td>
</tr>
<tr>
<td>Chestnuts</td>
<td>1,696</td>
</tr>
<tr>
<td>Walnuts</td>
<td>2,953</td>
</tr>
<tr>
<td>Hazelnuts</td>
<td>3,553</td>
</tr>
<tr>
<td>Almonds (sweet)</td>
<td>2,853</td>
</tr>
<tr>
<td>Peanuts</td>
<td>2,560</td>
</tr>
<tr>
<td>Coconuts</td>
<td>1,728</td>
</tr>
<tr>
<td>Malted Nuts</td>
<td>2,236</td>
</tr>
</tbody>
</table>

By reference to this table it will be seen that lean meat really contains only about one fourth as many food units as cereals and nuts. In other words, the value of
beef as a source of energy is only from one seventh to one fourth that of the best foods of purely vegetable origin.  

But flesh food is not only inferior to the products of the vegetable kingdom in the quantity or proportion of energy-producing elements which it contains; it is also inferior in quality. The proteid, or albuminoid, substances of which flesh food is chiefly composed,—lean meats almost altogether, in fact,—are chiefly useful in replenishing or repairing the proteid wastes of the body, and are decidedly inferior to vegetable fats in energy-producing value. For example, an ounce of meat contains 32 food units, while an ounce of rice contains 121 food units, and an ounce of peanuts, 160 food units. It thus appears that flesh food is inferior in force-producing qualities even to those cereals that contain a large proportion of starch, and that are often regarded as a light diet, such as rice, an ounce of which contains nearly three times as many food units as are contained in a like weight of lean meat, while the food value of an ounce of peanuts is over four and one-half times that of an ounce of beef.  

But to this fact must be added a still more important consideration, viz., that flesh food, while inferior as a source of energy to the leading constituents of a vegetable dietary, at the same time contain certain poisonous substances, which interfere materially with the highest degree of muscular activity, and which limit to a great extent the flesh eater’s power of endurance. These substances are the waste, or excrementitious, elements, consisting largely of an intensely poisonous substance known as fatigue poison, which naturally results from muscular effort. It needs no argument to show that an animal or a man feeding upon flesh food and thus adding to the poisons generated in his own body those developed in the body of another animal, must accumulate within his
body an abnormal amount of waste substances or fatigue poisons sooner than one, who, with other conditions identical, abstains from the use of flesh food. The quantity of fatigue poisons generated in the body of an animal by its activities is so great that physiologists have found it possible to produce in a fresh animal all the symptoms of fatigue by simply injecting the blood of another animal greatly fatigued by prolonged and violent exercise.

This fact affords a scientific explanation of many very interesting observations in relation to the comparative strength and powers of endurance of flesh-eating and non-flesh-eating animals. The elephant and the hippopotamus, which are among the strongest of all living animals, subsist upon the coarsest of vegetable foods. The reindeer, the fleetest and perhaps the most enduring of all living animals, replenishes its stores of vital energy from the coarse moss that covers the frozen earth of the inhospitable region in which it lives. The horse and the ox, those splendid magazines of energy, which have rendered such priceless service to the human family, are strictly vegetarian in habit, as are also the orang-outang, the chimpanzee, and the gorilla that rules the forests in which he lives, but never slays to eat. The gorilla is said to be a match for a lion or a leopard in strength. He has often been known to kill a hunter with a blow from a club or his fist, and will snap a hunter's rifle in his hands as if it were a twig; but though he slays the hunter, he does not eat him.

Would the horseman with an extra long ride or drive before him, think of adding to the ordinary diet of the horse a beefsteak or a mutton-chop as a means of preparing him for the extra exertion required? Hunters feed their dogs upon corn-meal mush or some similar food, knowing well that the meat-fed dog has a poor wind and
little powers of endurance; from which it appears that even carnivorous animals are able to manifest more energy and greater endurance when fed upon a non-flesh dietary.

Some years ago, in visiting different portions of the so-called "Black Country" of England, the writer found the hardy people of Lye and its vicinity almost strictly vegetarian in their habits, not, however, for ethical, but rather for economical, reasons, flesh-meats being very high in price, while beans and other legumes, which are rich in proteid elements, were plentiful and cheap. An intelligent physician, practising in Lye, stated to the writer that the people of this region rarely ever tasted meat, though it was quite a common custom to obtain a cheap soup-bone for the Sunday dinner. The physician also stated that chronic diseases were practically unknown, medical services being almost entirely confined to obstetrical cases.

That magnificent race of men, the Japanese wrestlers, has for ages been well fed upon rice and beans.

The gladiators of ancient Greece were fed upon barley and other similar grains, and fruits. When in later ages they were fed upon flesh food, they acquired the dull and stupid disposition that is characteristic of carnivorous animals,—a fact which was recognized by Diogenes, who declared that they were wholly formed of the flesh of swine and oxen.

The Spartans during the height of their prosperity, under Lycurgus, were vegetarians, as was also Cyrus, the Persian king, and the Egyptian king Seker, of the Second Dynasty, who, history tells us, was eight feet seven inches in height and five feet broad at the shoulders.

According to Herodotus, the men who performed the prodigious task of building the pyramids were fed upon
onions, garlics, and lentils, and at the present day the native of Egypt is still practically a vegetarian.

De Lesseps declared that without the help of the vegetable-eating Arabs and Hindus, the prodigious work of cutting the Suez Canal could never have been performed. While preparing this manuscript, the writer has had the opportunity of conversing with a gentleman who was engaged under the famous French engineer in the construction of the Suez Canal, and was informed by him that it was a matter of common observation that the rice-eating Hindus and the barley-eating Arabs were able to accomplish far more labor than the meat-fed Englishmen, and that these vegetable-eating natives were far less subject to disease than flesh-eating Europeans, notwithstanding the fact that the latter, with the exception of diet, gave themselves much better care.

The historian, Sir J. G. Wilkinson, calls attention to the fact that in a hot climate a vegetarian diet "is far more conducive to health than the constant introduction of meat."

The prodigious feats of strength constantly performed by the Chinese porters of Hong-Kong, by the carriers of Constantinople, Smyrna, and Athens, as well as by the sturdy porters of Rio Janeiro, who often carry weights of from four to six hundred pounds upon their shoulders for long distances, are splendid testimonies to the value of a non-flesh diet as a means of promoting strength and endurance.

A well-informed writer in the Century Magazine tells us that the natives of the Bakongo tribe, living in the cataract region, though slight in size, will easily carry on their heads from sixty to one hundred pounds' weight twenty miles a day for six consecutive days, taking as their only food each day a little manioc root, an ear or two of corn, or a handful of peanuts.
Numerous cycling and walking feats have been performed by vegetarians, one of the most interesting of which was the great walking match between Berlin and Vienna, a distance of three hundred and sixty-one miles. Thirteen flesh eaters and two vegetarians started in the race. The vegetarians came out ahead. The first of the beef eaters arrived at the goal twenty-two hours after the two vegetarians had completed the race. Neither of the winning vegetarians was a trained pedestrian. When they reached their journey's end, the nearest of their flesh-eating competitors was fifty miles away.

In a more recent walking match in Germany, in which the distance was seventy miles, twenty-two persons participated, of whom eight were vegetarians. It was required that the race should be completed in fourteen hours. Six of the eight vegetarians passed the goal before the expiration of the time. The two other vegetarians came in a little later, having lost the road and traveled five miles out of the way. All the vegetarians were fresh and in good condition. An hour and a half after the last vegetarian arrived, a single flesh eater straggled in, very much exhausted, all the rest having fallen out by the way. This most striking illustration of the superior value of a non-flesh diet in supporting the body in a severe trial of endurance attracted wide notice from the German and the English press. The vegetarians were sent for by the medical officers of the German war department, and interrogated respecting their diet and habits of life.

These results agree entirely with the reports made by travelers respecting the marvelous endurance of the rice-eating Hindu runners, who think nothing of covering a hundred miles a day for several days in succession. The rubber-gum gatherers in South America carry loads of
one hundred and fifty pounds or more long distances over mountains, through ravines, meanwhile subsisting almost exclusively upon bananas, never tasting flesh. In some portions of the Andes the only means of transportation for travelers is upon the back of a porter, who carries both the traveler and his baggage a score of miles in a few hours without stopping to rest, and with no other sustenance than plantains and various other fruits and natural products of the earth.

Dr. W. R. Edwards, an English physician whose experience in India well qualifies him to speak upon the subject, is quoted by Dr. Haig as saying that although he could tire out a native East Indian in one day's travel, the next day he could not; for while he was stiff and sore, and not fit for work for several days, the native was all right, and could repeat his exertion of the day before.

Miles, of Cambridge, the tennis champion of England, discovered by practical experience that endurance is greatly increased by a non-flesh diet, and has adopted it when training, as have also a number of champion athletes in this country.

Dr. Haig has learned from his own experience upon this subject that he not only has greater endurance, but that he never suffers from secondary fatigue; that is, the exhaustion, soreness, etc., that appear a day or two after exertion.

No flesh-eating animal can exceed the antelope in speed or the chamois in agility. A gentleman who was for some years minister of agriculture in Japan told the writer that when driving quite long distances into the country, his carriage was not infrequently accompanied by Japanese footmen, who easily ran ahead of the horses the whole journey.

The recent exploits in walking matches and cycling races have been the occasion of considerable comment on
the part of writers in various medical journals, and there seems to be a general agreement that flesh food is not only unnecessary as a means of promoting strength and endurance, but that its employment, at least during seasons of great exertion, is a disadvantage, and encourages fatigue.

The writer has been a strict vegetarian for thirty-four years, and for some years back has abstained from the use of milk and eggs as well as from flesh-meats; and although he began life a puny child, and has labored in most arduous and taxing employments with scarcely a day’s interruption for more than thirty years, he has steadily improved in health. In spite of constant work and deficient sleep, he has gained in vigor, and to-day, at forty-seven, enjoys far better health than during the first half of his life. A notable improvement in ability for continuous hard literary application has resulted from the more recent discarding of milk and eggs, which were freely used until within the past few years.

A Non-Flesh Diet and Longevity.

Age is not to be computed in years. A French physiologist has well remarked, "A man is as old as his arteries." The primary and most important change that takes place in old age is the hardening and withering of the arteries. As the result of this withering process, a large number of the smaller arteries disappear, so that the blood supply of the muscles, brain, heart, and other important organs is cut off. This change, technically known as arterio-sclerosis, is not infrequently found in persons less than fifty years of age, although Harvey, the discoverer of the circulation of the blood, declared that in the post-mortem examination made of Old Parr, the famous Englishman who died at the advanced age of 152 years and 9 months, he found not a trace of this degenerative change, and there seems to be no reason
why he might not have lived a score of years more had not his ordinary simple vegetarian diet been exchanged, a few months before, for the luxurious diet of the English king, who invited him to his court.

This degenerative change, which begins in the arteries and thence extends to other tissues of the body, is the result of the accumulated influence of the tissue poisons upon the processes of nutrition. The body is a factory of poisons. So long as these poisons are removed as rapidly as formed, old age makes no progress. In infancy and early childhood the complete purification of the blood and tissues maintains the nutritive process in a state of high perfection, which is manifested to the eye by the freshness and transparency of the skin. With advancing age the tissues become less and less transparent, through the accumulation of tissue poisons, until finally the point is reached when the bodily functions are interfered with to such a degree that life can no longer be maintained. The vital fires are extinguished, so to speak, by the organic smoke and ashes,—the bodily excretions.

These facts furnish a ready explanation of the great longevity of herbivorous, or vegetable-eating, animals in comparison with carnivorous, or flesh-eating, animals. For example, the natural age of the elephant has been found to be from one hundred to one hundred and fifty years, the donkey from forty to fifty years, the horse from thirty to forty years, while the meat-fed dog is old at ten or twelve years of age, and the cat fed upon meat shows decided symptoms of old age at an earlier period.

The average length of life in this country is about forty-two years, but comparative anatomists tell us that the natural age of the human family can not be much less than from one hundred to one hundred and twenty-five years. That the average life of man is only about one
third of that which nature designed for him is evidence that there must be in operation some powerful cause or causes whereby the natural length of life is shortened. That the use of flesh food is an efficient cause tending to the shortening of human life is clearly shown by the fact that in the use of flesh food there must be an increase of the quantity of tissue poisons present in the body at a given time; and since the excretory organs are compelled to remove not only the poisons generated in the body of the individual, but those contained in the tissues of the animal eaten, it is apparent that the day when the system will be saturated and unable longer to perform the work of maintaining the requisite degree of purity of the blood and tissues must arrive sooner than in a person who subsists upon the pure products of the earth. It is evident that no serious attempt need be made to prove that for an animal to add to his own tissue poisons those produced in the body of another animal must necessarily shorten life.

A practical demonstration of the value of a simple, non-flesh dietary as an encouragement to longevity is to be found in a study of the dietetic habits of centenarians. Scandinavian peasants and Hungarians, who are practically vegetarians, furnish a large proportion of the most remarkable examples of great age. A Dane named Draakenburg was born in 1623, and died in 1772, in his 146th year. A Hungarian peasant, Jean Korin, according to an ancient Dutch dictionary, lived to the advanced age of 172 years, and his wife to the age of 164. Another Hungarian, Petratsh Zartan, lived to be 187 years old. Henry Jenkins, an Englishman, born in 1501, died in 1670, aged 169 years. A colored woman living in South America died in the latter part of the last century at the age of 175 years. Jean Effingham, of Cornwall, England, died in his 144th year. It is recorded of him that he
never drank strong liquors and rarely ate meat. About a week before his death he was able to walk three miles. Anthony Senish lived to the age of 111 years on chestnuts and Turkish corn. Cornaro, the famous Italian who lived for more than a hundred years, touched no meat after the age of forty.

A large number of cases of great longevity have been people of Scotch birth, who lived almost entirely on grains.

Dr. Edward Palmer, for many years connected with the Smithsonian Institute, is authority for the statement that a few years ago there was living in Southern California a squaw aged 126 years, still enjoying good health and able to carry in a blanket six large watermelons a distance of two miles. Near San Diego an aged Indian was at that time still living who was by authentic records shown to be 140 years old. He was also still able to accomplish his accustomed tasks. An Indian aged 115 years, living in the same vicinity, was as active and vigorous as a young man, often taking fifty-mile trips, carrying heavy loads upon his shoulders. The dietary of all these Indians was chiefly acorns and pine-nuts.

The renowned Hufeland, who wrote so admirably in the early part of the present century on "The Art of Prolonging Life," remarks that "instances of the greatest longevity are to be found among men who from their youth lived principally on vegetables, and who perhaps never tasted flesh."

Lord Bacon, in his treatise on life and death, recommended the Pythagorean dietary as most favorable to long life. The Trappist monks, who have for more than a hundred years maintained a vegetarian dietary as one of the fixed rules of their order, die only of old age, death occurring very seldom at less than eighty years.
In a letter received by the writer from the abbot of a Trappist establishment some years ago, the statement was made that notwithstanding the irregular lives which many of the inmates lived during their earlier years, diseases of all sorts are extraordinarily rare, and that practically the only cause of death among them is extreme old age.

It has been noted that the banana-eating Indians of South America are extremely long-lived, the age of 120 years and more being frequently attained. It has also been remarked that gray hair and other marks of senility are seldom seen in these aged vegetarians. On the other hand, the flesh-eating guachos of the pampas and the colonized Indians of North America fed on government beef are among the shortest-lived of all people.

The great German scientist Liebig noted that bodily decay occurs much more rapidly in carnivorous animals than in vegetable-eating animals. This conclusion he drew from the difference in the excretions of the different classes of animals. The justness and significance of this view is readily comprehended when we recall the physiological fact that the urine is simply an extract of the tissues. This excretion consists simply of the poisons washed from the tissues by the blood, and separated from the blood by the kidneys. When the urinary secretion contains a double portion of poisons, it is simply because there is a double portion of poisons produced in the tissues. These poisons are the efficient cause of senility, or the decay of age, whether such decay shows itself at the normal period or prematurely. The excess of poisons in the tissues of the carnivorous dog causes it to become old and infirm at ten years, while the vegetarian donkey is still vigorous at fifty. The carnivorous man must necessarily be short-lived for the same reason. City dwellers consume the most flesh food, and the rate of
human deterioration is twice as rapid in cities as in the country.

Some years ago the famous diver, Spalding, experimented upon various dietaries for the purpose of determining which class of foods would enable him to remain for the longest time in his diving-bell. He found that a meat diet and the use of alcohol greatly shortened the period of time for consumption of the oxygen contained in his apparatus. This very significant fact suggested the powerful influence of flesh eating in shortening life.

The real cause of death at last is lack of oxygen, the great life-giving principle. When flesh eating creates a demand for an unusual and otherwise unnecessary amount of oxygen, it is evident that the use of flesh food must greatly tend to the shortening of animal life.

With these facts before us, it is easy to understand the rapid diminution in the length of human life that took place after the flood, when the human race, which had previously been vegetarian by divine command, began the practise of flesh eating.

Before the flood, when men were still living upon the Heaven-appointed bill of fare,—of nuts, fruits, and grains,—the average age was nearly one thousand years. After the flood, flesh eating began, and with flesh eating began a rapid decline in the length of human life. This is the record:

Noah lived 950 years; his son, Shem, 600 years; his great-grandson, Salah, 433 years; Salah's great-grandson, Rue, 239 years; Rue's great-grandson, Terah, 205 years; and Terah's great-grandson, Joseph, 110 years. By David's time the average age of man had been still further reduced to seventy years, and at the present time, the average is forty-two years, less than one twentieth of man's original lease of life.
The following diagram is intended to illustrate graphically the enormous falling off in longevity which the human race has suffered since the introduction of flesh eating:

**Diagram Showing the Descent of Man in Longevity After the Adoption of Flesh Eating.**

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noah</td>
<td>950</td>
</tr>
<tr>
<td>Shem</td>
<td>606</td>
</tr>
<tr>
<td>Salah</td>
<td>455</td>
</tr>
<tr>
<td>Rue</td>
<td>239</td>
</tr>
<tr>
<td>Terah</td>
<td>205</td>
</tr>
<tr>
<td>Joseph</td>
<td>110</td>
</tr>
<tr>
<td>David</td>
<td>70</td>
</tr>
<tr>
<td>19th Century Man</td>
<td>42</td>
</tr>
</tbody>
</table>

Probably no other cause has operated so efficiently in reducing the span of human life as has the consumption of the flesh of animals. It is the accumulation of tissue poisons in the body of an animal that weakens its life processes, deteriorates its tissues, and introduces decay. The animal that, by eating flesh, adds to the poisons produced in its own body those of another animal, must necessarily pay the penalty by premature decline of its vital forces and shortened life.

A German statistician, according to the *Scientific American*, has recently elicited, from late European census returns, some very interesting facts respecting the centenarians of the Old World. He finds, for instance, that among the 55,000,000 pork-eating Germans there are only seventy-eight persons more than one hundred years of age. Comparison with older statistics show that *centenarians have diminished*
in Germany more than six hundred per cent. within the last forty years, during which time there has been a great increase in the consumption of flesh in that country.

Ireland, with a population of only 4,000,000, boasts 578 centenarians. Bulgaria, with a vegetarian population of less than 4,000,000, has 3,883 persons who are more than one hundred years of age. In 1890 in Servia, a country the people of which are practically vegetarian in habit, 290 persons were between 106 and 115 years, 125 between 115 and 125 years, 18 between 125 and 135 years, and three were between 135 and 140. The same scientific authority mentions a negro born near Bruno Cotrim, living at present in Rio Janeiro, who had reached the age of 150 years, an age that is still occasionally attained by the banana- and nut-eating natives of South America.

Although the elephant's usual life is from 100 to 150 years, there is evidence that elephants have lived to more than double the age mentioned. So it is not unreasonable to suppose that man by living in absolute accord with natural laws might attain to double the period recognized as his normal length of life, or two hundred years.

Easton, an English author, some years ago collected a list of supracentenarians numbering many hundreds. He mentioned 1,310 whose age at death was between 100 and 110 years; 277 died between the ages of 110 and 120 years; 84 between 120 and 130; 26 between 130 and 140; 7 between 140 and 150; 3 between 150 and 160; 2 between 160 and 170; and 3 between 170 and 185 years of age. These long-lived men and women were all persons of extremely simple habits of life, and were almost without exception vegetarians from choice or necessity.
It was recently stated on good authority that English life insurance companies offer special inducements to vegetarians, having ascertained by a careful study of the facts that a vegetarian's chances for life are better than those of the average man. The subject of life insurance has been studied with greater painstaking and scientific care in England than in any other country in the world, and this action on the part of English insurance companies should arrest the attention of intelligent men and women everywhere. In the light of the facts presented in this pamphlet it must be evident that the vegetarian is practically exempt from tapeworm and trichinae infection, and other parasitic diseases contracted from animals, to which flesh eaters are very liable. According to statistics gathered at the city morgue in New York City, at least six per cent. of the population are infected with trichinae, and this proportion must be rapidly increasing, since the observations made by the official inspectors of pork in Chicago show that two per cent. of all hogs are infected with this disease. It is impossible to eat hogs infected with trichinae without being taken possession of by these parasites. Non-flesh eaters are also pretty certain to be exempt from the following diseases: rheumatism, gout, nervous or sick-headache, epilepsy, and a host of other disorders growing out of the so-called rheumatic diathesis, all of which tend to old age and death, although they may not give rise to any immediately fatal malady.

An eminent New York surgeon some years ago recorded the fact that after fifteen years' experience in the management of a children's hospital, he was able to speak most positively respecting the value of a non-flesh dietary, which for many years he had maintained in the hospital. He found that when meat was
given to children under five years of age, they were much more liable to disease of various sorts, and that the general health of the hospital inmates was wonderfully improved by excluding meat and flesh foods of all sorts from the dietary.

The writer has for many years been personally acquainted with a large number of vegetarians, and has been officially connected with institutions, both medical and educational, in which a vegetable regimen was maintained, and his observation has constantly been that while the change from a flesh dietary to a vegetable regimen was sometimes accompanied by slight inconvenience until the craving for flesh foods was wholly conquered and the system accustomed to the new regimen, there was, on the whole, a great gain in the general health of those who adhered strictly to the vegetable regimen. The presidents of Battle Creek College, South Lancaster Academy, Walla Walla College, and Union College, all flourishing schools, in their annual reports the year after the adoption of a vegetarian regimen in their dormitories, reported that the health of the students had never been so excellent; that while disease had previously been rife among students, requiring almost the constant attention of trained nurses and physicians, professional services of this sort had been almost wholly dispensed with under the new dietary, there being almost uninterrupted good health among the students.

In the year 1854 Rev. H. S. Clubb, of Philadelphia, who was associated with the vegetarian movement in England in its earliest days, organized the American Vegetarian Society, of which he is still president. Mr. Clubb has been a most consistent and ardent advocate of vegetarianism by voice and pen, and has made hundreds of converts to the better way.
There are a few "communities" in the United States in which vegetarianism is practised. Those of the "Shakers," so-called, are the most important in size and number. Several communities of Trappist monks, and a number of convents of the Carmelite sisters also observe vegetarian principles with great strictness, and all of these testify to its high value as a regimen calculated to promote physical health, and moral and spiritual development.

The Battle Creek (Mich.) Sanitarium, organized Sept. 5, 1866, has supported vegetarian principles from the outset, and now with its large family of one thousand helpers, nurses, and students, all vegetarians, and its five or six hundred patients, for none of whom is flesh food ever prescribed, the institution is sending out annually hundreds of converts to the new, or rather old, and better way of life. The institution has more than twenty-five branch establishments in different parts of the world, in all of which the same principles are held and practised. These institutions and their constituency represent at least twenty-five thousand vegetarians, and the number is rapidly increasing. Thousands of thinking men and women are getting their eyes opened to the awful evils of flesh eating, and are cutting off their butcher bills. The subject has won respect. It is no longer a matter of scorn.

THE TESTIMONY OF EMINENT MEN AGAINST FLESH EATING.

Many of the ablest anatomists and physiologists, who have bestowed both time and attention upon the investigation of this important subject, when expressing their candid convictions in regard to the matter, unhappily pronounce man to be purely frugivorous as regards
his dietetic character, when viewed from the standpoint of anatomy.

Sir Everard Home, the eminent Scottish surgeon, said, "While mankind remained in a state of innocence, there is every reason to believe that their only food was the produce of the vegetable kingdom."

Said the great naturalist, Linnaeus, in speaking of the dietetic character of man, "His organization, when compared with that of other animals, shows that fruits and esculent vegetables constitute his most suitable food."

Baron Cuvier, one of the very highest authorities on comparative anatomy, says, "The natural food of man, then, judging from his structure, appears to consist of fruits, roots, and the esculent parts of vegetables."

Professor Lawrence, of England, fully agrees with Baron Cuvier, and remarks that the opinion entertained by some that man holds a middle ground between carnivorous and herbivorous animals appears to have been derived from experience rather than from comparative anatomy.

Dr. Thomas Bell, who occupied the position of lecturer on anatomy and diseases of the teeth at Guy's Hospital, London, in a work upon the subject says, "The opinion which I venture to give has not been hastily formed nor without what appeared to me sufficient grounds. It is not, I think, going too far to say that every fact connected with the human organization goes to prove that man was formed a frugivorous animal."

Within the past two or three years, Dr. Lauder Brunton, an eminent English physician, has called attention to the fact that death from chloroform anesthesia is probably due, not to the chloroform itself, but to the fact that it arrests the elimination of tissue poisons, and that death is the result of the action of these poisons.
rather than of the chloroform. Dr. Brunton cited the fact that death from chloroform anesthesia is very rare in India, while it is becoming more and more common in England, which fact he attributes to the increasing use of meat as an article of diet in Great Britain.

Chloroform has long been a popular anesthetic in Edinburgh, but recently deaths from its use in that city have been very frequent. It is also noticed that gout is becoming very common. Both these circumstances are doubtless due to the increased consumption of meat, resulting from the large importation of low-priced refrigerator meat.

Dr. Haig's Testimony Against Flesh Eating.

Dr. Haig, an able English physiologist, in his work entitled "Uric Acid as a Factor in the Causation of Disease," speaks clearly and emphatically respecting the influence of flesh eating upon health, prefacing his remarks with the statement that he had previously for many years suffered from severe headaches, for which he employed drug remedies of all sorts, but without relief, until in the year 1882 he renounced the use of flesh meats, with the most happy results. Dr. Haig continues as follows:

"I had previously tried a great variety of alterations in diet, ... but on the non-meat diet a change was at once apparent; my headaches diminished both in frequency and severity, and from an average of one in a week they fell steadily, as the diet was persevered in, down to one in a month, one in three, six, eight, or twelve months, and eventually eighteen months elapsed without an attack of notable severity.

"A further study of the clinical history of migraine brought out such a strong relationship to gout that I began to suspect that uric acid might be the poison of which I was in search, and I therefore proceeded to esti-
mate the excretion of uric acid and urea. At first I estimated only the excretion of twenty-four hours, and as many of my headaches lasted only a portion of a day, I got indefinite or contradictory results; but when I separated the urine excreted during the headache from that both before and after it, a definite and distinct relation between the headache and the excretion of uric acid at once became apparent.

"I have made two discoveries with regard to the causation of disease by uric acid. First of all, I found that uric acid taken by the mouth passes into the blood, and that if this fluid is kept in a condition to hold it in solution, it will remain in the blood until the kidney has time to pass the whole of it into the urine. . . . The uric acid excreted normally in the urine comes from two sources: (a) the uric acid formed in the body out of nitrogenous food, and (b) the uric acid introduced into the body in meat, meat extracts, soup, tea, coffee, etc., all of which contain it in considerable quantity. . . . The explanation is therefore complete; meat produces the headache by introducing into the body and blood uric acid plus substances of the xanthin group, and the same headache can be produced at will by swallowing any one of these substances in a state of comparative chemical purity. . . . My second discovery . . . was that uric acid, when present in excess in the blood, affects its quality in an important manner, producing the changes met with in anemia and other diseases.

"With regard to diet, we can give the main point in very few words, for we have seen that as a flesh diet increases the introduction of uric acid, it increases the formation of uric acid, and its salts diminish the excretion and elimination of uric acid. A milk and vegetable diet, provided that no excess of albumens is taken, introduces less uric acid, causes the formation of less uric acid, and its salts
promote the free elimination of all uric acid that is introduced into or formed in the body.'

It must be understood that by a vegetable diet Dr. Haig does not mean a diet composed of coarse vegetables, as cabbage, roots, greens, and the like, but a diet excluding meats, and of course including fruits of all kinds, and grains and nuts, which, when properly prepared, furnish not only the most natural and wholesome, but the most delicate and toothsome, of dietaries.

When Dr. Wm. Alcott, the eminent and learned cousin of the late renowned Prof. Bronson Alcott, of Concord, visited England in 1842, and instituted in that country a campaign against flesh eating, he was soundly berated by Carlyle, who denominated the views which he advocated a "dum'd potato gospel," and went on with his tobacco smoking and chewing, and his consumption of dyspepsia-producing viands, the effect of which the world has seen in the pessimism and heartless irony in which his books abound. Even a potato gospel might have been a saving grace for Carlyle. A potato regimen would certainly have been an improvement upon that to which he was accustomed. Nevertheless, Carlyle, as well as many others who probably have never made a careful study of the teachings of vegetarians, was mistaken as to the scope and meaning of vegetarianism.

Vegetarians, as a rule, are not particularly partial to vegetables, using the word in its technical sense as employed to distinguish certain vegetable products from fruits, nuts, and grains. A vegetarian is simply one who abstains from the use of flesh foods or the eating of dead things, excluding from his dietary whatever can not be employed as food without the taking of animal life. The diet of the intelligent vegetarian consists chiefly of grains, fruits, nuts, milk, and eggs. The
potato and other wholesome vegetables are not excluded from his bill of fare, but are by no means regarded as the essentials of a vegetarian regimen, nor is it even one of the most valuable constituents of an irreproachable bill of fare.

A recent writer has admirably compiled the following testimonials from other eminent men in favor of a vegetarian diet:

The natural food of man, judging from his structure, consists of fruits, roots, and vegetables.—*Prof. Baron Cuvier.*

The teeth of man have not the slightest resemblance to those of carnivorous animals; and whether we consider the teeth, jaws, or digestive organs, the human structure closely resembles that of frugivorous animals.—*Prof. Wm. Lawrence, F. R. S.*

The anthropoids and all the quadrupeds derive their alimentation from fruits, grains, and other succulent vegetable substances; and the strict analogy which exists between the structure of these animals and that of man clearly demonstrates his frugivorous nature.—*Sir Richard Owen, F. R. S.*

It has been truly said that man is frugivorous. All the details of his intestinal canal, and above all, his dentition, prove it in the most decided manner.—*F. A. Pouchet, M. D.*

It is, I think, not going too far to say that every fact connected with human organization goes to prove that man was originally formed a frugivorous animal. This opinion is principally derived from the formation of his teeth and digestive organs, as well as from the character of his skin and the general structure of his limbs.—*Prof. Sir Charles Bell, F. R. S.*

There is no doubt that fruit and vegetables purify the blood, while meat inflames it, and is the source of many
diseases which are the punishment for breaking the natural law and command.—Dr. Josef Drzewiecki.

Flesh is an unnatural food, and therefore tends to create functional disturbance. As it is taken in modern civilization, it is affected with such terrible diseases (readily communicable to man) as cancer, consumption, fever, intestinal worms, etc., to an enormous extent. There is little need to wonder that flesh eating is one of the most serious causes of the diseases that carry off ninety-nine out of every hundred people that are born.—Josiah Oldfield, M. A., M. R. C. S., L. R. C. P.

I believe that consumption is constantly communicated to human beings by eating diseased meat.—Dr. Marsden.

All the bloodshed caused by the warlike disposition of Napoleon is as nothing compared to the myriads of persons who have sunk into their graves through a misplaced confidence in the value of beef tea.—Dr. Milner Fothergill.

I do not consider that flesh food (chemically and physiologically speaking) is a necessary food for man. There is no question about it that, owing to the evils likely to arise from imperfect supervision of private slaughter-houses, the present wide-spread ingestion of flesh is responsible to an appreciable extent for many diseases which now exist, and which vegetable eaters avoid. We have diarrhea, cramp, trichinosis, tuberculosis, carbuncle, malignant pustule, and various forms of tapeworm through eating diseased meat.—J. Edwin Cooney, M. D.

THE ETHICS OF DIET.

In the discussion of this phase of the question we shall not undertake to bring forward any new evidence or argument. The ethical side of the subject seems to
have been exhausted long before the Christian era by those ancient reformers, Buddha and Pythagoras, who, each in his own country and in his own way, undertook to win men back to the original simple dietary of the first representatives of the race.

From a vegetarian point of view it is interesting to note that the historians of all ancient nations represent them as looking backward to a "golden age," when animals were not slain for food, when a universal fraternity prevailed among all living, sentient things. Relating to this period, the poet Ovid, writing of the views of Pythagoras, says:

"Not so the Golden Age, that fed on fruit,
Nor durst with bloody meats their mouths pollute.
Then birds in airy space might safely move,
And timorous hares on heaths securely rove;
Nor needed fish the guileful hooks to fear,
For all was peaceful; and that peace sincere."

The Biblical account of the dietary of the first man agrees exactly with the traditions of the earliest members of the race which have been held in common by all the ancient peoples. In Gen. 1:29, 30, we read: "And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat. And to every beast of the earth, and to every fowl of the air, and to everything that creepeth upon the earth, wherein there is life, I have given every green herb for meat: and it was so."

It is an interesting fact that the description of the dietary assigned by the Creator to the human family, according to Genesis, agrees precisely with the bill of fare that science assigns man by the consideration of his anatomical structure and his physiological needs.
The Brotherhood of Being.

The basis for the ethical argument against flesh eating is to be found in the fact that lower animals are, in common with man, sentient creatures. We have somehow become accustomed to think of our inferior brethren, the members of the lower orders of the animal kingdom, as things; we treat them as sticks or stones, as trees and other non-sentient things that are not possessed of organs of sense and feeling. We are wrong in this; they are not things, but beings. We forget the wonderful likeness that exists between us and these lower creatures. We neglect the fact that their brains are like our brains, their muscles like our muscles, their bones like our bones, that they digest as we digest, that they have hearts that beat as ours beat, nerves that thrill as ours thrill, that they possess to a wonderful degree the same capacities, the same appetites, and are subject to the same impulses as we. An ox, a sheep, can hear, see, feel, smell, taste, and even think, if not as well as man, at least to some degree after the same fashion. The lamb gamboling in the pasture enjoys life much in the same way as the little child chasing butterflies across the meadow. A horse or a cow can learn, remember, love, hate, mourn, rejoice, and suffer, as human beings do. Its sphere of life is certainly not so great as man's, but life is not the less real and not the less precious to it; and the fact that the quadruped has little is not a good and sufficient reason why the biped, who has much, should deprive his brother of the little that he hath. For the most part it must be said that the lower animals have adhered far more closely to the divine order established for them than has man.

The gorilla in the forest chooses his food in accordance with the natural instincts implanted in his nature by the Creator. It is interesting to know that his bill of fare is identical with that given to Adam in the Garden of Eden.
The gorilla, the chimpanzee, the orang-outang, are, in fact, adhering more closely to the divine order in diet than is civilized man, with all his intelligence and knowledge. A sad commentary this upon human weakness.

Could an Ox Speak, Would We Eat Him?

Must we not confess that our readiness to take their lives and to consume their flesh as food is largely based upon the fact, as Plutarch suggested hundreds of years ago, that they do not possess the faculty of human speech? If the butcher about to cut the throat of a lamb should suddenly be addressed by the innocent creature with a pathetic appeal for its life, it would doubtless be necessary for him to take a few more steps downward in the degradation of his manhood before he would be able to bring himself to the accomplishment of his cruel purpose.

But although the sheep goes dumb to the slaughter, do not its eloquent eyes appeal for mercy? Do not the bleating of the calf, the bellowing of the bull, the cackling of the frightened geese, the gobbling of the reluctant turkeys, and the cries of hundreds of other creatures that we call dumb, but to each of whom nature has given its characteristic mode of speech, rise in eloquent protest against the savagery to which the instincts inherited from our cannibalistic ancestors habitually lead us? That we are able in cold blood to take the lives of these innocent beings, then to bury their carcasses in our stomachs, as do the savage beasts of the forest, is made possible only by the fact that "the savage still leaps and yells in our hearts."

Flesh eating is but the natural result of that supreme selfishness that leads man to the egotistic belief that all things were made for his own personal pleasure and use. We often meet the suggestion, "If the lower animals should not be eaten, then what use shall we make of them?" As if it were man's duty or privilege to eat
everything of which he can make no other use! Did not God make each creature to be, in its own way, on its own behalf, a representative of some phase of himself, an incarnation of a divine thought? Is not the whole creation, sentient and insentient, an expression of God? Has not God created sentient beings with a common right to live and enjoy those peculiar attributes that distinguish them from such inanimate objects as stones and plants?

The Divine Order.

The divine order, as clearly shown by nature as well as by revelation, and by the traditions of the ancient world, and illustrated by the practice of the greater portion of the human race, makes the vegetable world the means of gathering and storing energy, and making it into forms usable by the sentient beings that compose the animal world, the one gathering and storing in order that the other may expend. When animal eats vegetable, there is no pain, no sorrow, no sadness, no robbery, no deprivation of happiness, no sunlight shut out from eyes that were made to see, no sweet melodies forever shut away from ears that were made to hear, no simple delights denied to beings that God made, if not in his own image, at least so nearly like his image, man, that the man whose eyes have been enlightened by the study of nature may look down and see in the millions of beings that God has made to share with him the divine spirit, the breath of life, some traits of himself that must now and then bring blushes to his cheek or strike deep into his soul barbed arrows of remorse.

When man slays to eat, what a picture rises!

"Deaf to the calf that lies beneath the knife,
Looks up, and from her butcher begs her life;
Deaf to the harmless kid, that, ere he dies,
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All methods to procure thy mercy tries,
And imitates in vain thy children's cries!
Where will he stop who feeds with household bread,
Then eats the poultry which before he fed?"

— Ovid.

First Feeds, Then Eats.

Man rears his cattle, his sheep, and his
poultry much like household pets. His
children make his lambs their playmates.
Side by side his oxen toil with him in the field. In
return for kindness, they give affection. What confi-
dence they repose in him! how faithfully they serve!
With winter's frost an evil day arrives,—a day of mas-
sacre, of perfidy, of assassination and bloodshed. With
knife and ax he turns upon his trusted friends,—the
sheep that kissed his hand, the ox that plowed his field.
The air is filled with shrieks and moans, with cries of
terror and despair; the soil is wet with warm blood,
and strewn with corpses.

Is there a brute on earth that would be capable of
such a crime? In such an act have we not the veritable
spirit of murder in an aggravated form? Let us listen
to the appeal of a pagan who lived five centuries before
Christ:

"Whoever was the wretch (and cursed be he)
That envied first our food's simplicity,
The essay of bloody feasts on brutes began,
And after forged the sword to murder man,—
Had he the sharpened steel alone employed
On beasts of prey that other beasts destroyed
Or man invaded with their fangs and paws,
This had been justified by nature's laws
And self-defense: but who did feasts begin
Of flesh, he stretched necessity to sin.
To kill man-killers, man has lawful power,
But not the extended license to devour."
"Take not away the life you can not give;  
For all things have an equal right to live;  
Kill noxious creatures, where 't is sin to save;  
'Tis only just prerogative we have:  
But nourish life with vegetable food,  
And shun the sacrilegious taste of blood."

Well did Plutarch say, "Alas, for our savage inhumanity! It is a terrible thing to see the tables of rich men decked out by those layers-out of corpses, the butchers and cooks."

Apologists for flesh eating, compelled to admit the force both of the sanitary and the ethical arguments against the debasing and inhuman practise of slaying and eating our fellow creatures, often seek to find defense for their cruelty in the fact that in the ninth chapter of Genesis, when Noah had just left the ark, permission was given to him to make use of animals for food: "Every moving thing that liveth shall be meat for you. Even as the green herb have I given you all things." Gen. 9:3. It is certainly true that Noah was given permission to slay and eat his fellow creatures, if he chose to do so, but a remarkable fact, which seems to escape the notice of those who make use of this text as an apology for flesh eating, is that the same command that gave Noah permission to take the lives of lower animals also gave the lower animals permission to kill and eat Noah and his descendants: "And surely your blood of your lives will I require; at the hand of every beast will I require it, and at the hand of man; at the hand of every man's brother will I require the life of man." Gen. 9:5. A reference to the original brings out the fact that the word used for "require" in this text is darash, the first and most characteristic meaning of which is "to seek."

The Hebrew word rendered "at" is also properly repre-
The text will accordingly read, when rightly rendered, "And surely your blood of your lives will I seek; by the hand of every beast will I seek it, and by the hand of man; by the hand of every man's brother will I seek the life of man." The following verse carries out this meaning. It is the shedding of blood that is spoken of. Man is simply told that he may, if he will, take the lives of all living creatures, and consume his fellow beings as food, but is warned that if he does, his own life will be in jeopardy; for the beasts, which had heretofore been in such perfect subjection to man, will in retaliation turn upon him, and if possible destroy his life and devour him.

This thought is further sustained in the second verse of the same chapter, "And the fear of you and the dread of you shall be upon every beast of the earth, and upon every fowl of the air, upon all that moveth upon the earth, and upon all the fishes of the sea; into your hand are they delivered." No such relation previously existed, but now there is good reason for dread. Man may turn upon his former friends, may slay and devour them; but he is informed what the penalty will be if he does it.

It thus appears that man not only introduced sin into the world, and thereby became responsible for the sorrow and wretchedness and misery which have resulted from physical, mental, and moral transgression, but that he also first set the example of bloodshed and carnage, and introduced the warfare and strife which during the ages since has been growing more and more fierce and bitter between man and man, between beast and beast, and between man and brutes. Certainly it would seem that it is man's duty, inasmuch as he was the first offender, to be the first to recognize the evil which has resulted from his bad example, turn about, mend his ways, and do works meet for repentance. Is it not high time that
we began to climb up out of the condition of savagery into which we have fallen through bad heredity and bad hygiene, and through the perversion of our natural instincts?

That the permission to eat flesh was not intended either for man's physical benefit or to add to his happiness here on earth is clearly evidenced by the warning that goes with it, and by the fact that the length of human life, which prior to the flood had been nearly a thousand years, immediately afterward diminished to one third of this period, and within a few generations to less than one tenth. Have we not in this permission to eat flesh an illustration of the principle expressed in Eze. 20: 25: "Wherefore I gave them also statutes that were not good, and judgments whereby they should not live"?

The prophet Isaiah gives us a picture of Eden restored, when the life of man shall be again "as the days of a tree," and when "the wolf and the lamb shall feed together, and the lion shall eat straw like the bullock: and dust shall be the serpent's meat. They shall not hurt nor destroy in all my holy mountain." Isa. 65: 25.

That flesh eating is a most effectual means of shortening human life we have already shown by incontestable arguments; hence we believe the reason above assigned for the permission to eat flesh after the flood is wholly consistent with both science and revelation.

To say that every person who eats flesh in so doing commits a crime, would perhaps be going much too far; for human responsibility certainly depends to a very large extent upon human enlightenment; but it is not too much to say that to destroy animal life carelessly, needlessly, or for the mere purpose of personal pleasure, is
a sin. No man who has a proper appreciation of what life is and what it means, and who is able to look out upon the great world of nature, and see in every object, animate and inanimate, an expression of a divine intelligence,—not a God confined to some remote corner of the great universe of time and space, but a God actually present, living and working in every created thing,—certainly no such one can engage in the ruthless slaughter of innocent and helpless creatures for mere personal gratification.

To the writer, nothing much short of a wholesale massacre of human beings could be more hideous than going out with a shotgun to kill birds, or with a rifle to destroy the graceful antelope or busy rabbits and squirrels, all actively at work performing their God-given offices in the economy of nature. Think of the millions of murders that are daily committed in the name of sport, of the vast number of noble, happy creatures that are shot down, either killed outright or maimed and mutilated, to linger out a miserable existence, and finally to die of pain or starvation or to fall into the jaws of some hungry beast.

The slaughter of animals of any sort for mere pleasure ought to be prohibited by law. It is the writer's firm belief that a fully awakened conscience will recognize animal rights as well as human rights, and certainly there is no right more sacred to either animal or human than the right to live. It is a matter of surprise that the numerous societies for the prevention of cruelty to animals, which are engaged in such a noble work, and in so many countries, should not recognize the fact that the supremest act of cruelty is the taking of life—murder. We are glad to note, however, an evident sympathy with vegetarian principles on the part of the leaders in this humane work, and believe that a reciprocal sympa-
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thy is accorded their efforts by vegetarians the world over. It is to be hoped that through the cultivation of humane sentiments toward these lowly creatures, we may come to regard their slaughter, even for food, as grossly cruel.

Said Byron, "But man is a carnivorous product," and arguing from this premise, he concludes that man, "like the shark and tiger, must have prey." But man is not naturally "a carnivorous product," as we have clearly shown by an array of scientific facts which ought to convince the most skeptical, though it is not even necessary to appeal to science to prove that man is not naturally a carnivorous animal. The shedding of blood is against our normal instincts. Said a rough, in some respects rather gross, though intelligent man the other day, "I have been compelled to stop the use of flesh food. A lady said to me one day, 'How can you eat a thing that looks out of eyes?' That remark haunts me; whenever I sit down to the table and see, for example, a piece of mutton, I see a pair of gentle sheep's eyes peering at me, and I can not touch it." Think of this, reader, when you are tempted to feast on dead ox or cow, on lamb or bird. May the Divine Spirit that dwells and acts and feels in every sentient thing, look deep into your soul through the eyes that have been forever put out, and teach you that this slaughter of innocents is not that you might live, for you can live better without slaughter; not that your hunger may be appeased, for there is better food for this purpose,— bread from Heaven, the divinely appointed sustenance for man; not that you may eat, but that you may feast; not that you may satisfy any legitimate or normal instinct, but that you may satiate a thirst for blood, a craving for dead flesh, a depraved, cultivated, corpse-eating instinct, born not of heaven, but of the ignorance,
debasement, and godlessness of savagery. Think twice before you consent to have your stomach made a cemetery, a potter's field, a depository for the carcasses of dead beasts, a living sepulcher.

Eyes imply a mind, perhaps a soul within, an intelligence at least, something that has feeling and capacity for enjoyment, and that looks out upon the world, forms its opinions, its likes, its dislikes, enjoys, suffers, loves, hates, — experiences in which all creatures belonging to the animal kingdom are one. So there is, in a certain sense, not only a universal brotherhood of man, although few recognize even this fact, but there is likewise a greater brotherhood, which includes not only man, civilized man, savage man, Christian man, heathen man,—all men,—but likewise man's four-footed relatives, into whose nostrils, as well as into man's, God breathed the breath of life, thereby making each a living soul.

Strange it is that civilized nations seem to be, of all classes of human beings, the most apathetic respecting the rights of lower animals. In India, which we regard as a half-civilized country, there are two hundred millions of men, women, and children who look with absolute horror upon the taking of animal life. In Burma there are many millions more, and still more millions in China and Japan. Christendom introduced butchery into Japan, and also into India and Burma. The conscientious Buddhist in either India or China would die before he would taste flesh, to say nothing about taking the life of an animal. A half dozen Englishmen out at sea after a couple of weeks without food would begin to look sharply at one another and talk of casting lots, and a few days later would perhaps be found eating one of their number. A like number of Hindus under the same circumstances would die together before suggesting such
a thing as the taking of life, either human or animal. We have something yet to learn from races that have departed less far than we from the principles of primitive purity and simplicity in their physical habits.

The fact that our so-called Christian nations are behind many heathen nations in the estimation they put upon life as manifested in animals below man in the scale of being, is without doubt one of the greatest obstacles that has stood in the way of the advancement of Christianity in China, Japan, India, Burma, and kindred countries. A missionary who had spent some years in India once stated to the writer that on one occasion, when preaching to a large audience in the streets, a Brahman who happened to be passing by, rushed in among his hearers and shouted out at the top of his voice, "That man eats pigs! he isn't fit to preach!" With looks of intense contempt and disgust, his auditors fled from him as if he had been a leper.

Christianity ought certainly to present before the world a higher type of man, a higher ideal of life, than does any other religion, and this we are bound to admit it does when considered as a whole, and as represented by its highest ideals, and as portrayed in the Holy Scriptures; but certain it is that the terrible butchery of innocents that is carried on in the slaughter-houses of all our great cities, from which streams of blood continually flow, while the cries of the terrified and tortured beasts ascend to Heaven, is a blot upon our civilization, and is in a certain sense a repudiation of that gospel which came to bring peace on earth. It is certainly to be hoped that the time may come when there will be preached, not only in civilized lands, but also in heathen lands, that greater gospel which was sent not to save man out of the world, but to save him from himself in the
world, and to save, to rescue, to redeem the world itself,—man, animals, plants, the whole creation,—which, groaning under the burden of sin and strife and carnage and wrong and perversion, awaits the dawning of that new day when Eden shall be restored, and the "golden age" shall have come again, and when man shall love not only his fellow men, but all God's creatures, great and small, in earth, and air, and sea, and when once more there shall arise with each returning dawn one universal hymn of praise, in which all living, sentient things shall join in sweet accord.

The popular notion that a flesh diet has in some way contributed to the intellectual superiority of the English-speaking races can not be shown to have any real foundation in fact. That the English and other flesh-eating nations have acquired commercial and political supremacy in modern times is not due to the fact that they have been flesh eaters, but rather in spite of it. Thorough investigation of the subject shows that as a matter of fact, the bone and sinew of the British nation—the peasantry, or farmers—make very little use of meat, while in Ireland and Scotland, with the exception of the wealthier classes (those who live in towns), flesh is used so sparingly that it must be considered rather as a luxury than a food. The advantages which the English-speaking and other civilized nations enjoy over semi-civilized and uncivilized nations and tribes are due to other causes than the use of flesh food. As evidence of this it is only necessary to call attention to the numerous wild tribes who live almost exclusively upon flesh food, and yet are by all odds the most degraded, the most immoral, and the most rapidly perishing of all human beings, civilized or uncivilized. And that flesh eating is not essential to intelligent progress is clearly enough shown.
by the fact that the people of India, who are practically a nation of vegetarians, have maintained from the most remote ages a very complete literature and a very high grade of civilization, and in India the most cultivated and intelligent of all classes are the Brahmans and Buddhists, who are strict vegetarians, and have been such for more than two thousand years.

The Japanese, who have from time immemorial been vegetarians, have within the last quarter of a century made vastly more rapid strides toward civilization than any other nation in either ancient or modern times. This progress can not be attributed to flesh eating, for the reason that as yet Japan is a vegetarian country. Its population is so exceedingly dense that flesh eating can never become a prevalent practise. The Japanese supplement the rice, barley, wheat, rye, corn, sweet potatoes, and hundreds of other vegetables and cereals that enter into their dietary, with peas and beans, particularly the remarkable soy, or Soja bean, which is so rich in proteids that it may be said with absolute accuracy that one pound of Soja beans contains practically two pounds of the best beef, or rather, of its equivalent, besides nearly twenty per cent. of fat, so that all the elements of nutrition are supplied in proper proportion.

In those countries in which a non-flesh regimen is accompanied by either physical or mental degeneration, the cause will always be found either in some pernicious habit that exercises a specially blighting influence upon mind or morals, or in an insufficient or improperly proportioned dietary. For example, in India the custom of extremely early marriage is doubtless an active cause of race weakness. No instance can be cited in which physical or mental deterioration can be attributed to disuse or lack of flesh food.
An eminent London journalist some years ago made an investigation of the relation of flesh eating to musical ability, and found that very few great singers came from families or countries addicted to flesh eating. A gentleman whose business it was to seek out and train singers for the stage asserted that very few good voices were found in England, where meat is freely eaten, whereas among the vegetarian Irish it is common to find young women who can "sing like nightingales." Sweden is a land of sweet singers because a land of grain.

Among birds, songsters subsist upon grains, fruits, and nuts. Carnivorous birds do not sing; they croak and caw. Parrots, without doubt the most intelligent of birds, are frugivorous.

Remenyi, the famous Hungarian violinist, at the advanced age of more than sixty years, still had a countenance as fresh as a man of thirty-five or forty, and free from wrinkles or other signs of old age, a fact which he attributed to his vegetarian habits and his total abstinence from all alcoholic liquors and tobacco.

Edison, the greatest of modern inventors, is practically a vegetarian. Wendell Phillips, the orator and reformer, stated to the writer a few years before his death that he had been a vegetarian for forty years. Emerson, Thoreau, Margaret Fuller, and Alcott were vegetarians, as were also Greeley and Dana in their early years, and a large coterie of kindred spirits who entered upon the historically famous Brook Farm experiment.

The greatest philosopher of ancient times, Pythagoras, was a most earnest apostle of vegetarian principles, and gathered about him in the little village of Crotona, a colony of enthusiastic disciples, who, with their successors, ably maintained his doctrines for several hundred years after his untimely death.
It was the influence of Pythagoras upon Lord Byron that led him to adopt a vegetarian regimen as a means of maintaining mental and moral equilibrium. A man whose bill of fare consists chiefly of flesh food must expect to find himself more nearly related to the animal in his instincts than the man who satisfies his palate with nuts, fruits, and farinaceous seeds,—the primitive diet of the human family. Byron refused to eat flesh because, as he said, "It makes me ferocious." Writing in his journal in 1814, he said, "Meat I never touch. . . . The worst is the devil always comes with it till I starve him out; I will not be the slave of any appetite."

No man knew better than Byron, a man of strong appetites and passions, the influence of diet upon both mind and body. Many have recognized the same truth which he expressed, but comparatively few have shown the same resolution in making a practical application of it. Byron finally succumbed to his appetites, however, and died a drunkard and a glutton.

Isaac Newton adhered strictly to a vegetable regimen while performing the prodigious intellectual work which made his name immortal.

In the Catholic Church abstinence from flesh food and adherence to a strict vegetarian diet has for years been recognized as a means most powerfully contributory to mental and spiritual elevation. For some centuries the Trappist monks and the Carmelite sisters, two orders in the Catholic Church, have demonstrated the entire feasibility of a vegetarian regimen as a human dietary, and have pointed out numerous spiritual and physical advantages in the abstinence from flesh food which they most religiously maintain. The writer personally visited one of these establishments, and found not the slightest evidence of physical injury from the non-use of flesh.
Influence of a Flesh Diet upon Character.

It is interesting to note in this connection the difference of character between flesh-eating human beings and carnivorous lower animals, and those men and animals that subsist upon the natural products of the soil. That the ferocity of the lion, the tiger, and the wolf, which stands out in such contrast with the docility and amiability of the ox, the camel, the antelope, the reindeer, the rabbit, the elephant, and other vegetable-eating animals, is due to the difference in dietary is clearly shown by the fact that tame bears and domesticated hogs, though gentle and tractable when fed upon a dietary from which flesh is excluded, very soon become highly ferocious when fed upon meat.

The ancient vegetarian race of Mexico and Peru had attained to a high degree of civilization when discovered by Cortez, and were certainly far more gentle and amiable in character than were their flesh-eating conquerors, whose treachery and cold-blooded atrocities so nearly resulted in the complete extinction of a noble race.

Oliver Wendell Holmes, "the autocrat of the breakfast table," remarks on the influence of diet upon character: "Most assuredly I do believe that body and mind are much influenced by the kind of food habitually depended upon. I am persuaded that a too exclusively porcine diet gives a bristly character to the beard and hair, which is borrowed from the animal whose tissues these stiff-bearded compatriots of ours have too largely assimilated. I can never stray among the village people of our windy capes without now and then coming upon a human being who looks as if he had been split, salted, and dried, like the salt fish which has built up his arid organism. If the body is modified by the food which nourishes it, the mind and character very certainly will be modified by it also. We know enough of their close
connection to be sure of that without any statistical observations to prove it.'

An eminent English lady, Mrs. Ernest Hart, wife of the editor of the *British Medical Journal*, stated in an article contributed to the *Hospital* that in her opinion the unhappy, miserable home life which is so common in England, is due to the free use of flesh foods in that country. She held up in contrast with the English home the domestic peace and happiness that prevail in the homes of the rice-eating Japanese, where harsh words are unknown, and where exquisite politeness is universally practised, even among children playing upon the streets. The writer has been frequently informed by missionaries that urbanity of temper is almost universal among the Japanese, who have been a vegetarian people for many centuries. Their disgust for flesh is well illustrated by a story told the writer by a clergyman who had long been a missionary in Japan. He stated that while having a portion of meat cooked in his house upon one occasion, his housekeeper called upon him and said, with great firmness and dignity, "Honorable sir, I can no longer endure the smell of this burning flesh. It is very horrible."

A native Hindu once said to a missionary, "I have heard that in your country people sometimes kill hogs, cut them in pieces, pack them in barrels, and then eat them after they have been dead many months. Tell me, is it possible that this can be true?"

It is stated that the real cause of the terrible Sepoy rebellion was the report circulated among the soldiers that they were going to be compelled to eat pork.

That the natural instincts are not entirely dead, even in our too much "civilized" America, is suggested by a circumstance which recently occurred in an Ohio town.
Shortly before Christmas the front of one of the meat shops in the city was decorated with a large number of very "ripe" (well-decayed) rabbits. As a gentleman was selecting a "ripe" specimen to take home for Christmas dinner, a farmer who happened to be driving by stopped his team, gazed mutely at the putrid carcasses for a moment, and then exclaimed, "Well, if I ever get so low down as to eat such things as that, I will shave my head and paint it red, like a turkey-buzzard." Truly, the taste for corpses, whether recently dead or advanced in putrefaction, is a turkey-buzzard appetite, and not a human instinct.

Said a gentleman recently who had learned the better way in diet, and was asked to eat a piece of mutton, "I have nothing against the sheep; why should I eat him?"

That flesh eating exercises a most demoralizing influence upon every community where it is practised is a fact that needs no further evidence for its support than the existence of slaughter-houses, and of the class of men who are generally known as butchers. Any one who has ever visited an abattoir and observed the fiendish look upon the faces of the men who cut the throats and flay the carcasses of numberless sheep, pigs, and other innocent brutes, must have felt impressed that the business of slaughtering animals is a training-school for murderers. Some years ago a boy murderer, less than a dozen years of age, took the lives of several children and playmates, enticin9 them into a neglected cellar for the purpose, and there cutting their throats from ear to ear. He was the son of a butcher who was assisted in his business by his wife. The boy was evidently born with murder in his heart. It is a significant fact that in most countries it is a recognized custom to exclude butchers from juries in the trial of cases of murder.
We find occasionally in the newspapers and in guide-books and works of travel, blood-curdling accounts of the bull-fighting exhibitions which are constantly to be seen in Mexico and other Spanish countries. There are brilliant descriptions of the agile capering of the capeadores, of the venturesome audacity of the banderilleros, of the skilful horsemanship of the picadores, and of the dexterous maneuvering of the matador who escapes death himself by a hair's breadth in taking the life of the bull. Long disquisitions have been written upon the horrors of bull-fighting, and Spain and Mexico have many times been held up to the scorn of the world because of the bull-fighting proclivities of their people. One writer recently remarked that in his opinion a nation that would tolerate bull-fighting "ought to be wiped off the face of the earth."

Do not imagine, gentle reader, that we are going to offer any apology for bull-fighting. This so-called sport is certainly the devil's business; if sport at all, it is hellish sport. It offers a spectacle well calculated to manufacture demons, cut-throats, cold-blooded murderers, human fiends, assassins, thugs, fratricides, and matricides. But compared with some ways of killing brutes, bull-fighting has at least one redeeming feature, — the bull has a chance to kill his would-be murderer, to gore and trample in the dust his tormentors, which he has a perfect right to do, a God-given right. See Gen. 9:5.

When the human race began its onslaught upon the lower animals, God put in the heart of every beast a self-preserving instinct from which he derives the impulse to take the life of man. Then began the strife between man and beast as to which should kill the other. In thus giving the animal the disposition to kill man,
A FAIR FIGHT.
“IN BLISSFUL IGNORANCE OF THEIR FATE.”
God provided for a "square fight," giving the animal a chance to execute divine vengeance upon its would-be murderer.

Viewed from this standpoint, there is one thing worse than bull-fighting, with its matadores, picadores, chulos, and muleteros. Now listen, reader, while I tell you what it is. *It is the abattoir!* Do you object to this arraignment of one of the much-respected institutions found in all great cities, and one of the most prodigious wealth-producers of all the businesses in which men are engaged in the great metropoli, if we may judge from the colossal fortunes accumulated by those most largely engaged in the killing business? Then let me ask you to take a peep through one of the great abattoirs of a large city. Unless you have already been accustomed to spectacles of gore such as are afforded by the town slaughter-house, or "butchering day" on the farm, you may perhaps be too shocked to proceed before you have completed the tour of one of these stupendous slaughter-pens.

The *Cosmopolitan* and the *Gentleman Farmer Magazine* have recently published lengthy and profusely illustrated articles giving the details of the whole business, so that it is possible for one to attain a very exact knowledge of what takes place in one of these establishments without running the risk of soiling his garments with blood or becoming nauseated by the reeking stench which "smells to heaven," not only in the immediate vicinity of the stock-yards of Chicago, for example, but sometimes pours out such a volume of malodorous venom as to insult the nostrils of more than half the population of that filth-ridden city. Through the kindness of the editors of these magazines we are able to furnish our readers with a number of these lifelike cuts, which are made from photographs taken on the spot,
each of which carries with it an appeal, the eloquence of which might move a heart of stone.

In the Union Stock-yards of Chicago enormous wealth has constructed a machine for killing, the most extensive to be found in all the world. As the *Cosmopolitan* says, "It is a region of order and death, but a sight that will stir the most casual onlooker or the deepest philosopher." And it does stir — it changes every man who comes in contact with it. Let us look at some of these pictures, and let each one of us note how he is "stirred." The man whose soul is not so calloused that he has ceased to think humanely, and has lost sight of the great fatherhood of God and the great kinship of all living, sentient things, must be stirred to feel that the slaughter-house, whether it be the wretched shanty just outside the limits of some country village, or the enormous structure filled with ingenious machinery of every description managed by a great packing company, is simply a place where organized murder — premeditated, systematic, deliberate murder — is carried on. True, it is not so regarded by the men who are engaged in it, but it is nevertheless murder.

The second illustration presents a small section of the cattle-pens in which the poor brutes are confined "in blissful ignorance of their fate." Here, we are told, there are often to be found from "forty to fifty thousand hogs, twenty thousand cattle, and five thousand sheep." Two hundred acres of yards are densely crowded with unoffending brutes, waiting to be slaughtered. As the writer of the article referred to tells us, "hardly any sunrise sees in existence any part of all this life that on the previous morning bleated, squealed, and bellowed under the urging whip of the drover." Think of it! More than one hundred and fifty thousand lives snuffed
Awaiting the Butcher's Knife. Expecting to be Fed.
THE ASSASSINATION.
out in one day! In 1897 nearly four million cattle passed through these yards to death, and more than eight million hogs, to say nothing of the vast numbers of sheep and calves.

On page 149 is shown one of the yards into which the cattle are driven in small lots when they are to be slaughtered, and from which they are crowded into a long alley, an outer and upper view of which is shown on page 150. The alley is divided into compartments, into which the poor brutes are crowded two by two, and so closely hemmed in that they can not stir.

Confused, dazed by their new surroundings, frightened by the drover’s whip, possibly imagining that they are being parceled off to be fed, they meekly stand, waiting they know not what; presently an assassin, unseen, unexpected, slips up behind, and deals each poor brute a sledge-hammer blow between the eyes, which fells him to the floor—not dead, but insensible.

One of the big doors shown in the picture now rises, and the innocent victims are rolled out upon the floor. At this point they are seized, swung aloft, flayed, eviscerated, drawn, and quartered, and hung up to “ripen” by processes of putrefaction until they become “Christmas beef,” possessing just the right odor and flavor of putrescence to suit the appetite of the epicure—tender morsels to be torn into shreds by dainty teeth that are carefully cleansed and polished three times a day only to be as many times plunged anew into the decaying carcass of some dead beast.

If the dumb creatures of the pen happen to be pigs, “they are driven in lots of fifty into a grim chamber where the wheel of fate awaits them. Here they come, squealing, crowding, dripping from their bath, only to face the wheel, and death in the shape of a huge butcher
in whose hand gleams a blood-wet stiletto, and whose apron drips red. The wheel is immense, solid, and without spokes. About the rim, where spokes would be if it were not solid, hang chains with hooks at the bottom. As the wheel revolves, the chains come down and drag upon the floor. Two men are here. As the chains descend, they are seized, and the hook is fastened about the hoof of a hog. The wheel goes on, and slowly the porker is dragged upward out of the jam, while the next chain is fastened to another hog.

"As he ascends, an automatic appliance seizes the hook about the foot, releases it from the hog, and substitutes another victim, without even so much as a jolt or a fall. This is a carrier from then on, and the rail is a direct sloping path to death, dissection, and the refrigerator. In five minutes the kicking, squealing victim will be halved, and hanging with thousands of others in a dim refrigerator, awaiting the car or the packing-room.

"The sloping rail keeps the hog moving by mere force of gravity. As it moves along, one in a long solid line, to the butcher, a dexterous move of the blade ends its career. It passes on, and an electric button which the chain scratches in passing, registers its death, and indicates in the office of the superintendent of the yards the number of hogs slain thus far. For ten yards the body gravitates downward, and bleeds, the blood running into a special reservoir from which is drawn the material for fertilizer."

Consider a moment, reader, how much blood is poured into that reservoir. A calculation based upon very moderate figures shows that the amount of blood annually shed in the Chicago abattoirs alone is more than sufficient to float five great ocean steamships. What crime have these poor brutes committed that they should thus be exe-
DONE TO DEATH.
THE WHEEL OF FATE.
SHALL WE SLAY TO EAT?

What law of God or man have they violated that they should thus prematurely die, that their blood should be poured out upon the soil as a fertilizer? Verily, the blood of multimillions of innocents cries from the ground.

After witnessing such horrors, who will say that the abattoir is a noble industry, or, as the writer of the article referred to in the *Cosmopolitan* claims, that it is "the greatest business in Chicago" and "the most interesting thing in Chicago"? Who will dare to call the butcher's business honorable, and with the same breath denounce the bull-fight as a national disgrace, an outrage against public morals, a school of murder and of all crimes of violence? We shall not undertake to dispute that this is all true of bull-fighting. The complacency with which Spanish soldiers cut off the heads of captured Cubans, and the equal alacrity shown by the Cubans in butchering helpless Spanish soldiers who fell into their hands until the cold-blooded business was stopped by American rifles leveled at the heads of the would-be offenders, shows clearly enough the effect of the bull-ring upon the Spanish character.

After the killing, those animals which are intended for export are inspected, or supposed to be. An inquisitive visitor one day asked a government inspector of pork what was done with the two in every hundred hogs found to be infected with trichinae. "Oh," said the officer, "they go in with the rest for home consumption. There are two per cent. of infected hogs to be eaten anyway, and the addition of a few thousand more won't make any particular difference." Here is some solid mental food for pig eaters.

Speaking of this discriminating inspection reminds us of a conversation which occurred one day between a physician and an inquiring disciple of the new dietary.
Said the gentleman, "Doctor, I can not understand why
the pork inspectors in Chicago find only two per cent. of
the hogs infected with trichinæ while Dr. Janeway, the
eminent New York anatomist, finds trichinæ in six per
cent. of the men who are brought to the great Bellevue
Hospital for post-mortem examination."

Said the physician, "It seems to be a plain case.
There are more men who eat hogs than hogs who eat
men."

As regards the efficiency of the superficial inspection
made of cattle intended for home consumption, a health
commissioner of the city of Chicago stated a few years
ago to a representative of the Chicago Tribune as fol-
lows: "The health department inspectors condemned
1,550,337 pounds of meat last year as being unfit for
human food. I do not presume we caught a fractional
part of the whole amount."

A man came under the writer's care as a patient some
years ago who had been employed about the stock-yards
of Chicago. For a number of years he had conducted,
in the employ of others, a business in diseased cattle.
He explained how he managed to evade the law, slip-
ing the animals out by night and disposing of them to
small butchers in the city. He seemed to think it was
not a difficult matter to evade the vigilance of the inspect-
ors. This testimony quite agrees with that of the health
commissioner, according to whose statement the seven
hundred and seventy-five tons of diseased meat annually
condemned by the inspectors is only "a fractional part of
the whole amount" of diseased flesh sold for human
consumption. Although this statement was made sev-
eral years ago, we have no evidence that there has been
any change for the better since.

The influence of the abattoir, of the common slaugh-
ter-house, is equally shown in the moral deterioration
A Torrent of Blood.
THE SLAUGHTER OF THE INNOCENTS.
evident in the men whose lives are devoted to the slaughtering of innocent beasts. The ears of such men become deaf to the agonizing cry of the intelligent brute that suspects its fate. The spectacle of a living being pouring out its life-blood in a gushing stream loses its ghastliness; the sight of quivering flesh, of writhing entrails, loses its gruesomeness; life, that divine spark of infinite energy which animates all living things and makes all sentient creatures kin,— this wonderful, mysterious, inexplicable life,— loses its sacredness. The hired assassin is almost always a butcher. The perpetrators of many of the most atrocious and cold-blooded crimes have been more frequently butchers than men of any other occupation. That a man is by trade a murderer of brutes—a butcher—is almost universally, in Christendom, regarded as a disqualification for service upon a jury in which the question of responsibility for human life is involved.

Some years ago the papers published a story which well illustrates the influence of the slaughtering of animals upon child character: "One day, two little children, a boy of five and a girl of three, watched their father slaughtering pigs. The next day the little girl was missed. On inquiry of the little boy as to her whereabouts, the parents were led to a corner in the garden where the little child lay cold and dead with her throat cut from ear to ear. In explanation, the little boy simply said, 'We have been playing killing hogs.'"

Recently knowledge has come to the writer of a still more ghastly occurrence, in which a company of children who watched the killing of pigs one day, the next day engaged in the game of "killing pigs," and choosing one of their number, subjected the little fellow to the whole process of throat-cutting, hanging by the heels, and evisceration.
Red blood is a mark of kinship which as human beings we must recognize. The Bible declares the unity of animal life. "The Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life." (Gen. 2:7.) "And they went in unto Noah into the ark, two and two of all flesh, wherein is the breath of life." (Gen. 7:15.) There is a fraternity more comprehensive and universal than the "brotherhood of man." Let us think and speak of the "brotherhood of being." Let us see in the ox a patient, industrious kinsman worthy of respect. Let us see and recognize in the sheep a meek and docile fellow creature appealing to us for protection. We behold in the lion a degenerate, blood-thirsty brute—

"Whom Heaven sundered from the rest to yell
In forests, and in lonely caves to dwell."

It is easy enough to find a human counterpart for every beast of prey, blood-thirsty, rapacious, standing apart and aloof from all his fellows, like Esau, with
"hand against every man," wandering, degenerate, lost, and fallen brothers, but brothers still, who need reclaiming. One such reclaimed man, who had been a most desperate and despicable character, once said to the writer, "Since I ceased to eat flesh food I am a changed man. Before, when I ate great bloody beefsteaks, I would rise from the table feeling just as if I must strike somebody or bite something. I felt savage. I was so irritable I could scarcely restrain my impulses. Now it is easy to be calm, to be kind. I have self-control. How glad I am that I am delivered from beefsteaks." Isaiah tells us that the lion shall sometime be reformed, and shall again, as in Eden, "eat straw like the ox."

The slaughter-house, the abattoir, is a blot upon our civilization. It is a crimson crime, the awful effects of which are stamped upon the characters of millions of unborn infants. The sight of quartered and eviscerated beasts hanging in the markets, corpses paraded along the public thoroughfares, is demoralizing to old and young; but the thirst for blood, the carnivorous appetite engendered by generations of perversion, demands flesh for satisfaction, and so hundreds and even thousands of men must be compelled day after day, year after year, to wade knee-deep in blood, that "men with fleshy morsels may be fed."

The Mexican chooses to have his beef killed in the ring and to get a little entertainment and excitement out of it by giving the animal a chance to fight for its life. When the animal is dead, its carcass is dragged out, skinned, dismembered, and finally buried in the stomachs of the spectators the same as if it had been killed in the slaughter-house or butchered by machinery, as in a modern abattoir.

In England, in former times, it was the custom to turn the animal awaiting slaughter out into a large field,
and set a parcel of savage bulldogs upon it to tease it until nearly dead so that its flesh might be tender. In other countries it was the practise to hang the animal up by its heels and flog it to death with stout whips. These special cruelties are not now tolerated, but the greatest cruelty of all,—robbing the animal of its right to live, prematurely shortening its existence, shutting out from its eyes forever the light of the sun, the beauty of the world, shutting away from its ears forever the pleasant songs of the birds and nature’s universal music, and cutting off from it forever all the simple pleasures which have been divinely ordained for its gratification,—this is simply unprovoked, premeditated, systematic murder. Does the word sound harsh? It is only because our conscience has been seared, our sensibilities have become blunted, our judgment perverted, our natural instincts reversed; we have false conceptions of things; we look upon the animal as we look upon a stone or a tree, forgetting that it is, like ourselves, a sentient being.

If some reader considers that the views expressed in this article are extreme, let him recall the fact that there are in India two hundred millions of people who hold the life of a beast almost as sacred as that of a human being, who will willingly die of hunger rather than—

"Pollute their bodies with the food profane,"

as Ovid sings. In China, Burma, Persia, Siam, and Japan there are as many millions more who regard animal life with the same respect.

A few years ago the Jains, a numerous religious sect in India, concluded their annual feast by visiting one of the slaughter-houses of Calcutta, where cattle are killed to satisfy the bloody appetite of Mohammedans and European merchants and missionaries, not to buy car-casses for a barbecue, but for the purpose of purchasing
DRAWN AND QUARTERED.
and setting free a number of cows. Who ever heard of such an example of pity and compassion in Christendom? It is pertinent to recall just in this connection that in the year 1866 there were 10,000 murders in the United States, while in India the proportion was only half as great.

For more than twenty years the writer has observed the relationship between flesh eating and alcoholic intemperance. In the treatment of a large number of cases of inebriates, it has been constantly observed that the absence of meat is one of the most efficient means of subduing the appetite for alcohol. This fact has been noted by many observers. It is mentioned by Dr. Haig in his work on the influence of uric acid in the causation of disease, and has been noted by many others. A single case will illustrate the point:

The writer recently met in his office a gentleman who had, until within a few months, been for many years a steady drinker. He also smoked excessively, and had become almost a complete wreck. His digestion was so disordered that he could eat nothing without distress. His mind was in such a condition that he found it difficult to transact business. He told the following story: A friend sent him a supply of cereal foods and urged that he adopt their use, which he did, with the result that within three weeks his appetite for both liquor and tobacco left him so completely that although he had previously been greatly addicted to their use, the odor of tobacco and the flavor of alcoholic beverages of all sorts became positively repulsive.

After telling his story, the gentleman remarked, "Doctor, I have learned by my experience that alcohol and cereal foods do not agree. Within a few days after I had discontinued the use of flesh food of all kinds, the"
appetite for alcohol and tobacco left me completely.”

This gentleman also mentioned the case of a friend to whom he recommended the same dietary, and with equally good results.

Another case is perhaps still more striking as an illustration of the influence of flesh food in creating an appetite for alcohol. A man who had for many years been addicted to the use of alcohol, but had been reclaimed, and who had for months experienced no craving whatever for alcohol, having in the meantime subsisted upon a natural dietary, feeling one day a craving for the “flesh-pots,” resorted to an eating-house some distance from his place of employment, and ordered a large rare beefsteak and a half dozen oysters. After eating these, he passed out of the eating-house, and to his surprise was immediately seized with a most intense desire for drink. He stated afterward that it was with
great difficulty that he could restrain himself from going straight to the nearest saloon for a glass of whisky. He succeeded, however, in summoning sufficient resolution to turn away from the temptation, and fearing lest he should fall, ran home to his lodgings as rapidly as possible. A week or two later, however, his carnivorous appetite returned, and he proceeded to indulge himself as before, forgetful of his previous experience. No sooner had he eaten the beefsteak than he went straight to the nearest saloon, overcome by the old appetite, which had returned with irresistible power, and from that moment became oblivious to all that happened for several days.
It was found impossible to restrain him from the use of alcohol without confining him, which was done, and after a few days of a non-flesh dietary, the appetite disappeared. By strict adherence to a simple non-flesh dietary, this man, who is under the writer's observation, has now for many months kept himself wholly free from alcoholic drinks, and declares that the appetite has been thoroughly subdued; but it is more than probable that a few days of flesh eating would bring back the old craving in all its intensity. Numerous other similar cases might be mentioned.

How to Reform.

A few suggestions may be useful to those, who, being convinced of the correctness of the principles of vegetarianism, desire to make a practical application of them, but who may be deterred by reports they have heard of the failures made by sundry individuals in the attempt to adopt a strictly non-flesh dietary. That failure is unnecessary is clearly shown by the fact that out of sixteen hundred millions of persons living upon the earth at the present time, fully one fourth are vegetarians from religious principle, while at least another fourth taste flesh so rarely that it can scarcely be regarded as constituting a practical part of the dietary. This fact is also shown by the experience of thousands of persons who have abandoned the use of flesh foods in all forms, and not only remain in good health, but have actually gained decidedly in health after so doing.

That some of those who have attempted to change have not succeeded is no fault of the principles of dietetic reform, but should rather be attributed to individual ignorance or lack of discretion. Flesh eating is physiologically and ethically wrong, as has been clearly pointed out. It is always safe to abandon a wrong practise of any kind, and the writer is decidedly of the opinion that a
long period of gradually tapering off is not only unnecessary, but is as unphilosophical as it is unphysiological. If a person is doing wrong, the sooner he ceases to do wrong and begins to do right, the better for him. This statement is not made without the backing of abundant experience. In the last twenty-five years the writer has seen some thousands of persons, between fifteen and twenty thousand at least, abandon at once and entirely the use of flesh foods as the result of the professional advice given them by himself or his colleagues. During the same time he has seen many thousands of young men and women in health make the same change, and in the same way, and has never yet seen a single instance in which harm has resulted.

It must be stated, however, that something more needs to be done than simply to discard flesh food. Flesh-meats, such as beef, mutton, and chicken, are highly nitrogenous in character. When used habitually, there is an instinctive demand for farinaceous food, especially farinaceous vegetables, like the potato, which contains only a small proportion of the proteid or nitrogenous element, to accompany the flesh food, thereby balancing the dietary.

It is evident, then, that if a person who has been accustomed to an ordinary mixed diet discards flesh food without making any change in his usual bill of fare, he must necessarily suffer from the insufficient supply of proteid, or nitrogenous elements. In the writer's observation, many of those who have voluntarily discarded meat have sought to supply its place with cereals, particularly in the form of mushes of oatmeal, cracked wheat, etc., and sweets in the form of syrups, honey, and the free use of sugar. Nothing could be more unphysiological than this. Indeed, it is quite probable that from a purely hygienic standpoint, flesh food is to be
preferred to a miscellaneous compound of mushes, cream, sugar, syrup, coarse vegetables, fruits, etc. The vegetable kingdom affords an ample supply of most perfect substitutes for flesh food, or rather affords a large variety of substances, the existence of which renders the use of flesh food not only unnecessary but in the highest degree undesirable, since it can supply only an inferior quality of what nature has provided in much more perfect and wholesome form.

Among these foods must be mentioned first of all, nuts of all classes, with the possible exception of the chestnut, which is highly farinaceous in character. Almonds, filberts, hazelnuts, English walnuts, hickory-nuts, and pecans are all highly nitrogenous in character. They also contain an abundant supply of the carbonaceous element in the form of a very digestible fat. Nuts are consequently a complete and most delicious and wholesome substitute for meats of all descriptions.

Peas, beans, and lentils are also highly nitrogenous, and should, in most cases, be added to the dietary when meat is discarded. Only persons whose stomachs are very greatly disordered are unable to digest legumes, if prepared in a proper manner. The peanut, a near relative of the legumes, is closely allied to nuts in its composition, containing a very high percentage of both fat and proteids; so it is capable of furnishing, when properly prepared, an excellent substitute for flesh food. It may be used in combination with fruits and grains. The peanut is one of the most highly nutritious and valuable of all food products, but has until recently been little appreciated.

It is especially important that a proper supply of fat should be obtained. Those who discard the use of milk, butter, and cheese because of their animal origin, along with fish, flesh, and fowl, are likely to suffer from an
insufficiency of fat. This is doubtless the cause of the failure in the case of a large number of those who have, like the poet Tennyson, experimented with vegetarianism for a few weeks, but have abandoned it, either because of an irresistible craving for flesh food or because of some real or fancied inconvenience experienced.

Nuts are a natural source of fat, afforded in great abundance and in a most assimilable form. Olives, if thoroughly ripened, may be taken without inconvenience by the majority of persons. This remark must not, however, be considered as a recommendation for the common green pickled olive, which is so extensively used to the detriment of the stomach. Green olives are scarcely more digestible than pickles, and hence the nutritive oil which they contain in considerable quantities is not available for use. The ripe olive is very dark brown or nearly black in color, is easily masticated and reduced to a condition of emulsion, and is very sweet and palatable. Free or separated fats, such as olive-oil, cottonseed-oil, etc., although of vegetable origin, are of questionable value as articles of diet, for the reason that they can not be assimilated until first emulsified, and as they are not acted upon by the stomach or any of the fluids that are active in the stomach during digestion, they can not be absorbed, and as they can not mix readily with the other elements of food, they float upon the top of the digesting mass, smearing over the stomach walls, and surrounding the food particles with a layer of fat that can not be acted upon by either the saliva or the gastric juice, and thus seriously interfere with the process of digestion.

A person who has been accustomed to the free use of meat, on making a change to a non-flesh dietary, will very likely at first, or within a few days, experience an unusual craving for food. This somewhat unnatural
appetite is due partly to the novelty of the bill of fare, and in part, perhaps, to the absence of the usual feeling of satiety that follows the use of flesh food. In many cases, also, the improved appetite and increased demand for food is the result of an improvement in the digestive and assimilative powers, whereby there is a greater ability to receive and utilize food material.

Special care should be taken to avoid the excessive use of milk, of sugar and other sweets, and of soft foods, and particular pains should be exercised to make suitable combinations of food substances. When one subsists entirely upon fruits, grains, and nuts, comparatively little attention need be given to the matter of combinations, as these food substances are man's most natural dietary, and mingle harmoniously together during the process of digestion; but when vegetables are added, it is wise, in the majority of cases, to avoid the use of fruits at the same meal. A combination of fruits, milk, and vegetables is one of the worst that can be made. Dry food is preferable to soft food because it must be thoroughly masticated.

There is an increasing number of persons who make large use of meat, because of the fact that a flesh dietary renders them more comfortable than any other, by suppressing fermentations, especially the formation of gases and acids, such as develop in the stomach as the result of acid fermentation. There are also persons, who, on discontinuing the use of flesh food, experience considerable discomfort for a time, until there is an opportunity for the stomach to adjust itself to the new dietary, or until such foods or combinations of foods have been found as are adapted to the condition of the stomach. A considerable number of special foods have been prepared, which such persons will find very helpful. Among these may be mentioned particularly the following: Granose, Gra-
nose Biscuit, Granola, Gluten Biscuit, and various other health food products manufactured by the Battle Creek Sanitarium Health Food Co. Zwieback, which may be purchased or made at home, is also highly valuable.

Nuts, by simple preparation, may be rendered exceedingly digestible and acceptable in flavor even to those who are not particularly fond of them in their natural state. For example, the almond may be blanched and dried or very slightly roasted, and then reduced to a pulp. In this state it may be mixed with an equal quantity of water and used as a substitute for butter, or it may be mixed with a larger proportion of water and used as cream or milk. It may also be used as shortening in various dishes. Peanuts may be treated in a similar manner, but require more cooking than the almond. Various special foods have been prepared from nuts, which are also highly valuable as meat substitutes. Nuttolene, Nuttose C, Bromose, Malted Nuts, Ambrosia, and other preparations of a like character may be commended. These foods have already been introduced into thousands of homes, where they have proved acceptable substitutes for flesh meats of all sorts. A full description of these and other special preparations of nuts may be obtained by addressing the Sanitas Nut Food Co., Battle Creek, Mich.

Several excellent cook-books are published, which present an ample variety of delicious, appetizing, and wholesome bills of fare, into which flesh food does not enter in any form. The publishers will be glad to give the fullest information by circulars or letter respecting helps to the adoption of a natural and wholesome dietary. The popular health monthly, Good Health, devotes, in every number, a special department to the subject of scientific and healthful cookery, which will be found helpful by those desiring to make a reform in diet.
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We will tell you all about these new, delicious, strength-giving, flesh-building foods in a booklet. Sent free for your name and address on a postal.

Sanitas Nut Foods are made from choice selected nuts in many palatable forms to suit all tastes. Thoroughly cooked. Ready to eat. Send 25 cents in stamps for assorted trial packages.

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Are you just as well as you wish to be? Do you never have a rheumatic twinge or a pang of headache? Are all your family, friends, and neighbors just as well as you care to have them? If so, perhaps you do not need to take GOOD HEALTH.

But wait, would you like to know how to keep that fine health until you are gray? Would you like to learn how to live and be well a hundred years? Then you need to take GOOD HEALTH, to read it, and to send it to your friends.

It answers questions constantly asked in the home, such as,—

What are the best foods to make one strong?
What is the best way to cook the best foods?
What are the best combinations of foods for strength and good digestion?
How can we dress hygienically and yet artistically?

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