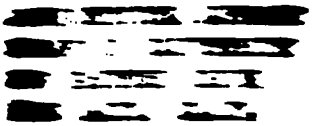

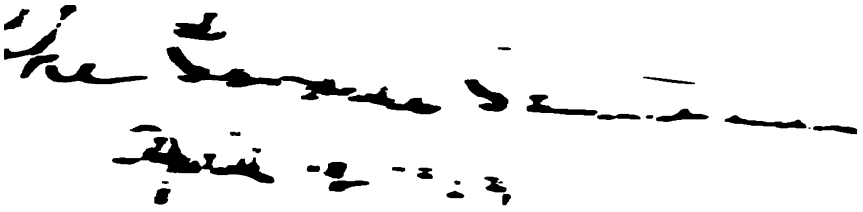

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The Gordon Sanitarium

April 12 1909.

THE MATTER WITH NERVOUSNESS.

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INTRODUCTION.

This little book hopes to interest three classes of readers; may we have a private word with each?

To Physicians.

There is some talk of nerve cure in our day; priests, psychologists, laymen are all taking a hand at it; only the doctors are a little abashed; we hardly say anything; sometimes we are too busy; sometimes we are in that case Taine speaks of: we "are not masters of words and consequently of ideas."

Why should our lay brothers feel impelled to discuss nerve cure; why should they feel a call to cultivate it?

It must be because we want something in this field; we are not always wise, earnest, helpful here and so multitudes of nerve-sick men and women turn from us as men turn from a spring that is dry.

It piques us a little at first—all this extra medical effort for the betterment of health; we fail to see the need of it; we are able, we think, to attend to all that.

But there is one lesson we all need to learn and to heed; every "movement" away from the authority and the care of scientific medicine—every one that persists—marks some real limitation of medical science or else some limitation of the individual men and women who represent it.

Nearly always the second explanation is the true one; scientific medicine affords all the known re-

sources of healing, but individual followers of it do not always afford these; we continually and habitually forget some of the greater remedies of our ancient art that others find and use.

To Mental Healers.

Brother, greeting; we have attended your class in mental healing with pleasure and profit; hearty thanks.

You never asked us, and we never spoke of it, but we have had a class in mental healing, too, for more than twenty years; we have worked with it, played with it, gotten up in the night to serve it, and, more times than we can remember, we have seen the poor, bewildered, disembodied soul rise, flutter for a brief billionth of an instant, and then vanish utterly into the waiting night.

So may we say something if we say it kindly, genially, earnestly?

There are three medicines—the medicine of the spirit, the medicine of the mind and the medicine of the body.

The medicine of the spirit deals with the things of the spirit—it deals with that response which every man makes to the gift of life.

The medicine of the mind deals with the things of the mind; it uses maxims, mottoes and the wisdoms of experience; it applies the modern science of mind to the urgent needs of modern men.

The medicine of the body deals with the physics and chemistry of flesh and blood; it keeps the Temple, where the spirit and the mind of man must dwell perforce awhile, in good repair.

All these medicines are necessary to healing; why do we not know and use them all; why are we all content to be fractions in our world of healing when we might be whole numbers?

Alas, it all comes out of our very human halfness; out of our interminable immaturity, out of our persistent provincialism, out of that poor partialness that Carlyle said is inveterate in man.

We are too old now to begin again; we shall go on playing one instrument in the orchestra instead of writing the music or leading the symphony, but, even so, it will help us greatly to glimpse the larger vision of the wholeness of healing and to cherish in our hearts the impossible Ideal of perfect cure.

To Patient-Minds.

Once we traveled for hours on a train behind a sad-eyed woman who read and read—we could not help seeing it—a book upon nervousness; we felt a little sorry for her; we longed to lean forward, to tap her on the shoulder and to tell her not to take it all too seriously.

For almost every popular medical book does some harm; sometimes the doctor writes one thing and the nerve-tired soul reads another; sometimes the doctor fails to make himself understood, or perhaps the patient only fails to understand; sometimes the reader is a *sensitif*, one of the quick-plates of humanity, and multiplies the meaning of the message by five, by ten and by twenty, and many a time the poor, piqued, patient-mind — over-roused, over-advised, over-quacked, over-scared, over-conscious — needs nothing upon this earth quite so much as to forget that there is such a thing as health and that there are such things as healers in existence.

The talk part of nerve-cure ever wavers between two moods.

One preaches prudence, carefulness, earnestness, thoroughness; it may even try to scare the patient a little—good; all it wishes is to give the careless patient a good, strong motive to behave.

The other mood preaches the gospel of relaxation; it soothes, assures, depreciates health-worry; it tells a good fortune; cheers, hands out a little of the lotus-flower; holds up on high the rose colored banner of optimism; it tries to take us out of ourselves.

Both these gospels have great field in nerve-cure, but our gospel to-day happens to be the sterner one. It says and insists and repeats even to weariness two pregnant truths:

Nervousness is no merely functional trouble; there are no merely functional troubles; it is no mood of the mind; no notion of the nerves; nervousness, whether it be slight or severe, transient or permanent, is always a surface sign of deep-lying bodily deteriorations that are real as the fracture of a bone.

And nerve-cure is no marvel of miracle-making for modern men; no mere parlor magic; no interesting diversion of a leisure hour; no poor comedy of errors; nerve-cure is a struggle of *stoff und kraft* just as real, just as earnest, just as desperate sometimes as bone-cure is.

But should this gospel sadden you too much, kind reader, put the book aside; it is not said to you.

246 Powell Street,
San Francisco, March, 1909.

NERVOUSNESS IS A SUM IN ADDITION.

THE SUM.

Nervousness is a sum in addition.

The first given number is over-sensitiveness—that is to say chemical instability in nerve-stuff—beyond the norm.

The second given number is the pace, or the stock of ideas, or some nerve-current mischief, or some poison, or some thorn in the flesh, or some apparatus-strain—one or all.

The sum is ill-feeling, ill-thinking, ill-acting,—in a word, nervousness.

I.

NERVOUSNESS IS A SUM IN ADDITION.

Calling one day upon a nervous girl we found her in bed, in darkness, in a great odor of camphor and in dreadful pain; it was nothing new, just one of her regular "attacks" of hemi-crania — "megrim" or "migraine" for short.

Then the old question came up once more; what is the matter with migraine?

All are agreed that migraine "occurs" in *sensitifs;* some say it is "due" to eye-strain; some to intestinal poisoning; some to this thing and some to that.

Now the truth is that sick-headache is a sum in addition.

Over-sensitiveness + provocation = migraine: migraine is due to over-sensitiveness much as to any merely exciting factor; over-sensitiveness is indeed very often the larger half of the trouble.

It is so over the whole range of so-called "functional" nervous disease; over-sensitiveness is the suffering target; many kinds of arrows reach it and the well-scarred target plus the stuck-in arrows make up the picture of this or that kind of nervous ill-feeling.

But we all rather slight the primary trouble and rather harp upon the secondary, and so we often fall far short of cure.

We knew our "case" of sick-headache rather well and all the heritage of it—more than we would tell, more than we could print. Ethel was slender, undersized for seventeen, bright, every one said, ambitious

—nothing short of a Ph. D. degree would satisfy her. She studied at night, when her brain was full of fatigue poisons; she studied mathematics—a study that, one psychiatrist says, "does physical violence to every woman's brain who pursues it."

Then, Ethel was ever "on the go"; she belonged to everything; she was into everything; and she danced all night whenever she got the chance; besides that, she was a perfect "irradiator," or shall we say irradiatrix; every little stimulus spread with her—over ten times the nervous area that was necessary; every little gayety roused a keen and prolonged excitement; the mere idea of a "tea" next day would keep her awake all night; hers was a wasteful little body, spending ten kilos of energy for every one of work or of play.

So the over-sensitive girl alternated between excitement and exhaustion—between intense enjoyment and ferocious pain.

Why do we lie awake, some of us, hour after hour, night after night?

Nearly always it is because our brains are "irritable," over-sensitive to light and sound and ideas; over-responsive to many things, and that is more than half the trouble.

There may indeed be lumps of undigested food or gallons of gas in the bowels; there may be circulating poisons—emotion poisons from racked brains; muscle poisons from tired and sore muscles; intestinal poisons from tired abdomens; there may be unhappy ideas—unhappy as those that attend the last night of a condemned criminal.

But some men sleep through all this, and so should we if our brains were not so irritable; this irritability then is half the trouble.

Why do we in America worry so about our health, use so many medicines, employ so many healers, write and read and talk so everlastingly about our health?

Are we then so sickly? no; the Americans are strong as any of earth's races, enduring, striving with the best.

But they *feel:* climate, the pace, opportunity—many things key us up to the snapping point; then we respond, leapingly, to this or that ill-feeling, to this or that chance suggestion, until we are fairly hypt with the idea of health. But if we could only subtract away the over-sensitiveness we should not act so queerly, and so that is half the trouble.

And why do we suffer the sorrows of the spirit so—some of us? the privations, the disappointments, the vexations of life; why this deep-seated "sense of personal injury," these pent-up feelings, these "hurt" feelings; why do we suffer the loneliness of life so severely—the gnawing hunger of the heart; the despair of man and of God; the bitter griefs over all the sad losses that time brings?

"Other men suffer the like," and have suffered—all through the centuries.

Life is often hard, but it is our nervous over-sensitiveness, our keen suggestibility that responds so readily to every chance suggestion that often makes life harder than it really is.

Our sensitive nerves and brains multiply the trouble by five, by ten, and by twenty—and so that is more than half the trouble.

Or why are we ever psychasthenic—full of fears and occupied by obsessions— tormented by ideas that insist, persist, and make us miserable?

Then we are like some of those wretched auto-pianos in the depots: every one that comes along puts a penny in and makes us go; the penny is a suggestion and the piano is nothing more than our over-sensitive, over-suggestible brains.

Our over-sensitive brain-stuff suffers every chance suggestion; sometimes other people slip the suggestion in; more often we do it ourselves.[1]

Supposing we are a woman and a wife—two hard things to be sometimes: some one—it may be our husband—speaks harshly; then perhaps we harden our hearts and sulk, or soften them and cry—according to our nature. We charge our hurt feelings *all* to the speaker of harsh words; we add the trouble up with only one figure; but perhaps our sensitive nerves received more than was meant—and perhaps that is half the trouble.

Or suppose we are staying at the sanitarium: strange, suggestive, sinister sensations appear in our nerve-tired bodies; they alarm and worry us; they seem serious—more serious than the doctors comprehend.

So sometimes we worry our strength away fast as the doctors can put it there.

But many a time the ill-feeling that frets us so is a sum in addition: our over-sensitiveness is the larger half; the provocation, whatever it is, is only the smaller half of our trouble.

This sum in addition is one of the most helpful lessons in nerve-cure; how often we have preached it

[1] Some neurologists consider psychasthenia to be an abortive form of epilepsy, and it may be so, but over-sensitiveness (over-suggestibility) plus constant self-suggestion seem to account for some of the appearances well enough.

—in the office, in the sick-room, and in the sanitarium.

Sometimes the greatest service that one can render a nervous patient is to teach him how to take the measure of a nervous ill-feeling—how to tell one given number from the other.

It is a simple thing to do; here is the formula:

Over-sensitiveness	+	Provocation	=	Ill-feeling.
5	+	5	=	10
Over-sensitiveness	+	Harsh words	=	Hurt feelings.
7	+	3	=	10
Over-sensitiveness	+	Eye-strain	=	Headache.
6	+	4	=	10
Over-sensitiveness	+	Intestinal poisoning	=	Depression.
4	+	6	=	10

Try this formula some time, kind reader, when you feel cross, blue, wakeful or headachy; it has helped others; it may help you.

II.

OVER-SENSITIVENESS.

Practically all nervous diseases and disorders are chronic. The organic are painful, incapacitating and deforming; the functional more potent to cause misery and suffering than any other form of disease.—*Dr. Joseph Collins.*

The Halls were having a little trouble in their home. Anita, the tall dark daughter, with the bushy brows, was the cause; she had gotten into a habit of saying "I feel"; she said it many times each day, until it wearied the others a little; *they* began to feel things, too.

They tried to laugh her out of it for awhile, but that plan never succeeds; then they tried to talk her out of it, but they were not experts in the talk-part of nerve-cure, so they bungled that; they bought her a book of new thoughts and even took her to a mental healer.

But, alas! it was all of no use; one might as well tell the E string to be the G; the keyed-up girl went on like an over-tense violin sounding her own shrill note, and could not sound another.

The doctor was the only one who knew the pith of the matter—why Anita's slender, youthful, good-looking, sometimes vivacious, body pitched its note so high, and at last, for peace's sake, he had to tell the folks just how it was.

He said that surface signs deceive sometimes; that fine-looking apples may have a worm at the core; that a shipload of coal may smoulder for weeks before it bursts into a flame; that every great harbor has mines at the bottom; he told them, too, why pho-

tographers' plates are "quick"; why dynamite "goes off"; and why the door-bell would not ring the last time he called.

He spoke of insight, too,—the sight that sees in from surface to center; the sight that sees "the realities that underlie appearances"; and he explained some of the many ways a doctor can tell what is really the matter—with people like Anita.

Over-sensitiveness is easily the larger half of much nervousness; we know the signs and phases and moods of over-sensitiveness very well, but what is the *matter* with it? Is there anything?

It will be a little hard to tell the story in four pages; a little hard to leave out long, strange words, but if we can only do that we may give and take a glimmer of the truth.

First of all, we locate our over-sensitiveness—largely in the sensory nerve-stuff—in the nerve-stuff that feels.

For there are three distinct kinds of nerve-stuffs in the body,—nerve-stuff that feels, nerve-stuff that stands between feeling and action, and nerve-stuff that acts.

The nerve-stuff that feels was formed first; it is located in the hinder part of the brain and spine; it constitutes a marvelous sensor; it receives wired messages from the mazes of the body and wireless ones from the outer world.

But we can track the trouble more deeply than that.

Science has put on stronger spectacles of late; it used to see *form*—organs, cells, fibers—and explain all life by that.

Now it looks past form and sees stuff; in a word, it sees life-stuff as a chemical combination and con-

ceives of life (in its physiological aspects) as a chemical process.

Imagine a photographer's dark-room, bathed with ruby light; here are two photographic plates—glass plus gelatine (an organic compound) mixed with silver bromide. The two plates *look* exactly alike; yet the photographer knows there is a great difference in their matter and in their behavior, for one plate is "quick," the other "slow."

The quick plate is over-sensitized; its silver compound breaks down more readily under the stimulus of the sun's actinic rays; quick plates re-act quickly; it is all over in a flash; one has to handle them very carefully.

Or, let us think of a stick of dynamite—a mass of infusorial earth soaked with nitroglycerine. It *looks* stable enough, but its nitrogen is very loosely tied to the other chemicals; the thing is dangerously unstable; a slight jar decomposes the stick and it "goes off"—flies into a thousand pieces.

Now a bit of body-stuff — a nerve-cell, if one pleases—is nothing but a nitrogen compound built up into a structure that can show signs of life.

Even in healthy bodies the proteid molecule that stands as the chemical unit compound of the body is very complex and very unstable; so it is able to show "irritability" and re-action to its surroundings.

Even in health a nerve-cell is not a stable structure; it is ever changing, ever balanced or poised between two activities—waste and repair; there is a constant give and take; matter *flows through* the cell rather than resides in it.

Still, even so, healthy nerve-cells build themselves up into chemical structures that are relatively stable; into forms that have a certain steadiness and a certain self-control.

But when ill-fortune or ill-usage vex a cell for long it loses some of its building power.

Tired, poisoned, teased, nagged, over-taxed cells build feverishly, tremblingly, hastily—the best they can under the circumstances. They put the stuff together badly—into chemical forms that are relatively unstable, into forms that lack endurance and self-containance; into forms that react too quickly to too slight stimulus. Then the little nerve-cell is anxious —because every nerve-cell has a little brain of its own—as an unskilled rope-dancer that strains and clutches to keep himself in place—always fearing a fall.

We who are not nervous are apt to compare over-sensitive nerves with our own sound ones, failing to appreciate the physical flaw that makes nervousness sometimes act so badly.

Over-sensitiveness feels five, ten, twenty times more than it ought; sometimes it feels things quite out of range of normal nerves, just as the astronomer's quick plates feel and register the light of unknown stars.

Over-sensitiveness is apt to act badly, too, at times —to react hastily, rashly, weakly, wastefully; that provokes us, but, after all, at the last analysis, the harsh word, the rash act, all the losses of nervous self-containance and self-control are very often chemical appearances more than they are moral or character failure ones.

III.

THE PACE.

The days come and go; the generations
Are perishing day by day. — *Heine.*

Every generation of men opens its eyes upon a new world; a world different from anything that has gone before.

Daphnis, the scion of some Sicilian shepherd, woke to the simple pastoral life of Theokritus' day; all *he* had to do was tend the goats and the heifers; loaf leisurely through "the dainty footed hours," and lie lazily upon the warm evening slopes playing his pipe and naming the stars.

How different with us; we waken to a jar, a clang, a mighty rush of modern men, all racing towards a goal; as soon as we are able we, too, join "the mad rush"; all that we can see in the heavens above and in the earth below is a color—a ghastly gleam of yellow; it mocks us in the distance; it lures us on and on and on.

Then, sometimes, some of us cast off one shred after another in the race—honor, self-respect and the hope of high heaven, until at the last we fall in our tracks—a mere mass of dishonored, tried-out, worthless dead-stuff that no one cares to touch nor to mourn nor to remember.

Race Progress Involves Individual Strain.

A generation of men is a caravan making the journey from the cradle to the grave; the stronger lead, the masses lag in the middle or barely keep up with the rear.

Now the dates and the water by the wayside are not enough for all; so, men fight and the stronger take.

Children are born; the reproductive activity of any generation exceeds the earth's capacity to supply comfort and happiness—and that increases the strife; the active men in any generation reproduce; this reproduction of men slightly above the average—in activity—sets a new standard of living, and tends to progress.

So, progress, which is the central fact in biology—and in human history, ever tends to sacrifice individuals—the less active, the less sturdy, the less enduring—in the larger, coarser interests of the race.

Climate.

The American climate is hot and cold and dry in places; the extremes of weather unstring or else key-up the nerves—"try" them; the thin clear air of high dry climates dries the skin, makes it a poor out-conductor of the body's electricity; then the pent-up nerve currents race round and round the nerves.

The bright sunlight of tropical climates, too, shoots some of its rays past the white man's ill-armored skin and gets to the very depths of the nerves.

Fathers and Sons.

Some of us—city men—are three-four removes from the soil; the first fathers ploughed and hewed, but leisurely; the next got into the whirl it may be; they lost a little weight—muscles, breasts, hips, abdomens, nerves.

Sometimes they played us a sad trick—they took something out of the stock-stuff that belonged by right to us, and used it in their business; or they may have lost it honestly—but they lost it somehow, and left us—what you see.

The Pace.

The place and the time is full of opportunity and eagerness; the stronger and faster ones set a pace we all have to follow; they walk, it may be, but we have to run to keep up; new ideas, new duties, new standards of living, new luxuries press upon us; new ever-changing methods keep us busy adapting ourselves; we have little time to pluck the posies that grow by the wayside nor to note the mountains purple in the distance nor to watch the colors that Some One paints upon the sunset sky.

City Life.

Thirty per cent of Americans live in large towns or in cities; there they crowd together; sicken in the shade, suffer the noise; die of the dust, the bad air, the disease germs; in the city, too, are sedentary habits, vain dress, facile pleasures and some contagion of vice and crime; so city stocks run out in the fourth generation; new blood comes in and withers in the flame, for your city is a great user-up of men.

Artificiality.

High civilization ever tends to artificiality—to the worship of comfort; to heated houses, soft beds, soft-tack, soft air; to cramping clothes, to riding instead of walking, to a thousand refinements that tend to sensitize and so to weaken the nerves.

"The Lust of Speed,"

as the *Lancet* calls it, is hard upon the nerves; the "limited" express, the interurban electric, the automobile, the great newspaper, the horse-race, the bicycle race, the prize-fight,—all thrill and gratify the speeders, but the thrill and the gratification cost; we pay the price in nerve-stuff—more than we can afford.

Rest-less-ness.

Increasing sensitiveness overflows in forms of increasing rest-less-ness—tension, action, incontinence; we fidget, fumble, fret and fume; "go," "gad," slum, game,—anything but rest. Then boredom seeks a change; ennui harkens to the panderer; our search for a new sensation carries us further sometimes than we meant to go.

We all have to keep something of the pace our generation sets—forging well to the front or lagging far behind; some spring from a stock that seems to thrive for a while, upon stress and strain; their bodies were built to wear; they pace us, hurry us, worry us, rule us; they win; but only for a while; in the law of the long run they, too, have their day; the most vigorous stocks disappear in the end.

Over-sensitive nerves suffer the pace that modern life exacts more than others: noise, shock, speed, excitement, fear, fatigue,—all explode and decompose unstable nerve-stuff, and leave the chemical poisons, the waste products of decomposition, in its place.

IV.

THE STOCK OF IDEAS.

The great fire in San Francisco scattered the merchants; they fled far from fire and found shelter in basements, barns—anything for a refuge.

Now, after two years of exile, they are "getting back down-town"; that phrase means much to San Franciscans; it is a sign to us; the long dark night is nearly over; it is the dawn.

One merchant announced his removal in this wise:

"ALL NEW STOCK:

"NOT A NEEDLE NOR A PIN OF THE OLD STOCK GOES."

Brothers and sisters in nervousness, we need just that—many of us; a new stock of ideas; not a needle nor a pin of the old stock ought to go into the new life.

A new-born child has no ideas, only a few inherited instincts; it is not even self-conscious.

Then, as time goes on, it begins to acquire a stock of ideas day by day: milk is good; iron burns; the rose is pretty,—until at last, in thirty years perhaps, we find ourselves over-stocked — with the ideas of nervousness.

Few men and few women are skillful or lucky at this business of selecting ideas; we need ideas that will make us fruitful; ideas that will help us to live; but, alas! we only manage to acquire a stock of ideas that makes us sterile and that helps us to die.

Sensation is the source of all idea-tion; it is the raw material of thought; sensations pour in upon our sensors—our nerves that feel—every moment; even during profoundest sleep; some sensations come from the mazes of our own bodies; some from the outer world; most of these sensations are lost in the lower levels of the nerves or else turned outwards there in the forms of automatic action; many more are ignored in the higher levels, and a few rise into full consciousness.

Here, in the higher levels of the brain, the sensations appear before the judge, who judges them—good or ill; these judgments create our frame of mind, and that frame of mind becomes the motive of our action.

But ideas do more than merely frame our minds and move us to action; ideas profoundly alter our very body's stuff; they compose and decompose it, fatten and emaciate it, build it up and tear it down.

Some emotions tear the body down with fearful rapidity; we have known jealousy to lose a man a quarter of his weight in a few weeks of time.

On the other hand, happy ideas tend to save our body stuff and to build it up; all the forms of mental healing act physically, in the end; they all act upon the body's stuff.

So ideas compare with the most powerful tonics on the one hand and with the most powerful poisons upon the other; they are forces just as real and just as physical as food, climate, pressures, strains are.

But we shall speak of all that again; all we wish now is to note the fact and to put it with its fellows.

V.

THE NERVE-CURRENT MISCHIEFS.

Reading our book quietly of an evening, we rarely reflect upon all that lies behind the light—the plant, the power, the skill, the service, the danger, and the daring of men who risk their very lives that we may read.

Every electric lighting service includes a plant and a power: the plant consists of iron, copper, rubber, glass, steel, bricks, and cement; the power consists of movement in the finer mysteries of matter.

Every lighting service employs men to generate, distribute and control the power; even so the current makes mischief among the wires and the fuses, and so every lighting service has to keep men continually at work repairing the damage.

Our human bodies have an electric plant, too. It is made of nerve-motors and nerve-paths; every body has a power, too, that plays along the nervous pathways as electric power plays along the wires.

Our bodies keep a man, too, to care for the plant and to control the current, but, alas! he is often careless; then, sometimes, the power is "off" and the plant has to be "closed for repairs."

We generate electric power by burning coal or by utilizing the pressure of water; all the complicated machinery of an electric plant does no more than transform and control and distribute the power stored in the coal or else in the upland water.

We generate human power by burning food-stuffs. First we store these in the body in the form of built-up body-stuff; then as we need the power and the heat we slowly burn our body's stuff.

Little men, called enzymes, attend to the work of generating; they feed the oxygen to the body-stuff, because the oxygen has no power to combine alone; so they burn the body-stuff up, or down, into an ever-descending series of lesser chemicals—into carbonic acid and urea—but in exchange for our built-up body-stuff we get heat and force.

An electric railway plant distributes its current along wires; thence to motors and thence down into the earth.

A human body distributes *its* power along nerve-paths; thence to motors; thence to end-organs; thence to the outer world of men and things.

A nerve-path is not a solid structure, as a wire is; it is made up of little lengths or links of nerve-stuff called neurons.

Imagine a line of men lying upon their faces; each man raises his arms and holds on to one heel of the man in front; imagine that each man has only one leg and that sometimes this leg is very long—a hundred or even a thousand times as long as the body. A nerve-path in the body is a line of little men, one-legged, holding on one to another; when the little men hold on tightly the contact is close—the current flows freely; but when some of the little men grip feebly or else let go the contact is not close, the nerve-path becomes ragged in places and then the current flows painfully, jerkily, or not at all.

It would never do to let the street current get into our houses in its full power; it might fire and burn the house or harm the children.

So the electrician puts a fuse between the street current and the house current; a "quantity" fuse consists of a thin wire of platinum or else an alloy of lead and tin, which is easily melted by a too-strong current, and so we are protected.

The human body protects itself differently; when fierce emotion generates too strong a current, this heats the nerve-paths; the little men shrivel a little; they lose size and flesh and weight at once; they weaken and "let go"; so, after strong excitement we feel tired, subdued—sorry, it may be; no more excitement for us until the linemen get out and repair the damage.

All kinds of excess tend to blow out our body's fuses, burn out our body's wires, destroy our body's motors, and to damage our nervous mechanisms—sometimes beyond repair; the line-man knows where to look for the trouble in the wires and we must know where to look for it in the nerves.

We find it in mechanisms, in sensors, in transformers, in motors, but at the last scrutiny we always find that the trouble is in the little men that make up the nerve-paths.

They get smaller, shrivel, lose flesh and weight; they lose nerve-fat; they lose interest and gumption—they lose their grip.

VI.

THORNS IN THE FLESH.

Battus—In the name of Zeus, prithee look here, Corydon. A thorn has just run deep into my foot under the ankle. How deep they grow, the arrow-headed thorns. An ill end befall the heifer: I was pricked when I was gaping after her. Prithee, dost thou see it?

Corydon—Yes, yes. I have caught it in my nails; see, here it is.

Battus—How tiny is the wound, and how tall a man it masters!

Corydon—When thou goest to the hill go not barefoot, Battus, for on the hillside flourish thorns and brambles plenty.

—*Theokritus, Idyl IV, Andrew Lang, Translator.*

In every large city are tall office buildings, rich with marble and mahogany, mosaic and onyx; lifts, steam-heat, compressed air, and electricity—palaces that kings of old never dreamed of.

In all the tall office buildings are specialists; fine fellows mostly, traveled, cultured more than most medical men, skilled, helpful; no one ever says a word against them excepting this: the specialists are sometimes a little too enthusiastic and sometimes a little too expensive.

The specialist is a kind of thorn-puller and comes in time to be very clever at the work.

The thorns in the flesh include sore spots, localized pus-poisonings, tooth-decay, localized pressures, localized irritations, and localized poisonings and pressures that are reflected to some distant part of the body.

Sore Spots.

A "sore" thumb is one that is over-sensitive and then too full of blood; every time we hit it or let it hang, more blood goes there and it hurts.

Now, we may have a sore thumb in almost any part of the body; in glands, tonsils, stomachs, prostates, ovaries. These places are over-sensitive and too full of blood.

"Irritable Organs."

The irritable brain, the irritable spine, and the irritable abdomen are sore spots on a larger plan; they are over-sensitive and over-burdened with blood.

Localized Pus Poisonings.

"Pus" is made up of white blood cells, of sprouting body-cells, *debris*, fat, fatty acids, and a liquid part—pus plasma; many of the pus-cells contain bacteria.

Habitual and chronic pus poisoning occurs in many nervous bodies; one swallows the bacteria-laden pus-cells from a nasal or throat catarrh, another the pus flow of tooth-root disease (pyorrhœa), or of pus pent up in the cavities of the head and face, or the abundant pus secretion of diseased lungs, and the catarrhal stomach, bowels, and reproductive passages of either sex may furnish a daily pus-infection to the blood.

Many physicians believe that the constant presence of pus and the constant invasion of it into the blood-stream, even from small or insignificant areas, is able to maintain a degree of ill-health, nervous and other, in sensitive persons.

Nose and Throat Irritations.

The nasal surgeon helps us out many a time in nerve cure; he removes pressures, discovers polyps and other obstructions to breathing; he cleans our noses—that often need it; he helps us to breathe and so to sleep better.

The nose-man ferrets out pus poisoning in its most secret places—in the forehead, in the face bones, in all the great cavities adjacent to the nose; he keeps an eye on the tonsils, too—danger places—portals for many infections.

Only one thing the throat man cannot cure—the neurasthenic voice; he tries it sometimes, but always fails.

Tooth Decay.

Professor Upson, in a recent book,[1] declares that tooth-decay is a common exciting cause of wakefulness and even of mental disease; we well believe it; the care of the teeth is one of the first cares in every form of indigestion and in many cases of "nervousness."

One can hardly get the dentist to draw a tooth nowadays—he prefers to save it; but he draws tartar away from the teeth, and so saves them and the gum; he draws pus away from the sockets, and tooth *debris* away from decaying teeth, and makes them sound and serviceable, and sometimes he polishes or massages sick teeth into a sort of life and vigor—according to the excellent method of Dr. D. D. Smith of Philadelphia.

Circular Muscle Irritations.

Some men believe that irritations located within the grasp of a circular muscle are common causes of nervousness.

Fissures or disease of the anus; strictures of the urethra; disease of the neck of the womb; disease of the lower end of the stomach are some of the suspected places. There are three reasons for thinking that orificial irritations may excite the nerves: all

[1] "Insomnia and Nerve Strain," by Henry S. Upson, M. D.; New York, 1908.

orifices where two different tissues join are apt to be very sensitive, the circular muscle which grips these is in perpetual movement, thus hindering healing; and nervous patients sometimes get well after treatment or operations based upon this theory.

Reflex Irritations.

Our nerves are full of their tricks; it takes one a long time, sometimes, to see through them.

One common nerve-trick is re-flection, "bending back"; an irritation starts in one part of the body and shows itself somewhere else—it may be at a great distance.

Thus an eye-strain may make no sign that we can see in the eye, but may spend its force in the brain (wakefulness, depression) or in the nerves (neuralgia) or in the stomach (indigestion) or in the muscles (spasms or convulsions).

A nose or throat irritation may show as asthma or as hay fever, or as indigestion.

Decaying teeth may make no sign save headaches or dyspepsia or general ill-feeling.

A disordered liver may make a persistent pain under the right shoulder-blade.

A bad stomach may mask as headache, asthma, heart-pain, and as many other things.

A relaxed and dragging abdomen may not attract our attention at all, but may appear in a long list of foreign symptoms.

An irritable prostate may make no sign but extreme nervousness or extreme mental depression, health-worry, pimples, fatigue, quick heart, or bad digestion.

An irritable womb or ovary may spend its force, shift its irritability to the nerves (headache), the back ("spinal irritation"), or "toothache in the back" or pains streaming down the legs.

There has been much discussion and much difference of opinion among physicians concerning the influence of reflex irritations, sore spots, and apparatus strains in producing nervous symptoms; some rather pooh-pooh the idea; others of us ride it to death.

The truth is probably this; local disease may hardly harm strong nerves; it may excite and seriously injure sensitive ones.

VII.

APPARATUS STRAINS.

An apparatus, in physiology, is an association of organs charged with the performance of some particular work.

Thus the visual apparatus includes more than the eye; it includes nerve-paths, nerve centres—a whole complex nerve mechanism that extends from the eye to the back of the brain.

Every part of this apparatus is necessary to seeing; pressure upon the visual parts within the brain blind one, though the eye itself be perfect.

So, every organ in the body has a complex nerve mechanism behind it: the breathing organs, the heart-beating, the digestive, the sexual organs are all "backed" by a complex nervous mechanism.

The nerves furnish the power, the control, the co-ordination; the organs do the work, just as the electric battery cell furnishes the power that rings the electric bell; the nerve-mechanism plus the end-organ, make up an apparatus.

Eye Strain.

The theory and practice of eye-strain springs out of three facts:

First, the human eye, considered as an optical instrument, is rarely perfect; one or both eyes are too long or too short, often badly curved, and frequently the two eyes do not match.

Second, the human eye has not evolved as fast as civilization; imperfect eyes were perfectly ade-

quate to the eye-tasks of mediæval man; but all at once, in the short space of three hundred years, printing, discovery, democracy, electric power and lighting, and night work have come upon us; the work of the eye has been multiplied by one hundred —even in one hundred years.[1]

Third, the eye—the entire visual apparatus, is in some individuals, a part of least or of lessened resistance, and so comes to bear the brunt of a host of troubles all over the body.

There are two kinds of nervous eye-strain: muscle-spasm strain and brain-attention strain.

When the eye is badly shaped, or when one eye is shaped differently from the other, the visual apparatus has to strain the muscles, both those within and those without the eye, to focus a clear picture upon the plate of the eye-camera, and so upon the brain; that involves sustained over-effort and, finally, fatigue.

Sometimes, too, the visual centres at the back of the brain have to attend very closely to get a clear picture of all that is going on in the world; that, too, involves weariness and waste of strength. Sometimes a high degree of eye-strain goes on year after year with perfectly good eyesight; but the eye muscles and the brain have to work very hard to manage it.

Sometimes eye-strain causes a long train of symptoms in its immediate neighborhood—fatigue, eye-aches and headaches, brow-pains and migraine.

Sometimes, again, the strain and the irritation of defective visualizing show more in the brain — in mental fatigue, in inability to work, in wakefulness,

[1] George M. Gould, *Biographic Clinics, Vol. II, Eye-Strain and Civilization.*

in depression of spirit, and even in impulse to suicide.

In other cases still the strain may be reflected—turned downward from the visual apparatus to some distant portion of the body; an eye-strain may choose to spend its force upon some other apparatus of lessened resistance—as the digestive or the muscular apparatus—causing impairment or perhaps spasm.

Finally there is a class of nervous men and women in which the visual apparatus is an apparatus of lessened resistance—a great variety of troubles—fear, worry, indigestion, fatigue, spend their force by preference upon the eyes—causing a long train of eye symptoms that the oculist cannot always account for.[1]

The cure of eye-strain includes rest and hygiene of the eye, sometimes of the whole body—and "glassing."

The fitting of glasses, or refraction work, is a part, almost a specialty, of eye cure; it has to deal with some very difficult problems; it requires skill of a high order, time, patience, and persistence.

The writer's experience with "mere" glassing in nerve cure is this: a few brilliant cures, many partial or complete failures.

But where glassing is made one horse in an eight-horse team it often renders invaluable aid; it may, indeed, be the leader.

In cases where the eye is a part of least resistance, and where the whole body aims its shafts at the eye, the oculist needs to be a man of more than ordinary wisdom and insight; fortunately for us in these days, there are many such men.

[1] See an admirably wise, helpful paper by Dr. Hiram Woods upon "Ocular Neurasthenia," reported in the *Journal of the American Medical Association*, July 20, 1907.

Ear Strain.

Many persons have considerable impairment in one or both ears, without ever being aware of the fact; their hearing requires increased attention, which sometimes becomes a real nerve-strain.

The ear-strain may be due to a great variety of troubles involving any of the parts of the apparatus of hearing.

Then the aurist is the only one who can help us or tell us what the prospects are.

Every apparatus in the body is liable to a strain as real as that in the seeing apparatus. A dilated heart or over-tense arteries (high blood pressure) involve a circulative strain.

A sagging, dragging stomach, liver, bowels, kidneys, involve an abdominal-apparatus strain—a state of stress that resists all talk and all "treatments," until it is relieved.

A displaced or diseased womb or ovary may involve the reproductive apparatus in woman in a chronic, nagging strain.

A congested, fibrosed, "damaged" prostate and urethra may involve the reproductive apparatus of a man in an apparatus-strain that persists for thirty years—and robs the place of all its power.

These apparatus-strains stress and exhaust the nervous mechanisms in two ways:

First, the local irritation or damage, whatever it is, wires its trouble incessantly to its centres behind—to the spine and brain incessantly—and a constant dropping weareth away a stone.

Second, a crippled or strained apparatus in any part of the body suffers an acute strain and new damage every time it is used, just as truly as a sprained ankle does.

VIII.

THE EXTRA POISONS.

One day Davis took a twenty-mile tramp with ten other men—all younger than himself; he came home tired out, sore all over, and hardly slept a wink all night.

An office man has to be a little careful with his exercise as well as with his diet; exercise is a two-edged sword—it cuts into health or into illness.

When we urge soft muscles into unusual exercise (imagining all the time that we are cultivating health) we only strain them—fill them up with fatigue poisons, the broken-down *debris* of chemical decomposition.

Every sore muscle pours out a little of its poison into the blood-stream; this carries it all over the body, and so to the brain and nerves; so ill-advised, ill-chosen, or ill-measured exercise may make us depressed, down-hearted, dyspeptic, or wakeful, for days together.

The human body is a perfect maze of poisons, even in health; every movement makes a little poison—pours it into the blood-stream; so our blood, whose purity we pride ourselves so much upon, at times, is a sewer-stream of poisons—of carbonic acid and of waste garbage that the body's cells cast into it all day and all night long.

Most of us are not satisfied with our stock of poisons, those that health creates; we have to add a few others to help along; here is a partial list of extra

poisons; they tend to make us nervous, if nothing more.

The poisons we breathe: "dust" and all it contains, house air, devitalized air, "other people's waste products," "bad air," sewer gas, emanations from decaying organic matter, illuminating gas in small doses (very common in large cities).

The poisons we swallow: dust upon food, germs upon food and in fluids, food poisons, excess of food that only poisons us in the end, adulterated food, foods that do not agree with us, whatever they are; nose and mouth poisons—germs, pus, and the products of tooth-decay.

The poisons we take to please and to ease our nerves; tea, coffee, alcohol, tobacco—where these are used in excess; headache powders, sleeping powders, all ill-advised and ill-directed drugging; morphine, chloral, cocaine, and others still, kind reader, whose names need not tempt nor trouble you.

Intestinal poisons: products of enfeebled power and of enfeebled resistance—poisons of fermentation and of putrefaction; sugar poisons — acids and gases; albumen-poisons—a series of aromatic chemicals and of pushing gases; poisons of chronic constipation and of mucous colitis.[1]

[1] "The symptom complex of neurasthenia may be likened to a fairly well-defined body of water fed by many underground channels, that, in their turn, flow from hidden sources. One of these tributaries is heredity, which is fairly well charted. Besides this there are doubtless many others. Of these I believe a very important one indeed has its source in gastro-intestinal auto-intoxication."—Dr. Thomas J. Orbison, *"Neurasthenia of Auto-Intoxication," American Journal of Medical Sciences,* April, 1908.

All these poison-chemicals and gases are the result of germ action and all are attended by enormous secretions (by the bacteria) of other chemical poisons —the so-called "toxins."

All these intestinal poisons push past a tired liver and make their way also into the blood-stream; there they race round and round the body twice every minute; the blood tries to fight them and succeeds in the end, but the mischief of it is that new ones keep a-coming.

The poisons of enfeebled assimilation and dis-assimilation, products of over-eating and of under-breathing, urinary deposits, and all the "lithæmic" chemicals that lurk behind in the blood-stream; "uric acid," poor fellow! he is innocent; he does no harm, but he has to be the scape-goat of a mischief-making family of waste chemicals—uncles of his—the purins—xanthin, hypo-xanthin, guanin, and all that gang.

Fatigue poisons; emotion poisons, worry poisons, all the waste products that unhappy ideation precipitate upon the nerves; poisons of overdoing, of over-work, and of overplay; poisons of muscular fatigue that make our muscles so sore; all these pour forth into the blood-stream and join the mob.

One of the best discussions of neurasthenia, and especially of the abdominal aspects of it, is *"The Blues (Splanchnic Neurasthenia); Causes and Cure,"* by Dr. Albert Abrams, of San Francisco, Third Edition, New York, 1908.

Abrams has studied a large number of persons in whom persistent mental and nervous depression was attended by abdominal draggings, congestions and poisonings, and in whom treatment directed toward these ills effected great amelioration or perfect cure.

This work of an accomplished clinician and of a clear and forceful writer is one of the most stimulating in the whole literature of nerve-cure.

Poisons we get through our skins; infections—very mysterious, sometimes; insect poisons—mosquitoes, malaria, yellow fever; vegetable poisons, as poison oak, and even the pollen of plants if we are hay-fever sufferers; last of all—we hate to mention it—syphilis, a beast we speak of with bated breath; it lurks in the fairest gardens as well as in the darkest jungles, and comes forth by night to ravage folly, vice, and innocence alike.

Poisons are first of all the factors in nervousness; indeed, all the other factors only turn into poisons at the last; for speed, unhappy ideas, current-mischiefs, thorns in the flesh and apparatus-strains all act at the last analysis to break down the body's stuff into waste-stuff; they decompose good nerve-stuff and put poison-stuff in its place.

THE PROCESSIONAL OF FATIGUE.

THE SOURCE.

"Sensation furnishes the foundation for all higher forms of mental activity."—Hall's *Physiology*.

"In general there are no principles . . . but there are sensations; everything depends upon them.

Why do I like chemistry? Why dost thou like apples? also by virtue of the sensation.

Deeper than that man will never penetrate."

—Turgenieff, *Fathers and Sons*.

IX.

THE COMMONEST DISEASE.

One morning we read this:

"John Doe, the author, who has been ill for several weeks, was removed yesterday to the —— sanitarium; he is suffering from nervous prostration and the doctors say it will be some months before he is fit for work."

We felt sorry for that; not that we knew Doe, but we knew his work, and owed him hours of keen enjoyment; we had felt the man, too, behind the type; we always knew there was one there; so, in the midst of the morning's daily burden of the world's bad news, an honest hope rose in our hearts —and an honest hope is only an unuttered prayer.

What is the commonest disease? A dentist might say tooth-decay; a surgeon, pus-poisoning; a physician would have to say over-fatigue.

After a hard day of work or of play we feel "tired"—sore, weary, inert, dull, or some other sign. Several things have happened in our bodies, especially in our nerves; they have accumulated "fatigue-poisons" and lost a little of their weight; but a night of good sleep sweeps out the *debris* and builds up the nerve-stuff for another day; this happens to healthy bodies day after day for a lifetime.

But when ill-fortune or ill-usage tries the body beyond physiological limits, the nerve-units or "cells" fall behind in their physiological economy; they are never quite done with their housekeeping, never

wholly free from "fatigue products," never quite finished with their nerve-building, and, so, never really ready for a new day.

Then we show signs of morbid or over-fatigue. The school-child is inattentive; the teacher cross; the husband scolds; the wife nags; the railroad man wrecks a train; ten thousand tired pessimists see the worse, but not the better side of things; ten thousand others want the nerve, in some critical moment, to take advantage of the flood that leads to fortune; one hurries to catch a car, and dies in his tracks; one takes his very life, in some moment of depression, when the tide of vitality is at its lowest ebb and when the world takes on tones and hues that sound souls never dream of.

Add up the fatigue of individuals and we have the fatigue of masses—of communities, societies, nations, races; our current literature is full of notings, charges, wails — of decadence; one regrets the decadence of truthfulness[1]; another, the decadence of manners[2]; one charges the drama and the stage with decay[3]; one speaks of the difficulty of finding high-priced men[4]; one notes the loss of enthusiasm in our presidential elections[5]; one sporting editor even tells us there are no more good prize-fighters—none to compare with those of the past.[6]

We read "light" literature because we have not the strength for anything heavier; we choose vaudeville because it panders to our enfeebled powers of

[1] Prof. John Le Conte, "The Decadence of Truthfulness"; *The Overland Monthly*, years ago.
[2] Amelia Gere Mason, *Century Magazine*, August, 1900.
[3] William Winter, in his "Other Days," New York, 1908.
[4] N. G. Hapgood, in *The World's Work*, 1906.
[5] Editorial, San Francisco *Call*.
[6] Mr. T. P. Magilligan, in the San Francisco *Call*, 1908.

attention; and we, in America, show a shameful indifference to rampant crime, to rife injustice, to far-reaching oppression, because we want the spirit, the nerve, the power to resist. What is the meaning of all this? a many-sided one, no doubt, but one meaning is that we are just tired; our time is full of opportunity, but our nerveless fingers can not grasp it; we are fairly drenched with good advice, but are so hurried, so sorely pressed upon, that we have no time to heed nor to attend to it; we live in "the satiated age."

At the end of the procession of fatigued ones come the patients, praying for respite or for relief; how perplexing their quandary among all this horde of healers; how plaintive, how impatient, how anxious, how troublesome they are sometimes; how trustful, how grateful they are at others; how much they ask of us, and how little (it seems to them at times) it is we have to give!

Here march the exhausted professional man or business man "closed for repairs"; one to seven years, it may be, only to begin again, wiser and stronger than before; here is the college girl; three years of pitting her woman's brain against the man's have cost her ten years of suffering; here is the man-afraid-to-marry; the health-worried invalid, reading every health book that comes along; the "home-made" nervous woman, the precocious nervous child —ripening fruit for the doctors of his day.

So fatigue stands in some vocabularies for many things we are accustomed to call by other names; ill-humor is after all nothing more than a signal of fatigue; fear, worry, pessimism, and even atheism are often the same; wakefulness, nervous indigestion, loss of grip—all fatigue and old age itself is nothing more than a state of permanent fatigue.

Fatigue is a real fact, and very often a pregnant factor in our daily lives; it is not a result of one or of two forces, merely, although some of us act as though we thought so; fatigue is usually a *resultant* of many forces, and we ought to try and discover them all.

Fatigue is not a "merely functional" trouble; there are no merely functional troubles; it is not "all imaginary," as some of us say; fatigue involves bodily changes that are as real as the fracture of a bone.

Fatigue-cure, too, or nerve-cure, as some of us choose to call it, is not the narrow-visioned, one-eyed, single-idead, shiftless effort we so often make of it; nerve-cure needs insight, earnestness, sympathy, wholeness, thoroughness, technique, individuality, patience, and persistence, just as much as bone-cure does.

X.

THE PROCESSIONAL OF FATIGUE.

The watch-maker sat in his little space in one corner of the great shop; his tools lay all before him, and a great board full of watches hung upon the wall at his side; one could put all the tools of this craft in his pocket; how different from a doctor's calling, with all its clumsy and endless *impedimenta*—ever changing from year to year.

The man pried into the doctor's watch and saw at a glance that the main-spring was broken; a main-spring is just as necessary to a watch as it is to a man.

Some of the other watches were there to be cleaned; one never could tell which, from the outside, the man said; the shiniest be-diamonded gold watch might have the dirtiest works—for all the world like a human being.

Some of the watches on the board would run too fast; some too oddly; one would only go when its owner did; another only when laid upon its face, as though ashamed to be seen working; one pretty little clock would only go standing on its head; some of the watches went too slowly; some would not go at all.

We might divide our nerve patients into watches: those that go too fast, those that go too oddly, those that go "all to pieces," and those that can not go at all; this corresponds fairly well to the four familiar types of nervousness — sensory, mental, motor-flurry, and motor failure.

The appearances of over-fatigue bewilder us at first, they are so numerous and so varied; surely Proteus, that old man of the sea, never showed so many shapes.

But after we have lived with it a while—worked with it, played with it, ministered to it, gotten up in the night to serve it, we come to know the varied shapes of nervousness as the shepherd comes to know the faces of his flock—bullock and heifer, sheep and goat, wolf and dog—he knows them all. Then as we grow wiser we come to realize that all this variety has an underlying unity—the whole secret of nervousness, the hidden sources of all the sorrows of fatigue.

One thing blinds us for a long time; the long names that have grown up about the appearances of fatigue; most of them mean nothing; they are nothing but sounds that stop where they begin.

So let us try and simplify things; let us pay no attention to the long-winded, long-worded technology of nervousness, but refer all our nervous appearances to one or another of the four great divisions of the nerves' stuff—sensory nerve-stuff, central nerve-stuff, motor nerve-stuff, trophic nerve-stuff.

Instead of thinking and saying "insomnia," "cerebrasthenia," "psychasthenia," "asthenopia," "splanchnoptosis," let us think and say, simply, sensory, mental, motor, and trophic nervousness.

That plan has helped at least one healer, and so, brother, it may help you.

Fatigue follows a regular progression: it begins in sensory nerve-stuff, rises into central nerve-stuff, and ends in motor nerve-stuff; it begins in the nerve-stuff that feels, overflows into the nerve-stuff that

stands between feeling and action, and sometimes shows itself more clearly in nerve-stuff that empowers and enacts.

There are two physiological sayings that get right to the roots of nervousness; "a functional act is a nutritive act," but "over-stimulation ends in exhaustion."

When our nerve-stuff begins to deteriorate under the wear and the waste of life, it makes signs to us—signals of distress, messages of regret—symptoms, we call them, of fatigue.

Let us marshal some of these warnings, petitions, moans, flurries, and refusals of fatigue; it will be a sad procession, chanting the litany of its woes; dull, too, as Homer's catalogue of ships; yet it will be a little interesting to note who leads the line and who ends it; to note the established precedence; then, too, we may see some familiar faces in the line; it will interest us a little to see where they come in.

So, behold, the Processional of Fatigue!

XI.

SENSORY NERVOUSNESS: THE KIND THAT FEELS BADLY.

The sensory nerve-stuff begins in the finger-tips, in the skin and mucous membranes in the eyes, ears, nose, palate, more dimly in the deeper mazes of the body—in billions of sensitive end-organs.

Then it tends inwards to the nerve knots of the posterior spinal-roots and so gets into the quarter-deck of the spinal cord; this constitutes the first sensory neuron.

Then it ascends—up the after-part of the spine until it stops in that great nerve-mass at the base of the brain, the optic thalamus; and so it forms the second sensory neuron; finally the sensory nerve-stuff radiates from the sensory cells in the optic thalamus to the higher gray-stuff on the surface of the brain—well towards the back of the head—to "the sensory areas," and so forms the third and last stage of ascending sensations, the third sensory neurons.

A large number of our nervous troubles and of our nervous patients may fairly be called "sensory"; they suffer over-sensitiveness, ill-feelings, and all the frames of mind and all the faults and the failures of action that grow out of these.

So, here is the Procession of Sensory Nervousness;

Over-Sensitiveness.

First comes the Sovereign, Over-Sensitiveness—sire and source of nearly all the others.

The Royal Family of nervousness includes:

The *Sujet Sensitifs*—the quick-plates of humanity; bodies that feel everything multiplied by five, by ten, and by twenty;

The *Suggestibles*—over-sensitive brains that respond over-readily to every chance suggestion;

The Suffering Spirits—quivering or prone under the brutalities of life.

The Lancers.

A sinister band of shocks, adversities, evil happenings, ever attend over-sensitiveness; they are the Lancers; they hover in the thickets by the wayside or lurk in ambush, ready to strike us unawares; they spend their time sticking things into the sensitive nerves.

The Sappers and Miners.

Another band of mischief-making creatures march boldly in the open; they are the Sappers and Miners —a bad lot—of harmful ideas, bad habits, self-selected poisons; but we must not blame them—we asked them to come.

The Ill-Feelings.

When the Lancers stick things into the over-sensitive nerves, or when the Sappers and Miners rob the nerves of their strength, we have a large brood of Ill-Feelings, thus:

Feelings of "irritability," of tension, of being "all keyed up";

Feelings of fatigue;

Odd feelings, the younger brothers of pain, the paresthesias;

Morbid feelings of heat and of cold;

The ill-feeling of lying awake;

Stray feelings, that start in one part of the body and spend their force in another;

The ill-feeling of pain;

Feelings of "misery," torment, torture in one or another part of the body;

Strange, unfamiliar, sinister, suggestive, alarming, panic-striking feelings that appear in one or another part of our bodies and finally get up on our minds;

Feelings that no words can describe;

The feelings of suicides.

Over-sensitiveness suffers one or more of many ill-feelings and is mostly concerned with these.

But, very often, sensory nervousness suffers far worse ills than mere ill-feeling; it suffers one or another mental deformity—some sad frame of mind that follows ill-feeling; some habit of mind that ever tends to "quickness," with all its mischief-making acts, or else to slowness, with all its holdings back and all its sterile inactions.

More than that, nervous ill-feeling often loses us some of our Selves; we all have ten Selves, and sometimes nervousness takes them all away from us but one—the selfish self; the self-centred, self-pre-occupied, health-worrying self; sometimes—many times—that is the larger loss of fatigue.

XII.

MENTAL NERVOUSNESS: THE KIND THAT FEELS AND THINKS AND ACTS BADLY.

Mind is a mere appearance for some men—the metaphysician, even the psychologist sometimes, and the mind-healer nearly always considers mind as something immaterial—a spirit without substance; an ethereal no thing that lives in the body during the body's life and goes to heaven when the body dies.

But the physician can not think so; it might be better if he could, a little, at times; but, far as he can see, all appearances in this world are bound to "the law of substance"—mind as well as motion or music or the moaning of the wind in the tops of tall trees.

So the physician seeks the physical substance that flashes forth mind and finds it in the higher, the last evolved brain levels; he finds it in the last medullated brain-neurons—in the association-centres of Flechsig, or in the psychoplasm—the *phronema* of Hæckel—those areas of *phronetal* brain-cells that think and order action, good or ill.

The Frame of Mind.

Psychologists have a phrase, "the frame of mind"; it describes the quality of feelings, whether of comfort or of discomfort, of satisfaction or of dissatisfaction, of pain or of pleasure, that attend the content of consciousness in any given moment, hour, day, or year; it means the same as "the state of mind" or "the disposition."

Now it is always sensation—feeling, good or ill—that frames the mind; only a few of all the stimuli that pour in upon the body, moment by moment, ever reach the brain; that would be too much; life would be," as Ranney said, "one prolonged convulsion." But some of the sensations reach the brain, and there they all go up into the Judgment Room and stand before the king; he judges them—good or ill; and this judgment frames the mind, and this frame of mind becomes the motive to action.

The nervous frames of mind come in all colors. The most popular ones seem to be the screaming reds, dark blues, neutral tints, sober browns, and funereal blacks.

The Mischief-Making Frames of Mind.

Some of the nervous frames of mind tend to make mischief for ourselves and for others; the principal ones are:

Ill-Humor.

The Antipathies — dislikes, hatreds, jealousies, angers.

The Intolerances.

The Satiated Frames of Mind—ennui, boredom, jaded hours, *tedium vitae.*

The Sterile States of Mind.

Other nervous frames of mind keep us from ever doing anything; they keep us from service, from success, from all the smiles and gracious words and rewards that go to those who do things; here are some:

The Diffidences;

The Health Worries;

The Over-Scrupulosities;

The Obsessions;

The Distractions and the Dilutions of Attention;
The "Passion for Perfection";
The Sorrows of the Spirit;
The Distrusts of men — unsociability, isolation, loneliness, repression;
The Distrust of God — atheism, hopelessness, despair;
The Distrusts of the Future—anxieties, worries, *expectations* of evil.

These frames of mind move us or not; they come to be our motives to action; they make us act as we do.

The nervous frames of mind are apt to make us quick or else dead or else daft.

The Quick Ones.

Some ill-feelings and some nervous frames of mind force us into quick, wasteful, rash, foolish reactions, thus:

Crossness—harsh words, critical spirits, nagging;
Losing our heads—impulsive acts, rash acts, panic, stampede, utter folly;
The searches for a new sensation—ennui craves a relief—over-excitements, dissipations, the nervous appetites, the vices;
Ill considered and ill-advised efforts after cure;
Impatience—inability to submit or to trust or to persist in nerve-cure.

The Dead Ones.

Other ill-feelings and frames of mind seem to paralyze us; they make us sterile, inactive, helpless, useless; they are reactions to the sterile states of mind:

The Indecisions—never able to decide;
The Shyings—shirkings, holdings back;
The Failures of Initiative;
The Failures of Persistence;
The Failures of Combat;
The Failures of Moral Courage.

The Parade of Lost Selves.

Finally some of the ill-feelings and some of the frames of mind lose us some of our selves.

Every man has ten Selves—ten several forms of consciousness—that is, every healthy man; but nervousness can not always keep all its Selves together.

Sometimes we lose all our Selves but one—the self-centred, self-protecting, health-worried body-preoccupied Self; sometimes we suffer the loss of one or another of our Selves—various dissociations of Selfhood; they march along, but only as ghosts march — silent and invisible; some again suffer a dreadful loss — a very dissolution of personality; something is gone out of the brain-stuff forever, and so some of the Selves have left us, never to return.

Then folks call us defectives, degenerates, *déséquilibrés, demi-fous,* even damphools; we are liable to do any sort of fool thing, and so we have to have a special guard.

XIII.

MOTOR NERVOUSNESS: THE WEAK CURRENTS AND THE EXHAUSTION STATES.

Whenever we see an electric car climbing a hill we always know there is a motor underneath the car, and behind the motors there are electric paths or wires, and behind the wires a power plant.

It is the same in the body, only the body has many millions of nerve-motors, millions of nerve-paths, and an immensely great power plant — the digestive organs and the blood-stream behind them.

There are many different kinds of motors— thought-motors, muscle-motors, vaso-motors, secreto-motors, digesto-motors, sexual-motors, tropho-motors, and others still.

Every nerve-motor is a source of power, and yet a single motor nerve-cell can do little of and by itself; the motor neurons have to be organized into nerve mechanisms before they can show power and do work.

Some of these mechanisms are inherited and involuntary: the nerve-mechanisms that manage breathing and blood-flow and digestion and reproduction are inherited and almost wholly beyond our personal control.

Other nerve mechanisms are acquired; we have built them up ourselves by our own toil: the power to walk, to work, to play the piano, to do skillful work are all acquired and all obedient to our will.

Every nerve-motor in the body is subject to two restraining influences—two controlling forces that prevent it from spending its power wastefully.

One of these lies just behind the motor, in the central third of the nerve-stuff; it is "intercalated" between the nerve-stuffs that feel and the nerve-stuffs that act; this central nerve-stuff is less developed in the spine, but is highly developed in the brain. The brain-stuff that thinks is a great intermediary between sensation and action, and a great controlling influence against hasty and wasteful reactions.

Besides this there are special "inhibiting" nerve-cells at every level of the nerves, that exert a restraining influence upon nerve-motors beneath, in the lower levels of the nerves.

Every group of motor nerve-cells, too, considered merely as a source of power, is dependent for this power upon three chief factors: the size of the motor nerve-cells, their assimilative activity, and the education—the repetition of acts—the habits, which the motors have acquired.

Quickness.

Over-sensitiveness is apt to suffer many wasteful reactions:

Muscular Tension—"keyed-up," tense muscles;

Restlessness;

Irradiation — "spreading brain action"; slight stimuli spread and involve larger areas of nerve activity than is natural, then we may have wakefulness, over-excitement, as a result of trivial happenings;

Mental Tension—slight or strong stimuli wake up the whole brain, just as strong black coffee does.

Incontinence—not containance.

Incontinence

Is the nervous over-reaction that can not hold in.

The "irritable" brain lets loose "winged" words and harsh replies.

The irritable eye loses salty tears.

The irritable heart, stomach, bowels, reproductive organs run away, each in its own way.

Spasm.

Sometimes over-sensitiveness and ill-feeling overflow into the muscles.

Then we may have throat-clutch, asthma, heart-spasms, "tics," St. Vitus' dance, or some other spasmodic misfortune.

Balking.

Sometimes nervousness loses some familiar and ample power for short periods; thus stage fright, pulpit fright, banquet fright, even wedding-ceremony fright may rob us of our powers.

Poor fellows! we can not perform at the right time; we could do it an hour ago, but we can not do it now.

The Exhaustion States.

Other times nervous ill-usage or ill-fortune lose us some of our voluntary powers for longer or shorter periods; action causes early fatigue, discomfort, even pain; or it may be that we are crippled completely.

Brain-fag—brain activity brings rapid breakdown of brain cells and warnings to stop.

Eye-tire—use wearies the eyes; it may be general neurasthenia or else eye-strain.

The early loss of muscular power—tremor, soreness, incapacity.

The occupation-neuroses — writer's cramp, telegrapher's "loss of grip," violinist's paralysis, baseball-pitcher's "arm," and so on.

The Weak Currents.

Failures of power in the inherited and involuntary nerve-mechanisms: the current is intermittent, weak, or altogether "off."

Motor failures in "smooth," involuntary un-striped muscular fibre: atony, relaxation, flabbiness; the dropping down of organs and of the body's "soft parts."

The saggings and draggings of the internal organs: heart-sag, stomach dilation and descent, bowel-sag, liver, kidney, womb, and ovary sags and drags.

The vaso-motor failures: weak heart, rapid heart, missed beats, palpitation, "all-gone" feelings, heart-fears, heart-pains.

The digestive motor failures: the nine nervous indigestions; imperfect mastication, mouth infection, the irritable stomach, the torpid stomach, the tired liver, the "gassy" indigestions, colon infections, mucous colitis, chronic constipation.

The nerve-tired assimilation: failures of appetite and of body weight, morbid thinness.

The nerve-tired dis-assimilations: the urinary sediments and the "lithaemic" or poison-chemical blood-states behind them—"uric acid," the scapegoat of a bad lot of uncles; insipid diabetes.

The sexual nerve failures in man: incontinence, balking, self-distrust, exhaustion.

The sexual nerve failures in woman: menstrual, marital, conceptional, mammary failures, premature "change of life."

These motor-weaknesses and exhaustion states occupy the larger half of all our efforts in nerve-cure.

XIV.

TROPHIC NERVOUSNESS: LOSING OUR LOOKS; OR HOW FATIGUE WRITES ITS NAME ALL OVER US.

One day Mrs. Carroll came to the office for a hair tonic; her hair was "coming out in handfuls," she said; she had tried rum and quinine and had treated with a hair specialist without relief.

It was a fine show of faith—a touching exhibition of trust, because the doctor's own hair was none too thick on the top.

Why do Indians, negroes, and primitive men generally keep their hair and their teeth, and why do city men, sedentary men, civilized men, lose these structures, more often than not?

It is a pretty little story—one of the prettiest in physiology, if we can only tell it simply, neatly, and clearly; let us try:

In the very beginning, in the very first days of life, long, long before we are born, a strange thing happens.

The little sphere of fertilized egg-stuff that contains all our future, splits itself up into little spheres.

Imagine a rubber ball full of gooseberries and you have it, only the life-ball is very small and ball and berries are all alike — just growing baby body-stuff.

Then the gooseberries press and press away from the centre until they get themselves together at the surface.

Imagine that the rubber ball disappears and that the gooseberries take its place; the inside now is all hollow.

Then some one presses upon the side of the new sphere and so makes it into a cup—just as we make a rubber ball into a cup when we press with our thumb upon one side.

The cup has two layers, just as a rubber ball would have, pressed in that way; these two layers make a third in between—and then we have the three "germ-layers," out of which all our bodily organs are afterwards made.

But how can the fertilized egg-cell do all that? no one knows: it is a miracle.

The three germ-layers gradually turn into organs; it takes several months, but by the time we are born the different organs are all in place.

The outermost or top layer of cup-spheres forms the nervous system and the skin, including the hair and the enamel of the teeth.

The middle layer forms the bones, the muscles, the circulating and reproductive organs.

The innermost or under layer forms the digestive tract.

So the nervous system and the skin are twins.

Now, these tissue twins—born of the same mother—remain in sympathy all their lives; they affect one another, and sometimes, as often happens in human life, one twin robs the other; all kinds of nervous over-activity and over-strain draw too heavily upon the body's vital repair-power and sometimes leave little for the hair follicles and the tooth enamel—parts of the skin.

The over-strained and the overtaxed nervous system often robs the skin indirectly, thus: all through

the nerve-stuff are stationed "little men," whose special business it is to manage growth and repair in all parts of the body; each "trophic" (nourishing) neuron, or each collection of them, manages a special outlying region; it inspires and orders growth and repair work in its special dependencies—whether in hair or in teeth or in muscles.

Now the tropho-motors are good workers, but no fighters; the excited brain-cells are like a strenuous city man, determined to have his way at any cost; the tropho-motors are slow-going, simple-minded rustics; so the brain and the spine-motors steal power from the trophos—take it away from them; it is like "taking candy from a baby."

This nervous over-activity and over-strain is the first and larger fact in all those losses of looks that fret us so.

It is nervous over-tax that loses us our hair; that weakens the hair follicle and *then*—and not until then—dandruff, germs, weak heart-push, tight hats, and all the merely secondary factors begin to operate.

It is so, too, with the teeth: nervous over-strain weakens the tropho-motors that attend to tooth growth and to repair, and then—not until then—tartar, the germs of mouth-infection, and all the merely secondary factors that undermine the integrity of the teeth begin their work.

The lesson of all this is that nerve-care—nerve-cure—is the best hair tonic, nearly always.

When an over-taxed, over-tired, wakeful woman rubs rum and quinine into her weakening scalp, she is only trimming at the branches, and only leaving the roots of the trouble untouched.

This rule holds good all through the science and the art of "beauty doctoring"; the real cure is internal more than it is external; when we begin to lose our looks we need one thing more than all else—the thing that helps the Indian to keep his hair and his teeth in spite of all their enemies.

That one thing is the power to resist.

When the tropho-motors begin to fail we are apt to suffer some sad losses.

The Losses of Looks.

The loss of hair: trophic nerve-weakness plus dandruff, germs, tight hats, weak heart-push, impure air, and a long list of factors that prey upon the weakening hair follicles.

The loss of teeth: trophic nerve-weakness plus tartar, the germs of mouth-infection, the eating of "soft-tack," and so on.

The loss of face.

The loss of shape.

The Losses of Physique.

These appear in nervous stocks—from father to children.

The loss of stature—size and weight.

The loss of muscle, of breasts, of hips, of abdomens—the shrunken abdomen of Fothergill.

The loss of reproductive power—the stock runs out.

Reader, did you see any one you knew in the parade? we saw several, but, praise Heaven (and knocking wood), save only the loss of looks, they never come to see us now.

No one knows *all* these sorrows of fatigue; it would be too much, but in groups they are known

to many; we do not always comprehend their real meaning; some of these visitations seem to us refinements of torture while we suffer them, but, indeed, they are not meant to be that—they are meant to be signals, warnings, prayers, replies.

Our sick headache is only a sign to us that something is wrong; our wakeful brains are only begging us—in the only way they know—to Do something—different; our impotent eyes, stomachs, reproductive organs, only answer our calls for power faintly and shamefacedly; Master, our machinery is all out of order! you must mend it before we can serve you any further.

THE MATTER WITH NERVOUSNESS.

THE LAW OF SUBSTANCE.

The cloistered monk, the mystic, the refuge-seeker—dismayed by the brutalities of life—the self-conscious soul, even to sickness so, sometimes says there is no matter, nothing but Self—seeking heaven. But the bridge-builder, the sailor, the sculptor, knows there is; he struggles with it, suffers it, shapes it; matter is the most familiar thing in life; God hands it to us to fashion as we will.

God lets us trifle with His spirit more often than not; He lets us go on and on, to the depths of hell or to the blackness of oblivion, if we choose to go so. But He never lets us trifle with His matter—not with the work that His hands have made. He punishes man and child, saint and sinner alike. God's penalties for breaking the law of substance are prompt, never-failing, almost cruel in their pitiless severity.

XV.

THE OVERSIGHT.

One day the first assistant traffic manager left his desk in the busiest hour of the busiest year the road had ever known, and waited his turn in the waiting-room of the busiest doctor in town.

Mere sleeplessness and indigestion could never bring him there; even the confusion of ideas that overtook him at times and that had mortified him so deeply upon one occasion before his chief had not driven him to the doctor.

But this strange head-pain that he could neither locate nor describe—that came and went like the stab of an unseen enemy—frightened him; it seemed to hiss—apoplexy or paralysis—in the traffic man's ear. It seemed to him, too, that this upthrust must do some dreadful damage every time it came. It seemed that a man might die of it were it to become just a little more intense; it must be something very serious, whatever it was.

The physician insisted upon a thorough examination, and took several days for it; he looked into the bottom of the traffic man's eye and into the depths of his throat; he tested all the twenty reflexes, one after another; mapped out the heart, the stomach, and the liver, and drew outlines on the traffic man's skin to indicate just where these organs were staying; he examined the blood, the urine, the cerebro-spinal fluid; he analyzed the stomach con-

tents and even those of the lower bowel; he put the pulse-recorder to the wrist and the blood-pressure-meter to the arm; he harkened to and tapped the chest; he x-rayed and electro-diagnosed the traffic man and pressed very hard here and there, over the front and over the back.

In short, the doctor did all that a skilled internalist, fresh from the great clinics of Vienna and Berlin, possibly could do.

At last he made his report with a smiling face:

"There is nothing the matter with you," said he, "you're as sound as a dollar—heart, kidneys, every vital organ perfect; the arteries are remarkably soft for a man of your years; there is nothing organically wrong; you've just been working too hard; you need a rest."

But the traffic man could not take a rest just now—not possibly; a little later, perhaps, he might manage it.

So the doctor said they would try to sleep and to digest a little better, and see how far that would go.

The patient left the office with a light heart, a buoyant step, and a prescription for pentonal in his pocket; no need to give up yet; the second assistant would have to wait a while; he would push the new schedule, *make* it pay, and then, as soon as he fairly could in justice to the road, he would take a month off.

But it was not so easy to make the traffic man sleep and digest as the doctor had hoped; ten, twenty, fifty grains of the white powder failed to smother the smoulder of the day's thought; the pepsin might have been so much water for all the good it did; the giddy spells persisted; one day the traffic man made a mistake that cost the road thousands of

dollars; at last he was reluctantly persuaded to take a vacation—even the president advised it.

Alas for the vanity of human hopes! It was more than two years before the traffic man felt fit for work again, and then he learned something that surprised and pained him deeply:

A railroad has no use for a broken-down traffic man, any more than it has for a worn-out rail.

Spite of all his painstaking examination, the doctor overlooked something—he said so himself afterwards.

He expressed himself a little badly, too; when he said there was nothing the matter with the traffic man, all he really meant to say was this: not as far as he could see.

XVI.

IS THERE ANYTHING THE MATTER WITH NERVOUSNESS?

Every one was glad to see Edwards when he came back from the Far East; he was a nice fellow; he had been away three years, and he brought back many silks and carved ivories and curios for his friends and they were none the less glad to see him for that.

But it soon appeared that something was wrong with the boy. He would not dine out, nor "go," nor drink any more; he would sit sadly for hours at the club, *distrait*, pre-occupied; sometimes he was seen counting his own pulse; now and then he carried his hand to his heart and a frightened look came into his eyes; one night he called the doctor three different times—he thought he was going to die.

It was not long before Edwards' friends began to interfere a little. It grieved them to see him so unhappy; they knew his "feelings" were all nonsense; they knew there was nothing the matter with him, because he looked so well; they tried to make Edwards see it; they told him he "just imagined it," urged him to "throw it off"—to "think of something else," to exercise—to try Christian Science. In short, Edwards's friends tried to help him in the way that Wagner speaks of, saying:

"What, you suffer, my friend? That is strange! You must be mistaken, for I feel nothing."

At last the doctor had some long talks with Edwards; he learned a great deal about life in the Far East and about the way young men live there—from Shanghai to Singapore. Finally he and Edwards both agreed to call it tropical neurasthenia; they had both read Major Woodruff's book and both believed every word of it.

One of the little troubles of nervousness is the sure judgment which some people who are not nervous pass upon some people who are. Nervous sufferers are sometimes fine to look at; they sometimes have plenty of red blood, often keep their weight, sometimes they look younger than their years. But the endurance, the steadiness, the strength that stand for "nerve" in other men is not in them and will not come out of them, say what we will.

Almost any fruit dealer will tell us that people buy fruit with the eye, not with the palate: the large, finely colored apple or peach grown upon irrigated soil sells; the smaller, better flavored, mountain-grown fruit is often passed by. So we are apt to judge men and women by their looks; we associate color and flesh with health, pallor and thinness with disease; if the skin looks good we can not believe there is anything the matter with the core.

Some of the finest looking men and women to be seen anywhere wait their turn in some doctor's office, or haunt the drug store, the massage parlor, or the health resort, or travel some other of the many promising and dubious roads to health.

Is there anything the matter with nervousness, or do we just imagine it?

It is sometimes one thing, sometimes the other, but nearly always a little—or a lot—of both.

When a large, well-nourished, well-colored man or woman says he or she suffers—wakefulness, worry, fear, pain, weakness—shall we take the package of ills just as it is, without weighing it?

No, that would often mislead us; ill-feeling demoralizes one—gets up on the mind, warps the judgment, pleads like a partisan—"the emotions are impassioned advocates."

Nervousness is very apt to exaggerate its sufferings, very innocently: one says she has not slept a wink all night; the nurse assures us privately that she snored for hours.

How shall we tell, then, whether a man or a woman is truly nerve-sick or whether she is only "hypt" by the idea of illness? that is easy for men who know the nerves—just as easy as reading print.

Nerve-weakness always writes its name all over the body, or else in various parts of it clearly and plainly, for those to read who can.

It changes the pupils of the eyes or the steadiness of the tongue, the tone (tonus) of the muscles, the rhythm and tones of the heart; the steadiness of the blood-flow; the position of the stomach and of the abdominal organs; the chemistry of the urine; the sensibility of certain parts of the skin; the behavior of twenty "reflexes" all over the body.

In short, the physician who knows nervousness has not one, but twenty ways of knowing whether "nervousness" in any given case stands for a state of partial bodily breakdown or whether it only stands for a mischievous idea.

XVII.

BETTER SEEING.

The Consultation.

The man on the bed was the healthiest looking of the three—clubman, *dilettante,* son of his father, and *fond du sac* heir, he was having trouble with his "feelings" and had called two rather dissimilar doctors into consultation over his case.

The younger man, at the right of the bed, was supposed to know the nerves; he listened attentively to the lengthening tale, responding with an occasional question and with many a sagacious nod; the older man, at the left, was famous for his surgical skill and for his few words; he made no comment, only eyed the patient stolidly from beneath his shaggy brows.

Drop by Drop.

The patient's description of his feelings rose, at times, into eloquence; now and then he consulted a note-book, and it appeared that he had kept books upon these feelings for more than a year.

As the story wore into the second half-hour the older man began to lose a little of his poise; he shifted one knee over the other, drew several deep breaths, blew his nose resoundingly; once he rose, strode about the room for a moment, and then returned to his place; but the younger man listened on, as a child to a fairy tale; weaker than the other in many ways, in this particular test of endurance he seemed the better man.

The Retreat.

At last the patient finished with the story of his feelings and began the history of his treatments—of all he suffered at the hands of healers for the past five years.

Then it was that the surgeon laid his right forefinger upon the patient's wrist, so significantly, so impressively that all fell silent; for two full minutes not a sound but the ticking of the clock; then the pulse-taker looked up at his *confrere* with an almost imperceptible ascent of the right eyebrow; the younger man felt the pulse with a certain gravity and concern, for two full minutes; then he rose and said to the now somewhat apprehensive patient:

"I think we will not tax your strength any further today, Mr. Dale; the nurse will bring you something at once, and do you keep very quiet for the rest of the day."

In the privacy of the consultation room the surgeon made short work of his responsibilities: "you understand this case better than I — do what you think best and I'll support you."

Then, turning on the threshold, he asked a question that rather flattered the younger man, because it seemed sincere:

"How ever do you manage these nerve-cranks, B——? They wear me out more than a hard day's work."

The other laughed; he was ashamed to say that his whole stock in trade consisted of a little real sympathy—and a rare power of listening.

How helpless we feel, sometimes, before a "case" of nerve trouble: the long story wearies us; we

can not see the matter of this plaint; we want insight; we can see with our mind's eye the poor fragments of a broken bone, but we can not see the finer fragments of broken-down nerves; our minds can not find anything solid to rest upon; we flounder like a tired land bird that has lost its way at sea.

One thing that befogs and confuses us is our long medical words; they seem to emphasize anything and everything but the main thing—the secret source of all the trouble.

We speak of psychic, toxic, tropical, post-operative nervousness—thinking of the cause.

We say insomnia, migraine, obsession, indigestion —words that stop where they begin.

We pronounce cerebral, spinal, splanchnic, sexual neurasthenia—charging the trouble to this or to that apparatus.

In short, we fix our attention upon causes, symptoms, places; upon anything and everything but the true thing, the thing that lies fairly in the centre of the target—the bulls-eye.

That is the nerve-stuff, the core-stuff and the outer-stuff, the caryo-plasm and the cyto-plasm of the nerve-cells that lie behind the apparatus involved in any given case.

When we meet with a broken arm, we see with our mind's eye the jagged ends of the broken bone; we see beneath the skin; we show insight—the sight that sees in.

Then we feel sympathy, earnestness, self-confidence, too, because we know what the matter is and because we know how to cure; we show promptness, firmness, thoroughness, technique; the patient, too, shows submission, trust, and patience; and so the bone gets well.

But when we meet with broken-down nerves we do not always show insight; we do not see with our mind's eye the injured place beneath the skin, deep down among the nerves; we do not "set" the broken-down nerves as we did the broken bone; we can not seem to put them in the way of healing; we do not always show sympathy, earnestness, and confidence in our skill to cure; we do not show the same promptness, firmness, thoroughness, technique, that we showed with the broken bone; the patient, too, rarely shows submission, trust, and patience; and so, sometimes the broken-down nerves never get well.

So nerve-cure fails, many times, from purely personal and very human weakness in both physician and patient; it fails for want of right effort more often than it fails for want of remedies; it fails because the same earnest effort that goes to bone-cure as a matter of course, goes rarely and grudgingly to nerve-cure.

Where shall we look for nerve trouble then, and where shall we find it?

"Think anatomically," says Schultze, "if you wish to become a physician!" the best understanding and the best mastery of nervousness come in trying to refer nervous appearances to their anatomical and physiological sources.

Standing face to face with a nerve-sick man or woman, then, we may refer the surface signs to thirteen several places:

First, to the body—surely, not forgetting any part of it;

Second, to the body's stuffs—there are several kinds of them;

Third, to the nerves' stuffs—there are several kinds of them, too;

Fourth, to the physiological apparatus most involved—not forgetting any part of that;

Fifth, to the inherited, involuntary nerve-mechanisms;

Sixth, to the acquired voluntary nerve-mechanisms;

Seventh, to the nerve-paths;

Eighth, to the nerve-cells, not forgetting any part of them, nor of their surroundings;

Ninth, to the core-stuff of nerve-cells, the germ-stuff, the growth-stuff, the brain-stuff of neurons, straining our eyes as far as we can see and then imagining a little.

Tenth, to the pure nerve-plasm—hidden in its own "plasm-products"; drowned in its own differentiation-plasms—deterioration-structures under the stress of life;

Eleventh, to molecules—proteid at that; packed full with atoms; all grouped with inconceivable intricacy—unstable, irritable—ready to re-act;

Twelfth, to atoms — more than a thousand in every molecule; ever changing position, ever entering into new associations, never the same for two consecutive instants;

Thirteenth, to the electrons; there are more than two thousand in an atom of hydrogen; "the simplest atom is more complex than a piano"; what marvels of complexity must the nervous atoms arrive into then?

Chemists, physicists, astronomers—all the other stricter scientists use a little imagination, and why should not we?

XVIII.

NERVOUSNESS AND THE SIX BODY-STUFFS.

In any assemblage of men, the individuals look very much alike; all are nearly the same height; all have two eyes set in exactly the same place; all have two hands that handle in much the same way, and two legs that sit and stand and walk; all are combed and shaved and dressed, too, after a fashion. An alien creature from some other world might have difficulty in distinguishing one man from another, just as we have in distinguishing one sheep or one fly from his fellows.

Yet, in spite of all these resemblances, there are mighty differences of quality—differences of wisdom, of courage, of honor, of worth, that are not always admitted but that are felt by all.

Why do some human bodies radiate skill and service, kindness and inspiration, all their lives? and why do others show forth nothing but sterility or mischief or meanness all their days?

There must be internal differences among men greater than any that the eye can see; there are: differences that extend to every cell and fibre of the body.

Broadly, we may distinguish four great factors that make some men stronger and better than others:

First, the inherited quality of a man's body-stuff; body-stuffs differ as irons do, ranging all the way from the coarseness and the weakness of pig-iron to

the endurance, the temper, and the fineness of sword steel;

Second, the size and vigor of the nerve-cells; large cells, other things being equal, generate more power than small ones;

Third, the evolution, education, and smooth-working of nerve-mechanisms;

Fourth, the ideas that animate it all.

The Wringing-Out of Body-Stuff.

We get no pure iron out of the earth; it comes in ores; it comes mixed with many impurities—oxygen, carbon, sulphur, phosphorus—and with others still.

The iron-master roasts the ores, at first, and gets "cast" iron; but the cast iron has to be tried in the fiercest fires, and hammered and torn and wrought upon mightily before it can be purged of most of its faults and its weaknesses and become real, nearly pure, wrought iron.

Our body-stuff comes in ores, too—full of impurities; we know that by the way it acts—brutally, selfishly, weakly; then it is tried in many fires; beaten, torn, twisted, the very life wrung out of it, almost, until it shows better qualities—self-respect, justice, sympathy, and good manners.

The iron-master's ways must seem hard to the iron, just as Nature's ways seem hard to us; if we could only believe that life makes our body-stuff better it would help us to bear it better than we do.

What is this stuff that is used to make bodies of, then? just a bit of the star-dust that drifted in space before the world began. All in His own good time the Maker touched it and made it live, and, as long as it lives it receives and uses four peculiar

powers: it grows; it attracts alien matter and builds this up into its own structure; it specializes its parts and reproduces its kind.

As long as they live, our human bodies have six several sorts of body-stuff, and even after they are dead they have one kind—dead stuff that goes on taking itself to pieces by the process of auto-lysis—preparing itself for new adventures in which we, alas! shall have no share.

The Growth-Stuff.

In the beginning our bodies are nearly all growth-stuff—stuff that has the power to grow; they start with one fertilized egg-cell; this divides itself, and the daughter cells keep on dividing themselves until they number twenty-six thousand billions of cells of our bodies.[1]

The early cells are all growth-stuff, but gradually the growing cells draw about themselves a different stuff—stuff that has the power to work, to specialize, to extend itself into strange structures; then we call the growth-suff of a cell the "nut," the nucleus; we call the later stuff the "body," and these two stuffs—nucleus and cell-body, nucleo-plasm and cyto-plasm—make up the substance of every cell in the body.

The Work-Stuff.

We lose most of the growth-stuff in about twenty years; our power to grow is almost spent; we can, indeed, keep on growing a little—hair and nails and blood-cells and germ-cells.

In twenty years our inherited body-stuff has become profoundly modified; it has almost lost the power to grow, but has gained the power to work.

[1] Estimate of C. Francke. See H. H. Donaldson's *"The Growth of the Brain,"* New York, 1905.

So the grown-up body spends itself in other ways than in growth; it differentiates, specializes; extends its cell-body-stuff into mechanisms, organs, apparatus; it can do many things the growth-stuff could never do, but it pays a price for all this power, for all this keen enjoyment—and the price thereof is death.[1]

The son and the father are both lumps of body-stuff—"nations of cells"—but they differ profoundly in the nature of their body-stuff and in the make-up of their body's cells.

For the son has more growth-stuff, more nut-stuff, more nucleus in proportion to the outer stuff, the cell-body stuff, than the father has.

And the father has more work-stuff, more cell-body stuff, more cyto-plasm in proportion to the nucleo-plasm than the son.

Such are the profound cytological differences between youth and age.

The Stock-Stuff.

Every man and every woman receives something very rare at the hour of their creation—a precious heirloom, a sacred trust—a little bit of the stock-stuff; it came from the first Father; harbored a while in the bodies of a million ancestors, it comes at last to us.

Our bodies hide it away in the most secret place they can think of; sometimes, in some exalted moment, we part with a little of this heritage—pass it on to the children of our bodies, the joy and the hope of our poor ageing souls.

So we help it on its long journey from the first Father to the last child—the mysterious, the awe-ful,

[1] Prof. Charles S. Minot, the Harvey lectures, 1905-6, *"On the Nature and Cause of Old Age"*; also Charles S. Minot, *"The Problem of Age, Growth, and Death,"* New York, 1908.

the ever-living, the undying—the immortal germ-plasm of Weissmann.

The Dead Weight.

Our human bodies are not all alive; even the finest bodies drag about a weight of dead-stuff that is smaller in youth, greater in age, less in abstemious, active bodies, greater in self-indulgent and idle ones.

The lime phosphate of our bones is not alive; it is mere "filling"—stiffening material; the fat deposits in our flesh are dead stuff; the sac that holds the fat-globule is alive, but the fat itself is mere packing; the free water in our bodies is not alive any more than it was in the river; our hair and our nails, most of them are dead matter; they arose out of living cells, but, later, lost their life.

So that mere mass is not always a sign of strength; light-weight men make the best soldiers, because they have more living stuff and less dead weight.

Large, fine-looking bodies may be really weak and feebly enduring; real living body-stuff shows activity and endurance, whether in small or in large bodies.

The Poison-Stuff.

We are all full of poison-stuff, too; there are poisons we breathe, poisons we swallow, poisons we get through our skins, poisons we take to please and to ease our nerves, intestinal poisons, blood-stream poisons—carbonic acid and the chemical precursors of urea; the poisons of over-eating—wandering food-stuffs that have no place to go; the waste products of muscular fatigue and the fatigue poisons of nervous over-activity—it is little wonder that we sometimes feel so badly.

The Age-Stuff.

The ageing of body-stuff is a reaction to all the poisons, internal and external, that have vexed it all its life.

If there were no poisons to strive with, our body-stuff might live on forever; but there are; poisons of stress and strain and toil and worry and fear—to say nothing of God's poisons that beset us everywhere.

The ageing of body-stuff is attended by two great changes—the gradual yielding place of the nobler tissues before the encroachment of tissues that are less noble and the gradual accumulation of mineral matter in various parts of the body.

So our human life, as it wears on, is a kind of rearrangement of body-stuffs; the youngest body-cells have some work-stuff, even some age-stuff; the oldest have still a little growth-stuff left, but not enough to make a showing; life, success, and happiness are largely matters of body-stuffs—of happy or unhappy mixtures of the various stuffs that are used to make bodies with.

Nervousness and the Body's Stuff.

But what has all this to do with nervousness? this: nervousness tends to lessen growth-stuff and work-stuff; it tends, in some parts of the body, to hasten age-stuff; but most of all nervousness tends to fill the body up with poison-stuff.

For it is poison-stuff, more than anything else, that underlies all the moods of nervousness, first as a cause, then as effect; and so it goes, round and round in the "vicious circle of nervousness."

XIX.

THE THREE KINDS OF NERVE-STUFF.

Some nerve-sick men forget how to read; in an instant, or in an hour, the printed page loses all meaning; the white paper and the printer's ink upon it appear just as they do to a man who has never learned to read.

This is something more than nervousness—it signalizes serious disease of the brain.

What did the olden-time doctors make of this? doubtless they had long names to cover their ignorance, just as we have now.

But the toil of many devoted men has made the matter of word-blindness clear to us; we can put our finger on the sore spot—or very near it.

We know that "alexia" is nothing but a surface name; the real trouble—the shock, the pressure, the softening—lies in the angular gyrus or else just beneath it or else in the association fibres close by.

But when we come face to face with wakefulness or with fear or with quickness or slowness, we have no such clear vision; we can not put our finger on the sore spot; we can not say where and what the matter is; we can not recognize the flaw beneath the fault.

Yet the physician who knows his nerve-anatomy, the one who takes the pains to familiarize himself with the depths of the nerves, *can* often localize nervousness; he can often put his finger on the sore spot

and say clearly and exactly where and what the matter is.

There are twenty-six or twenty-seven trillions of cells in a human body; most of these are blood-cells; only about four trillions are "fixed" into flesh and bone.

Of these fixed cells, three billions are specialized into the nerve-stuff of the brain and spine;[1] add blood-vessels, lymph-vessels, supporting structures to these, and we have the central nervous system—the source of all our joys and of all our woes.

In looking about us we may easily distinguish three several types of men—men of feeling, men of deliberation, and men of action.

No mere chance determines these differing qualities of men; they signalize the development of one or another of the three kinds of nerve-stuff; men in whom the sensory nerve-stuff is most developed are æsthetes, poets, *raffines*; men in whom the central nerve-stuff is most developed are deliberative, thoughtful, critical; men in whom the motor nerve-stuff is most developed waste little time in feeling or in prolonged thought—they are men of action; the men who act promptly, the men who do things.

We gain our knowledge of the different nerve-stuffs in three different ways:

First, the histologists (tissue-students), Deiters, Golgi, Cajal, and a hundred others, tell us there are three types of nerve-cells, the two-armed sensory (ganglion) cells, the many short-armed association cells, and the many-armed motor-cells with one very

[1] Estimates of Meynert and His. See H. H. Donaldson's *"The Growth of the Brain,"* New York, 1905.

long arm—the typical cell of the nerve-stuff; it is found everywhere in the nervous system and does most of the nerve work.

Second, by studying the successive stages or times when the young nerve-cell-fibres receive their new overcoats — their insulating covers, their myelin sheaths.

Flechsig, a great histologist, found that the nerve-fibres of the brain receive their overcoats in thirty-six successive benefactions: the sensory nerves received theirs first, the motors next, and the association cells—organs of the highest and last evolved brain-powers—received their overcoats the very last.

Third, the psychiatrists—men who care for the insane, and the neurologists, men who care for the nervously diseased—sometimes make autopsies upon the bodies of those unfortunate men and women who die of their nervous trouble, or perhaps of some other, and find out, when they can, exactly where the disease-damage was; these pathological findings have done more to determine the varieties of nerve-stuff and of nerve function than anything else.

So, looking largely, we may say that there are three kinds of nerve-stuff in our bodies: nerve-stuff that feels, nerve-stuff that stands between feeling and action, and nerve-stuff that acts—in a word, sensory, central, and motor nerve-stuff.

These three kinds of nerve-stuffs are stowed away in different places, too: the stuff that feels is put behind, the stuff that controls, distributes, mediates, and thinks is put in the middle, and the stuff that acts is put in front.

If we symbolize the central nervous system by a ship, the sensors would occupy the quarter-deck, the mediators the waist, and the motors the bow.

Or if we symbolize it by the number 111, the first figure would stand for the sensors, the second for the transformers, and the third for the motors.

This imagery holds good for the spine, not quite so perfectly for the brain; there, indeed, the sensors do occupy the quarter-deck of the ship; but the motors move to the middle and the thinkers are arranged in groups all over the brain-cap; the very highest brain cells, those that judge, and will, and show personality and character are placed in the bow, in the frontal lobes just behind the forehead, where they can keep a good lookout.

It is a real help to doctor and to patient alike to know of the three kinds of nerve-stuff; it helps us to comprehend and to plan many things.

XX.

THE INHERITED NERVE-MECHANISMS: A STORY OF QUICKNESS AND SLOWNESS.

A nerve-mechanism is an association of nerve-cells and of nerve-paths working together towards some particular end.

Thus, the eye has an extensive nerve-mechanism behind, without which it can not see.

A nerve-mechanism is something larger than an organ; something less than an apparatus; every organ in the body has a complex nerve-mechanism behind it and every apparatus in the body is brained, if we may say so, by a nerve-mechanism.

Some of the nerve-mechanisms are inherited; our ancestors, our species, acquired them and left them to us.

The nerve-mechanisms that manage breathing, blood flow, digestion, assimilation, urination, reproduction, are all inherited and all nearly involuntary—removed from the power of our will.

Our inherited nerve-mechanisms keep us going; they attend to all the work of bodily repair and leave us to follow our bent.

But our bent betrays the inherited nerve-mechanisms many times—robs them of their fair share of the body's daily assimilative power, and leaves them embarrassed or exhausted.

Dr. John Watson, an old-time physician and teacher, taught that the "tripod of life"—the three

supports of life—are the brain, the lungs, and the heart. Dr. Beard, applying this illustration to neurasthenia, said that the tripod of life for it consisted of the brain, the digestive organs, and the reproductive ones, because they had more to do with it.

But it takes more than a tripod to support our lives; at least five great mechanisms are ever necessary—the brain, the breathing, the blood-circulating, the digesting, and the assimilating mechanisms; and for nervous health and happiness we must add the reproductive nerve-mechanism to these.

All these nerve-mechanisms, excepting the brain, are inherited and almost involuntary; so most of the essential supports of life have been taken out of our control.

The inherited nerve-mechanisms begin in the brain and spine, but they soon wander out into the front of the body; there they form a great reservoir of nerve force and a great automatic system of nerve-mechanisms—the sympathetic nervous system.

This lies in the cavities of the face, neck, chest, abdomen, and pelvis; it stores and serves nerve force from four great sub-stations that are localized in its structure.

When our bent robs the involuntary nerve-mechanisms of their share of the body's assimilative power these structures are apt to show their trouble in two ways, at first in the way of quickness and later in the way of slowness.

Quickness, or over-responsiveness, appears in hay-fever, in asthma, in palpitation, in quick heart, in hyper-acidity, in nervous vomiting, in nervous diarrhœa, in nervous urination, in all the reproductive

incontinencies of nervous men, and in the over-menstruation of nervous women.

The matter with quickness is at bottom chemical instability in the nerve-stuff; that makes the stuff less enduring, over-ready to react, easily exploded; the "threshold stimulus" is diminished; a little thing rouses us now, and the unstable nerve-cells "go all to pieces over nothing."

Slowness appears in the nervous indigestions, in the torpid liver, in chronic constipation, in assimilation torpor, in the relaxations of smooth muscular fibre, in the saggings and draggings of weak organs, in the reproductive failures of nervous men, and in the menstrual and other failures of nervous women.

Sometimes unhappy ideas slow our nerve-mechanisms; the very idea of indigestion or of constipation —the expectation of it—demoralizes the mechanisms and makes them listless or inert.

When we think or say "I can not" digest or assimilate, we think it and say it with our whole body; the brain begins it and the nerve-mechanisms repeat it, long after the brain has forgotten that it ever said so.

So the self-suggestions of nervousness incapacitate us; they help to make us fail; let us stop all that and try the other plan.

The matter with chronic slowness is more complex.

First, ideas help, here, to make or to mar our powers.

Second, the sensory neurons are blunted; they feel less; their "threshold of stimulus is raised"; it takes a lot of stimulus to rouse the languid nerves.

Third, the motors are dried out—a little or a lot; they need cleaning and fixing.

Ideas affect the inherited nerve-mechanisms, even when they are severely wasted; depressing emotions, unhappy beliefs, sinister suggestions, melancholy self-suggestions, and dismal expectations all aggravate our physical troubles.

But let us note and know this: ideas harm us physically; not in that vague, immaterial way that we call "psychic."

Unhappy ideas break down our tired nerve-stuff, just as prolonged anxiety breaks down our face; it takes the flesh and the blood away and puts a mask of poverty and of pallor there.

XXI.

THE ACQUIRED NERVE-MECHANISMS: HOW THEY SHOW QUICKNESS AND SLOWNESS.

The acquired nerve-mechanisms are those we build up ourselves; we begin the day we are born and gradually, day by day, gain the power to think and the power to use some of our muscles in a variety of skilled performances.

Imagine one of those families of acrobats, ten or twenty in all; they leap to their work, put themselves together in all sorts of wonderful formations—pyramids, squares, tall structures that reach up beyond the scenery; then at a signal they let go, and are all back upon the stage again.

Now, our nerve-cells get themselves together something like that when they form a new nerve-mechanism, only we must multiply the family of acrobats by millions and keep the parts in place when once we get them there.

We have little brains at birth; all the little men of the brain are there, but they are not yet grouped.

A new-born child has no consciousness of self, and those smiles we fond parents hang upon are not emotional—they are only reflex re-actions to the presence of gas or of sugar; but gradually, day by day, the child groups its nerve-cells into mechanisms that become continually more and more complex; then at last we build up some sort of a thought-mechanism. It lies in islands upon the surface of the brain; it is the dearest thing we own—the association system of

Flechsig, the psycho-plasm of the monists, the *phronema* of Haeckel.

Step by step with this higher growth goes another —growth of those lower nerve-mechanisms that manage the muscles; they enable us to talk, to walk, to play the piano, to do some sort of skilled muscle work that earns our living.

Our inherited nerve-mechanisms keep us going and even give us some sorts of distinction, but it is our acquired nerve-mechanisms that become us the most. They are signs to the world that we have tried—that we have done something; we have no need to pin these decorations upon our coat—they show for themselves.

When ill-fortune or ill-usage vex our acquired nerve-mechanisms, they show forth quickness and slowness, just as the inherited mechanisms do.

The quick thought-mechanism — the "irritable brain" — shows wakefulness, irradiation, "winged words," and harsh replies; impulse, rashness, folly.

The lower mechanisms, too, the ones that manage our muscles, show restlessness, tension, startings, spasms, even convulsions; they show, too, the spasmodic phases of writer's cramp and of telegrapher's "loss of grip," and of all the over-tired "occupation neuroses."

Then we know that our nerve-stuff has come to be chemically unstable—beyond the norm; the mechanism responds over-readily to slight provocation, and so it wastes its strength, and so it weakens more and more.

One form of slowness that sometimes bothers our over-sensitive nerves is balking: we are well; we have built up a power by hard work, but sometimes, just when we wish to use the trained mechanism the

most and the best, it will not work or else it works so badly as to make us ashamed.

So we suffer banquet-fright, pulpit-fright, stage-fright, wedding-ceremonial-fright; we do more — we perform so badly that we are ashamed of ourselves all the rest of our life.

What is the matter then? are we broken down? no; only "hypt" by the idea of failure; fear palsies our powers for a time, just as fear paralyzes a frightened spider (he is not shamming); the very idea unstrings us; the little men that make up our mechanisms are terror-stricken for the time; they just turn pale and let go; they lose a little of their courage and some of their grip.

But it is all right an hour afterwards—we can do it as well as ever.

Ideas affect all the nerve-mechanisms, whether inherited or acquired, but they especially trouble the heart, the digestive organs, the reproductive organs, the trained muscles, and the brain.

The chronically slow brain—that part of it we call the thought-mechanism, is shy, diffident, health-worried, obsessed, sterilized sometimes by "the passion for perfection," or else overwhelmed by the hardness of life; so it keeps silence and so it loses: mere nervousness keeps many a clever man humble and poor all his life long.

The slowness of the lower mechanisms is seen in the early loss of muscular power that most city men suffer, whether they be well or ill; it is shown in tremor, in the palsied phases of writer's cramp, and of all the other occupation neuroses.

Then we know that the sensory nerve-stuff is dulled in one way: the "threshold stimulus" is raised—it takes a great stimulus to rouse us to action now.

Besides that, the motors are out of order—dried out, shrunken ever so little or ever so much; the stuff that shows motor power is not there.

But perhaps it is not yet too late to put the stuff back where we took it from.

XXII.

THE NERVE PATHS.

When we touch hot iron and snatch our hand away, our nerves have done many things, all in an instant.

They felt, wired their trouble to the brain; the brain ordered action; the muscles obeyed; in that brief instant of our lives the nerve-currents flashed over a long line of nerve-paths and traversed a maze of complex mechanisms.

A nerve-path is not a solid structure, as a wire is; it is a line of contacted neurons.

Imagine a line of little men, all lying upon their faces—all holding on, each man to the man in front —and we have some idea of the plan of a nerve-path.

When the little men hold on tightly they make a good path—we could pass a current of electricity through them; when they tire or lose their grip we have a poorly conducting, "raggedy" nerve-path.

Nerve-currents are flashing over our nerve-paths all day and all night long, and when they come to one that is ragged they meet an obstacle, they get past with difficulty; then it is that we feel some of those odd or sinister feelings that worry some of us so.

But our nerve-paths are a little more complex than a single line of little men is.

Passing through the city's streets, we may come upon electrical workers busy with a cable; see how

it is put together—copper wires wrapped in some insulating material, and all wrapped together into a cable.

It is something so with the nerves: the nerve-fibres the surprisingly long legs that some of the little men have, are wrapped and re-wrapped and then wrapped again; that is to protect them, to insulate them, and to afford ways for bringing the nerve-fibre its food.

Now many things, poisons chiefly, congest, inflame, and thicken these overcoats of the nerve-fibres; that makes pressure, and the nerve-fibre feels it.

Then we may feel pain or, if not that, some of the younger brothers of pain—the paresthesias; and sometimes the thickened wrapping squeezes the nerve-fibre so hard the nerve-currents can not possibly get through; then we do not feel anything in certain places—nothing but numbness.

XXIII.

THE SEEING OF THE NERVE-CELL.

Marie Francois Xavier Bichat was born in 1771 and died in 1802. In those poor thirty years, nay, in ten, he carved his name deep in the memories of men.

Most men can not see; but Bichat saw what all the great physiologists of his day could not—he saw the tissues.

He referred physiological functions from organs as a whole, to tissues as a part; so he broadened physiology by a new analysis; he was one of the Ten, beginning with Hippocrates and ending with Claude Bernard, who founded, deep and strong, the modern unified science of biology.

Nothing in history is more pathetic, more strange, than the stories of these great young men—of Alexander, Schubert, Shelley, Burns—and of that Other, infinitely greatest of them all.

If Bichat could have lived, what things else might he not have seen? did he have a mother, one wonders, and was she proud of him?

Virchow came in 1821. He saw deeper than Bichat; he saw clear through organs and tissues—right into the cell; he did not see the cell first, but he saw it best, and so laid the broadest, heaviest stone in the mighty structure of modern medicine.

Virchow was as great an old man as Bichat was a young one; fate wearied him with years and with honors, and kept his mighty intellect until the end.

How like sheep we are at thirty—most of us; how little self-reliant, how little wise; how many billions of men have lived and died without seeing anything; how many millions do so still.

How shall we account for men like Bichat and like Virchow, then?

There is only one way to account for them: something of the very God must come down, at times, into the clay, to teach men how to live.

Speaking so much of cells, what *is* a cell? it is a bit of body-stuff, 1-250 to 1-3500 of an inch in diameter, shaped into any shape that a plastic sphere can be compressed into.

A cell is one of twenty-six or twenty-seven trillion others that, put together, make up a human body. Each cell is specialized into two principal parts—a growth-part or nucleus, and a work-part or "body."

Each cell is specialized, in its body-part, to do some special kind of work—thought work or digestive work, or some other.

The cells in a body excel one another, rank one another, combine with one another, help one another —and rob one another—just as the men in a nation do.

The Seeing of the Nerve-Cell.

The earlier physiologists could not see the nerve-cell very clearly. Their instruments were imperfect, their *technique* crude. But finally, in 1879, Golgi, professor in the University of Pavia, discovered a new *technique*—staining the nervous tissues with silver, so their delicate and intricate shapes could be seen better than ever before. Ramon y Cajal, professor of histology in the University of Madrid, perfected Golgi's *technique,* and, since 1888, has announced discovery after discovery upon the finer

structure of the nervous system. In 1890 Rabl-Ruckhard, a German observer, said that nerve-cells move, like an amœba, drawing in and pushing out parts of their surface. A hundred expert seers took up the trail. In 1891 Waldeyer proposed the name "neurone" for nerve-cells, and the neuron theory was launched. It has been fiercely attacked and somewhat modified, but, in its essential features, still stands—one of the most suggestive and helpful concepts of modern medicine.

And so the nerve-cell grew to be a neuron.

In 1888 to 1894 Professor C. F. Hodge, now of Clark University, published his researches upon the fatigue and shrinkage of the nuclei of nerve-cells.

Hodge found that the nerve-cells of bees, swallows, and pigeons, suffered a striking change under fatigue; the centres or nuclei became shrunken—sometimes forty per cent smaller—but a night of rest restored them.

Hodge's findings have been corroborated by many observers and have become classic. They are of deep interest to the physiologist and profoundly stimulating to the physician because them seem to suggest that nerve-tire is not a "purely functional trouble" and not altogether imaginary, but a real structural disease, attended by shrinkage and by partial disappearance of some of the body's most secret places.[1]

[1] Sherrington—a great authority—is disposed to find the secret of nerve-fatigue in the nerve-paths, in the plates or surfaces where one neuron joins another; in the *synapse*, as he calls it, between the upper and the lower neurons. See Prof. F. S. Lee's fine Harvey Lecture on *"Fatigue," the Harvey Lectures, 1905-6, Philadelphia, 1906.*

XXIV.

THE INFINITE UNIVERSE OF A NERVE-CELL.

A nerve-cell, as we used to call it, a neuron, as we call it now, is one of the body's units, one of the bricks in the wall, one of the little men in the nation of the body's little men.

The little nerve-cell did not like the idea of digestive work nor of scavenger work, so it studied a specialty—it chose to feel, to think, and to act for the rest of the body.

The nerve-cell chose to be post-master, or else representative, or perhaps senator or judge, or even the executive; the nerve-cells are smarter than the other cells in the body, and so they fill the higher offices.

A neuron is nothing to boast of for size—only 1-250 to 1-3500 of an inch across; the larger ones are almost visible to the naked eye; the smaller ones are only visible with a powerful microscope—and a skillful *technique*.

But, small as the neuron is, it is full of parts—full of perplexity and of mystery; some of these parts may be seen with the microscope; others have to be just imagined.

Plasm.

Every nerve-cell is a lump of plasm—a mass of first-formed stuff.

But we never see this plasm in its pure state, neither in a nerve-cell nor in a human body; all that we can see is a series of secondary plasms—meta-plasms, differentiation-plasms, plasm-products, degradations

of pure plasm under the stress of life; the pure, "first-formed," "archi-plasm," is drowned in the differentiation-plasms, just as a pail of pure water may disappear into a jelly of soft soap or of glue.

The Core-Stuff.

The most striking part of a nerve-cell is its nucleus —its nut or *caryon*—its caryo-plasm; this structure lies at the centre of the cell as the pit of a peach lies at the centre of it.

The core-stuff is the life of the cell, because the rest of the cell dies without it; it is the brains of the cell—the "soul" of it; it is the growth-stuff of the cell, the central organ of heredity.

The Outer Stuff of the Cell.

This surrounds the nucleus; it is the cell-body, the *celleus,* the cyto-soma, the cyto-plasm; the cyto-plasm corresponds to the flesh of the peach—the stuff outside the pit.

The outer stuff of a nerve-cell consists of "organs," stored nutriment, waste-stuff; it is inferior to the core-stuff, just as the outlying parts of a human body are inferior to the brain and nerves.

The Structures of the Nerve-Cell.

Besides the larger structures of the core-stuff and of the cell-body stuff, there are many smaller structures scattered throughout the whole cell, both in the core-stuff and in the outer stuff.

There are frothy and honey-comb structures; thread-like and network-like structures; granular structures; vacuoles or holes, central bodies, and others still.

Some cytologists—so we call the men who study cells—try to find the secret of life in these smaller structures.

Others consider them nothing but secondary "plasm-products"—differentiations of the pure, first-formed archi-plasm, evolved to facilitate the processes of ascending life.

Some of these structures are "organs" of the cell, attending to circulation and nutrition, just as the arteries and digestive organs in our human bodies do.

Some are masses of stored nutriment; some are only waste substances, excreted worn-out cell-stuff—mere dead-weight.

Invisible Parts.

After the most skilled cytologist has strained his eyes as far as he can see, he has to imagine a few things to account for all the appearances; or rather, the physicist and the chemist imagine things for him; so science theorizes and hypothesizes—molecules, atoms, electrons.

When the priest tells us of miracles we do not believe him, but when the physicist tells us of molecules we believe him implicitly; why is that?

The Molecules of a Nerve-Cell.

A molecule is a little *moles,* the smallest mass that a chemical compound can dwindle into and still preserve its chemical identity.

The Atoms.

The molecules of the cell-stuff are made up of five "organ-building" chemicals—carbon, oxygen, nitrogen, hydrogen, sulphur.

The molecules of the body's stuff are large, consisting of more than a thousand atoms, and the atoms themselves are grouped and re-grouped and then grouped again in such a way as to make the molecules of the body's stuff highly mobile and highly unstable.

The Enzymes.

Special officers — odd little men — enzymes, ferments, catalysators of colloidal structure, "biogens," attend to all this work of stuff-change and of atom-busy-ness; no one has ever seen them—we just imagine them along with the others.

The Electrons.

At last, in our day, the scientific imagination takes a long flight into the mysteries of the infinitely little: it imagines that the atoms themselves are only collections of electrically charged little bodies—corpuscles—electrons.

Thompson's Theory.

According to the theory of Professor J. J. Thompson of the University of Cambridge, every one of the eighty chemical elements, from hydrogen to uranium, is made up of primordal particles that are exactly alike in all the chemical elements.

The hydrogen atom contains about 2000 of these electrons, the gold atom about 394,000, the uranium atom about 480,000.

The Infinite Universe of the Atom.

"According to this hypothesis, then, an atom is a sort of infinitesimal solar system, whose members—the electrons—are no bigger, with respect to the diameter of the atom, than is the earth with respect to the diameter of the earth's orbit."[1]

The Electrical Aspects of the Atom.

Thompson imagines that the centre of the atom of every substance consists of a certain amount or charge of positive electricity—that the rest of the

[1] Millikan and Gale, "A First Course in Physics," Boston, 1906.

electrons are negatively charged; so the atom is balanced between equal quantities of positive and of negative electricity and remains electrically neutral.

The Movements of Electrons.

But many things disturb the electrical poise of an atom.

Some stimuli cause the electrons to vibrate, in forms of light and of heat waves.

Some dislodge and detach certain electrons from their proper atoms; these stream through electrical conductors and create a current of electricity.

Sometimes an excess of electrons accumulates upon a body, and then we have a static negative charge; sometimes a deficiency of electrons occurs upon a body, and then we have a positive static charge.

But, after all, what is an electron in the human body? is it a piece of meat, or is it a swirl in the ether?

Lord Kelvin imagined that vortex-rings in the ether made up first the smaller and then the larger masses of matter.

In other words, many physicists believe that ether, torn and twisted into certain motions, whirlwinds, cyclones, electrons, make up the appearance which we call matter—they say that energy acting upon the ether creates everything that we see.[1]

[1] See Prof. H. C. Jones, *"The Electrical Nature of Matter and Radio-Activity,"* New York, 1906; also, Charles R. Gibson, *"The Romance of Modern Electricity,"* Philadelphia, 1906.

XXV.

THE BUSY-NESS AND THE AGITATIONS OF A NERVE-CELL.

As long as it lives, every nerve-cell has three great duties:

One duty is to maintain its structure—to keep its flesh and weight, to manage the processes of stuff-change so that waste shall never outrun repair for any length of time.

A second duty is to do some special work for the rest of the body—feel, think, or act.

A third duty is to reproduce itself; only a few nerve-cells have this power; most of our nerve-cells are in place before we are born; all that we can do is to grow them larger and to educate them to skilled actions.

In performing these duties a nerve-cell busies itself with a great number of detailed actions; here are a few of the things that go on in the humblest nerve-cell, day after day:

1. The attraction of those portions of the circulating blood-lymph that it needs.
2. Ingestion of these—osmosis.
3. Digestion.
4. Circulation.
5. Assimilation.
6. Enzyme action—ferments play a great part in all the activities of the cell.
7. Secretion.
8. The action of ions — dissociation atoms that come in the blood-lymph.

9. The endurance of stimuli.
10. The accumulation of, and storage of, cell energy under the in-stream of endured stimuli.
11. The generation of heat.
12. The generation of electricity.
13. The oxidation process — managed by enzymes.
14. The reception of chemical messengers ("hormones") from other parts of the body, telling the cell how things are going elsewhere and how the nerve-cell can help along.[1]
15. The reaction to stimuli.
16. Consciousness — because every nerve-cell has a lowly consciousness of its own.
17. Thought — because every nerve-cell has a brain as well as a digestive apparatus.
18. Conductivity.
19. Mobility.
20. Association with other nerve-cells.
21. Submission to the will of the majority.
22. Excretion of worn and waste cell-substance.
23. Fatigue.
24. Readiness for duty.
25. Unreadiness for it.

Storm and Stress.

So the little nerve-cell is a microcosm much as we ourselves are: it lives, thinks, digests, works, and sees out into the great universe of creation—almost as far as we do.

A little body as busy as all that must have its troubles, its times when things go wrong, its antipathies, its agitations—just as we have.

[1] See Prof. E. H. Starling, *"The Chemical Control of the Body," Harvey Lecture, January 11, 1908,* reported in the *Journal of the American Medical Association,* March 14, 1908.

Probably it has its tensions, stammerings, spasms, tremors, apprehensions, wearinesses, discords—hours when it is out of time and out of tune—its storms and its explosions, just as we have, because what goes on in the whole may go on in any of the parts.

But perhaps " 'twere to consider too curiously to consider so."

Besides, it humiliates us too much—we who call ourselves and are called "doctor"; really, it will never do to let the patients know how little *we* know about the nerves!

Thinking of the finer activities of brain-cells and speculating upon the finer deteriorations of nerve-stuff, it only needs one or two questions to discourage and to humiliate us dreadfully.

What happens to the brain-stuff during consciousness? no one knows; the most gigantic intellects have given it up.

What happens during memory? a face we have not seen for fifty years, it may be, leaps up into consciousness as clear as life; what grouping of the atoms, what movement of the electrons held the image of the face there all these years?

Brother healers, here is an easier one; what happens when an intestinal toxin meets with a phronetal brain-cell? can any one tell?

XXVI.

THE LAST SECRET OF NERVOUSNESS.

Different men see different things in a human body; the artist sees lines and color; the athlete, muscles and fat; the tailor, problems in cutting.

The physician's business is to see deeper than the others—to see the structure and the workings of it—all the intricacies of the plant and of the power; and even then, after he has strained his eyes as far as he can see, he has to see things with his mind's eye; he has to join the image-makers; and truly, the physician has shown himself able to imagine things with the best of these.

There are two kinds of seers in the biological world—the anatomists and the physiologists—the morphologists and the chemists.

Some set great store by shape—the shapes of animal life, and of all the structures within the body: science calls these men morphologists.

Now, this word has a human interest more than most scientific words: the poet Goethe coined it, and it comes from *morpho,* "shapely"—an admiring term the Spartans gave to the body and to the statue of Aphrodite.

The study of shapes has always been attended by a sister study—the study of movements—physiology. Morphology deals with body-stuff at rest, even dead; physiology deals with it in action, alive, ever changing.

As physicians, we have always studied shape more than we have studied movement; most physicians are better anatomists than they are physiologists; medicine is, as one writer says, "hide-bound in morphology."

Of all the wild-flowers that bloom in the flower-fields of California, the poppy is most loved; its golden flame fills acres and miles in spring time; it loves California, too, and will not grow in perfection anywhere else. If we place a handful of gathered poppies in a vase of water they will brighten the place for days, and do this pretty act besides: every morning, when the sun is fairly up, the poppy will open its petals to the sun's rays; every afternoon it will close them—until the sun god comes again.

When the poppy smiles and yields itself to the sun's rays it not only does a pretty act, but it symbolizes four of the profoundest truths in the science of life:

1. It was *able* to feel the sun's rays: "irritable," "sensitive," "perceptive to stimuli"—possessed of a sort of potential energy—*ready* to feel.
2. It *did* feel the sun's rays; it did not feel sound waves, but it felt the sun's waves; it was sensitive to one special stimulus.
3. It *did* open; it suffered stimulus and reacted to it.
4. It released energy, lost it, in the act of opening.

In short, the poppy showed in itself a special sort of plasm ever ready to respond to the stimulus of sunlight.

And some bio-chemists say that the human body, at the last analysis, is hardly more—a special sort of plasm, ever ready to respond, in its own complicated

way, to the stimuli of light, heat, contact, and chemism.

"All life," the bio-chemists say, "is a chemical process"; the opening of the poppy and the generalship of Napoleon are one.[1]

Whatever the truth, the chemical idea of life has greatly deepened our conception of nerve-stuff and has greatly increased our comprehension of nervousness.

Healthy bodies build their nerve-stuff up into chemical forms that are relatively stable—into chemical combinations that can endure a little stimulus, that can contain themselves a while, that do not go to pieces at every tease.

But nervous bodies build their nerve-stuff up into chemical forms that are relatively unstable; into chemical groupings that can not endure stimulus for long, that can not contain themselves a while; that crumble at every call—that "go all to pieces over nothing."

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[1] The professional reader, should there be one, is referred to the following recent books upon physiological chemistry—not that we have read them all; some are only listed to read when we get the time:

J. Loeb, *"The Dynamics of Living Matter,"* New York, 1906.

Edmund Montgomery, *"Philosophical Problems in the Light of Vital Organization,"* New York, 1907.

Francis Gotch, *Address* before the Section of Physiology, British Association for the Advancement of Science, 1906.

S. B. Schryver, *"Chemistry of the Albumens,"* Philadelphia, 1906.

Hammarsten's *"Physiological Chemistry,"* John A. Mandel, translator, Sixth Edition, New York, 1908.

Leonard Hill (Editor), *"Recent Advances in Physiology and Bio-Chemistry,"* New York, 1906.

H. Gideon Wells, *"Chemical Pathology,"* Philadelphia, 1907.

Professor Chittenden's *"Nutrition of Man,"* New York, 1907, affords an easily read introduction to the works of such men as Hofmeister, Kossel and Emil Fisher, as also do *The Harvey Lectures, 1905-6,* Philadelphia, 1906.

Then, after over-responsiveness has gone on for a shorter or a longer time, the chemical combinations of the nerves lose complexity; they lose sensitiveness and eagerness; they no longer respond quickly; all that they can show now is slowness—unevenness, unreliability, insufficiency—some of the forms of nervous impairment or of nervous impotence.

XXVII.

SUMMING UP, THEN, WHAT *IS* THE MATTER WITH NERVOUSNESS?

"But this is talk," as Captain Smollett said in *Treasure Island;* "this don't lead to anything"; here is a nervous body: what is the matter with it?

Instead of long words and strange phrases, let us use a little homely imagery, a few illustrations drawn from everyday life; that may help us to say and to see something of the several hidden deteriorations that underlie the mere appearances of nervousness.

Imagine a school: the teacher is ill and the pupils "cut up."

The nervous system is a school, a series of ever ascending mechanisms, from the bottom of the spine to the top of the brain; the higher levels rule the lower; when the higher levels are ill, or off duty, the lower levels are apt to act badly—they have lost their heads.

Imagine a power-plant "closed for repairs"; the dynamo is worn; it has to be replaced, or perhaps the generator is too small for the work.[1]

Our nerve dynamos and motors wear out, burn out, deteriorate, too, only we can not buy new ones; we have to fix the old ones over the best we can.

[1] "A type of neurasthenia in which the body may be likened to a fully equipped electric plant with a dynamo too small to run it."—*Dr. John G. Clark.*

Imagine a fine city full of architecture, arches, statues; but some parts are not so fine—they are full of poverty, squalor, and filth. So some fine human bodies have weak spots; only broken-down and impoverished nerve-cells live there.

Imagine an electric automobile: the storage batteries, behind the seat, drive it; sometimes the car stops, then we haul it to some dynamo and have it re-charged.

Now, the nerve-cells are little storage batteries. Some part of the stimuli that are ever pouring in upon a nerve-cell excite it to a degree that falls short of reaction; the stimulus accumulates in the cell in the form of stored force just as the dynamo current accumulates upon the leaden grids of a storage battery, and, so the cell is "charged." Strong cells store force easily and keep it up to a certain point of stimulation; they do not re-act to every tease; they have a certain power of endurance, a certain power of holding in; they can keep their charge a while.

But weakened cells, worn and wasted, can not store force readily nor hold it steadily; they lack endurance, they are always "on tap"; and so, always more or less dis-charged of force.

Imagine a bank: the granite, the onyx, the bronze are mere externals; the core of it is the gold and the paper in the vault; but bad management or worse may dissipate that—the bank fails.

Now, over-vexed and over-taxed nerve-cells are banks that tend to fail; they decompose the core-stuff too rapidly, dissipate its substance, lose flesh and weight.

Imagine a bottle of whisky, twelve years old—"fine old stuff," the owner calls it, "smooth as oil."

Then some rogue discovers it; taps it; every time he taps it he puts back a little bad whisky—full of fusel oil—in its place; now, tired nerve-cells ever tend to accumulate "fatigue-poisons" beyond the norm; they gradually fill up with chemicals, poisonous as fusel oil.

Imagine a room all torn to pieces: it is cold weather; there is a fuel famine; the baby is sick; we must have warmth at any cost; we burn up the chairs and the table; at last we take to the very doors and floors for fuel.

Our over-taxed nerve-cell is often like that: it burns up all its allowance of fuel; then it takes to its doors and its floors; it burns up its Nissl granules, its chromatin, its cell-fat, its cell-sap—everything goes.

Imagine a sun-dried apple—dessicated, dried out, shriveled: something has gone out of it.

So tired nerve-cells appear after long misfortune or long ill-usage; they are behind in their repair work — thin, drawn, wrinkled, shrunken, sapped, changed, withered, wasted — their dearest friend would hardly know them now.

Imagine a battle-ship manned by fifty officers and by five hundred men: the ratio has been planned carefully for the highest efficiency; half the officers perish in some way; the ratio of efficiency is disturbed; or half the men are lost—it is the same.

Now, the ratio-law of nerve-cells is this: the larger the core-stuff the less sensitive and the more stable the cell; the larger the surrounding stuff the more motor power it shows.

Disturbance in the ratio that normally exists between the core-stuff and the outer stuff of nerve-

cells tends to irritability, to irritable weakness, and to exhaustion.

Imagine a line of men holding hands: we try to pass a current of electricity through the line, but some of the men do not hold tightly; the current does not flow easily—it hurts.

Our nerve-paths are like that—lines of contacted neurons; but some are tired or shrunken, then the path is ragged; sensation and motor messages pass with difficulty, jerkily, haltingly, painfully.

Then we feel some of those odd discomforts that fall short of pain — the younger brothers of pain, paresthesias, or even pain itself.

Imagine a pile of child's building-blocks, poorly put together; it gets higher and higher, it trembles ready to fall.

So tired nerve-cells build their atoms up into molecules that are unstable as the child's building-blocks, sensitive to every jar, ready to go to pieces, ever verging upon a fall.

For, straining our eyes as far as we can see, and our imaginations as far as they will go, a nerve-cell is, at the last analysis, a chemical grouping, an upbuilding of molecules, able to feel or to think or to act —humanly. Healthy nerve-cells build themselves up into chemical compounds that are relatively stable, structures that have a certain power of endurance, steadiness, and self-control. But tired nerve-cells build badly, as a child does—put their atoms together in groups that are relatively unstable—into chemical structures that lack endurance, steadiness, and self-containance.

Then we flare up as a quick photographic plate does, go off as dynamite does, go to pieces as the building blocks do.

Then we are "all in," all off, all down—nothing is doing with us until we get some new atoms together again.

Imagine a noble king, im-meshed in a corrupt court and in a disloyal army: the king is old and ill, but he does not die fast enough; they poison his food, and, at last, impatient of all this delay, close in upon him, strangle him, and take his place.

Long tired nerve-cells sometimes lose the power of resistance—that power which alone keeps every cell in the body alive; then sometimes some of them succumb to this or to that wandering poison and die of it; then the surrounding, supporting cells close in upon the dying nerve-cells—choke them to death.

So the nobler tissue loses to the less noble; so the throne-room yields to the hidden timbers in some crash of wreckage; so the vineyard is sometimes lost to view under a flood of lava; so the temples of Egypt and of Greece lie buried under the huts of herdsmen; so, too, the spirit sinks to its death, strangled by the flesh, when we let it grow too weak to hold its own.

XXVIII.

NERVOUSNESS SPELLS DETERIORATION.

There are two words much used in medical talk—"functional" and "organic"; a functional trouble is one that is known by some fault in the body's working; an organic one is known by some flaw in the body's stuff.

How often we say that nervousness is "only functional"—a mere fault in the body's workings? yet there is a growing conviction that there are no "merely functional troubles"—every appearance of nervousness has a physical flaw somewhere beneath.

Our everyday professional talk of nervousness is mostly mere make-shift and evasion; it is mostly a frank confession of ignorance; "nervous prostration" is a term that means nothing real, and "insomnia" is a sound that stops where it begins.

It is not enough to say that a house is "weak" or "shaky"; the builder must discover the very subterranean stream, the very cracks and crumbling stones, the very weakness of materials that underlies the trouble; he can not repair this house, nor build another, until he knows.

So, in nervousness, it is not enough to say our bodies are "tired" or dyspeptic or wakeful; that is obvious; what we have to do is find the flaw that lies beneath these surface signs; until we do this we can not plan anything really wise to end the trouble.

The phrase "only functional" has cheered and lulled many a man: no need to give up yet; no need to quit smoking, drinking, over-eating, raging—"it is only functional."

Habitual nervousness, wakefulness, headache, depression (even ill-humor, in most cases) is *always* a sign that something is wrong with the body.

One who "apperceives" these every-day troubles as structural and as substantial will take them more seriously, examine them more carefully and cure them, too, more frequently than one who views them as mere minor ailments and slights them with the phrase of "only functional."

The truth is this: persistent nervousness always signalizes break-down of nerve-stuff beyond the safety limit; we may mask the truth with words—"only functional," "neurasthenia," "insomnia," "nervous indigestion," or what not; but nervous break-down it is, and break-down it will be until we get to work, clear away the ruins and the *debris,* bring our building materials upon the ground and start in real earnest to rebuild.

Now, this word "break-down" need not frighten us, nor our patients, too much; break-down is half of all our life processes; it is just as necessary to health as building-up is.

Our bodies are full of mysterious little men, enzymes, "leavens," that initiate all the assimilations and all the dis-assimilations of health.

One set of enzymes breaks down the swallowed food-stuff into simple chemical forms, so they can be assimilated; another set rebuilds the circulating food-stuff into built-up body stuff—chemical combinations that are relatively stable; these stand and wait, a brief period, our call for power.

Then still a third set of enzymes decomposes, breaks down the built-up body-stuff and so supplies us with the heat and the power we need to live.

It is not break-down that we have to fear—that may go on happily for a hundred years; what we have to fear is over-break-down—a measure of break-down that goes far beyond building-up; a sum of break-down that may cost us years of suffering.

NAMING NERVOUSNESS.

FINDING RIGHT NAMES FOR THINGS.

". . . the essential preliminary to every decision is the finding of the right *names* under which to class the proposed alternatives of conduct. He who has few names is, in so far forth an incompetent deliberator. The names—and each name stands for a conception or idea—are our instruments for handling our problems and solving our dilemmas."

William James, *"Talks to Teachers."*

XXIX.

NAMING NERVOUSNESS.

Every physician practicing in a large city meets with certain disease appearances that are called, by common consent, "nervous" and "functional"; these appearances of nervousness have eight characteristics that are common to all:

1. They are all referable to the nervous system;
2. They are all signs of deterioration in nerve-stuff—of the temporary or prolonged over-break-down of some of the body's structure;
3. They are all signs of nervous changes for the worse, too fine to be seen, upon autopsy, with the unaided eye;
4. They all involve some temporary or some prolonged impairment or incapacity;
5. They all involve some temporary or prolonged impairment of the higher, last evolved, nervous mechanisms—of the control which higher nerve levels exert over lower ones;
6. They nearly all exhibit, or tend to exhibit, some temporary or some prolonged disturbance of mental balance;
7. They are all hereditary in part, signs of some minor or major tendency to stock-degeneracy;
8. They all tend to become major mind troubles —in the individual or in the stock.

The medical mind loves to classify and to label appearances, so it has wrestled with the appearances

of nervousness and has devised name after name to designate them.

First we try to generalize—to name the unity that binds all these dissimilar appearances into one: we call our nervous patients neurotics, neuro-paths, psycho-neurotics, nervous constitutions, hereditary degenerates, and so on.

Then we try to differentiate, to distinguish one type of nervous patient from another, to put each one in its own proper pigeon hole; we differentiate fatigue, neurasthenia, psychasthenia, hypochondriasis, hysteria, and others still.

But one thing vexes our souls; the patients won't stay labeled; the neurasthenic woman will get hysterical and the hysterical woman will get neurasthenic; so with psychasthenia; so with all the others.

Indeed, as Meyer says, speaking of the validity of diagnosis in mental disease:

"Diagnosis is merely a convenience of nomenclature, an expression for a group of facts; in psychiatry the facts occur in very complex combinations and therefore a one-word diagnosis is almost sure to fall short of what it ought to do, namely, short of presenting the actual facts of the case sufficiently to designate the etiologic, prognostic, and therapeutic status. Psychiatry has not reached and probably never will reach the stage when a small number of one-word diagnoses would be more than a formal index." [1]

After all, what difference does it make what long name we call fatigue, as long as we cure it? it makes a great deal of difference, for, as Professor

[1] A. Meyer, *British Medical Journal*, 1906, p. 757, quoted by Dr. Smith Ely Jelliffe in a fine paper on *"Dementia Precox,"* in the *American Journal of the Medical Sciences*, February, 1908.

James says, "finding the right name for a thing determines much moral triumph or failure"; it determines much medical triumph or failure, too.

Supposing a man feel tired, wakeful, depressed, afraid—what shall we call it?

We might call it suggestion or eye-strain or indigestion or intestinal auto-infection, or Glenard's disease, or any one of twenty others.

And so, indeed, it may be in part; but more than likely the man bears other stresses and wastes other ways in his daily life—over-work, dissipation, alcohol and other poisons, the sorrows of the Spirit—all aimed, as the eye-strain or as the indigestion is aimed, at the nerves.

It is certain that all this irritability, weakness and health-worry come out of nerves, at the last analysis; it will help us greatly to say so, then.

The eye-strain or the indigestion may in truth be the longest and sharpest arrow in the quiver, and poisoned at that; but all the other arrows need to be discovered and withdrawn.

So, whatever name we choose to give our kind of nervousness, let us have a "neur" in it; something to remind us of the poisoned, shrunken nerve-cells; something to make us remember *all* the forces that can harm and help, something to enlarge and to enthuse our ideas of cure.

XXX.

A NERVOUS DISEASE WITHOUT A NAME.

Kraft-Ebing speaks in his "Treatise on Insanity" of the "neurasthenic basis" that underlies many of the forms of mental disease, and Janet in his book "On the Major Symptoms of Hysteria" speaks of that "lowering of the nervous level" that fore-runs, as he says, all the forms of functional nervous disease.

So there is a time in the history of every case of nervousness when it hides behind the future trouble; a period when it fore-bides the coming woe.

It is the sprouting trunk of the tree before it has begun to branch; it is the embryo of nervousness before it has come to be a fœtus.

It is that time of weakening resistance; that state of "morbid imminence," that stage of preparation, that precedes so many of the forms of bodily as well as of nervous disease.

What shall we call this time of nerve weakening then, before it differentiates itself into this or that form of nervousness?

We might call it neurosis, neuro-pathy, nervous constitution, neuro-psychosis, deviation, defectiveness, deterioration, and all the other names of this family, but they describe the obvious trouble, not the lurking, brooding, unrecognized one.

We might call it "nervousness," which Beard defined as "nerveless-ness," but that is oftener applied to one kind of nervousness—to tension, restlessness,

irradiation, incontinence — to all the varied and wasteful over-reactions to over-sensitiveness.

Or we might call it neurasthenia, literally, "nervous want of strength," but that term now serves to describe one of the differentiated forms of nerve weakness—the one that is characterized by early exhaustion.

It seems a pity to have anything in nerve trouble go unnamed; so, brother healers, here is a chance to make a name.

XXXI.

BEARD'S DISEASE; OR NEURASTHENIA TO-DAY.

Beard's book on "Nervous Exhaustion" appeared in 1880; his other one, on "American Nervousness," in 1881.

George Miller Beard was one of the brightest intellects in the annals of American medicine; keen, original, self-reliant, he wrote much and illuminated everything he touched; he had already achieved recognition in Europe, hardly in America when he died at the pathetic age of forty-four.

It was Beard's great and peculiar merit to collect a multitude of familiar and dissimilar appearances into a helpful symptom-complex and to refer these ill appearances to their true bodily source—to the nervous system.

Beard created the term neurasthenia — literally nervous want of strength, and in Europe neurasthenia is spoken and written of, to this very day, as Beard's Disease.

Other men have come and gone since Beard's time; where he saw nerves, they have seen nerve-cells, nerve-nuclei, nerve-processes, nerve-process-terminals (the "synapses" of Sherrington), nerve paths, nerve mechanisms — ever seeing deeper and deeper into the tangle.

The term "neurasthenia" has lost a lot of its territory of late years; some men repudiate it altogether.

"Neurasthenia" used to serve with syphilis and with malaria as a convenient term to cover much ignorance, and so it has fallen a little into disrepute.

Neurasthenia used to serve as a name for every kind of everyday nerve-weakness; now it serves to name only one of the larger branches upon the flourishing tree of over-fatigue.

Neurasthenia stands to-day for that form of nervous deterioration that is characterized by:

1. Precipitate de-composition of nerve-stuff under the adversities and under the activities of life;

2. Embarrassment of nerve-stuff by the continued presence of accumulated "fatigue products," the waste poisons of over-rapid decomposition; the *debris* of nervous over-breakdown;

3. Slow and faltering repair;

4. Nerve-poverty, not alone of charged force but of stored stuff; the nerve-cells involved are never in repair, never in funds, never in stock, never able to afford force or function.

Neurasthenia is more a disease of nerve-cells; psychasthenia, hypochondrias, hysteria are more diseases of nerve-paths and of nerve mechanisms.

In practice neurasthenia is nearly always a two-fold trouble:

First there is an inherited or else a long since acquired basis of nerve poverty.

Then, added to this, there is nearly always something actively working in the nerve-tired body to make the matter worse.

When we can find and subtract this extra burden —this sub-conscious grief, this sore spot, this apparatus strain, this chronic poisoning, this thorn in the flesh—we can nearly always restore the neurasthenic to some sort of comfort and to some sort of usefulness.

Neurasthenia shows more forms than Proteus, that old man of the sea, ever did; but precipitate break-down of nerve-stuff under provocation or under function, in a word, rapid fatiguability, is the thread that sews all the pieces of this robe of Hercules together and makes them one.

THE NEURASTHENIAS.

The causes of neurasthenia are numerous; the nerves extend themselves to every part of the body, so we have many names to describe the varied aspects of Beard's disase.

In origin neurasthenias are inherited or acquired or both.

In age we have evolutional and involutional; childhood, adolescent, pre-senile, climacteric, and senescent.

In causation we meet ideational, emotional, functional, toxic, reflex, sore-spot, and apparatus-strain neurasthenias.

In ideas we have acute and chronic suggestion, other and self suggestion, faulty ideas, fixed ideas, obsessions—motives to action.

In emotion, fear, anger, jealousy, worry, grief, disappointment, privation, vexations and antipathies, loneliness, the hunger of the heart, the losses that time brings, love sickness, all the gnawing and heart-breaking sorrows of the spirit, suffered alone and in silence because there is no one to tell them to—pent-up and ready to burst.

In function all kinds of over-doing, over-work, over-play, excess.

In poisons, respired, swallowed, nerve appetite-poisons, auto-infective, intestinal, post-grippal, alcoholic, drug—and many more.

Shock neurasthenias — psychic, intestinal, traumatic, surgical.

Apparatus-strain neurasthenias—eye-strain, heart-strain, the abdominal ptoses, sexual irritations, engorgements and displacements.

In climate, tropical, highland, desert, Alaskan, heat-stroke and cold, seasonal and city-born neurasthenias.

In houses, home-made, school-made, "hotel-made" and many other types.

In sex, abuse, abstinence (*neurasthenia ex abstinentia* of the German writers), celibate—especially in woman; excess, conjugal-fraud (Bergerat), child-bearing, nursing, syphilo-phobic, sexual-health-worry neurasthenias.

In organs, cerebral, spinal, vaso-motor, muscular, visceral, vocal, visual, cardiac, gastric, hepatic, splanchnic, sexual, rectal.

In gravity, curable, mysterious intractable and terminal.

And so on, excellent reader, for twenty pages.

XXXII.

NOT BEARD'S DISEASE.

The skin specialists have a poor opinion of us, in skin diseases, because all that most of us know is eczema and "not-eczema"; that is as far as we can go.

In nervousness, too, all that some of us know is neurasthenia and not neurasthenia.

Neurasthenia is one of five larger branches upon the tree of over-fatigue; psychasthenia, hypochondriasis, traumatic or shock neurosis and hysteria are the others.

Psychasthenia is a concept introduced by Janet, the French psychologist, to describe a familiar family of abnormal mental states, a peculiar distress of some of the higher brain-mechanisms; these include feelings of strangeness, of unreality, of some of the losses of personality; insistent ideas, obsessions, fears, impulsions and compulsions, and a loss of power to control the content of thought and of the power to decide, to initiate, to combat, and to rely upon one's self.

We older men are apt to look a little askance at this new word; it disturbs our classification; our "apperceiving mass" does not assimilate it easily; it gives us all the pain of a new idea, yet there is no doubt that Janet's conception of psychasthenia is a sound and brilliant one; the psychasthenics differ from the neurasthenics enough to go in a class by themselves.

They are birds of a feather, only they roost upon another branch of the great tree whose trunk we call fatigue.

Hypochondriasis is a word physicians rarely use unless they wish to get rid of a patient; it is almost a personal insult; it seems to say that the disease is all imaginary—that it is all in the mind, but after all in what worse place could it be?

Hypochondriasis comes from *hypochondrium,* meaning literally "under the short ribs"; the ancients used to think the liver had a great deal to do with it and many moderns think so, too.

Hypochondriasis is one of the diseases of over-sensitiveness; one of the disturbances of attention.

In health a large part of our bodily structure and activity is ruled out of consciousness; we are not meant to be bothered with it; all we know of these latent areas in health is the sum, the added-up result, the great totality of common sensation (cœnesthesis), the vague bodily feeling of being alive and well.

We all know how a tooth-ache gets up on our minds; we can not think of anything else; this trouble is in the outer end of a nerve; but the brain has this to do with it: the more sensitive we are the more the tooth-ache hurts.

In hypochondriasis there is trouble at both ends of the nerve—over-sensitiveness to impressions and over-suggestibility to ideas in the brain, and nearly always, something out of order in the interior of the body, more especially in the abdomen or in the sexual organs.

Some so-called hypochondriacs have a real trouble outside the brain; some discomfort that is less than a tooth-ache, but something that is really there; this local trouble forces the barrier that normally sepa-

rates it from consciousness; the sore place looms into consciousness; it gets up on the mind.

In other hypochondriacs the brain over-sensitiveness is nine-tenths of the trouble; they receive suggestions from within and without so readily and hold them so tenaciously that they are always in a state of mild ill-health—always possessed and preoccupied with the idea of illness.

Never mind, dear hypochondriac, if the doctor felt all that you feel he would talk and act just as you do—only worse.

Hysteria is another name the doctor rarely cares or dares to use; he is apt to call it neurasthenia instead.

Hysteria comes from the Greek, *hysteros*, womb; we have long outgrown the idea that the womb has anything to do with it, but a word that has held the ground for hundreds of years is not easily dislodged.

The hysterical woman, and man, show extreme sensitiveness to ideas and an extreme tendency to react to them, in other words they show extreme suggestibility; they are emotional, selfish (forgetful, rather, of all but themselves), changeable, story-tellers (that, too, is often forgetfulness), sadly wanting in judgment, and impulsive; often rash and reckless; what a list!

Hysteria is a disease of the brain, of the higher (last evolved) nerve-levels; it is a disease "in which ideas control the body"; one that is "caused by suggestion and cured by persuasion"; one in which "the synthesis of ideas and powers that constitute personality is impaired," "dis-sociated," and, so, one in which the field of consciousness is narrowed—to the appearance of hysteria.

Hysteria tries our patience a little until we get to know the secret, then we can afford to take it a little seriously and to try to cure it, a little earnestly.

Shock Nervousness appears rather suddenly after accident or injury; railway wrecks, steamship wrecks, runaway horses and auto-cars, and many other shocking happenings create this peculiar type of nerve trouble.

The shock of these ill-fortunes is often both mental and physical and so all the more severe and all the more persistent.

Shock nervousness takes on the character of almost any of the other types of nervousness or of any mingling of them.

This type of nervousness worries the common carriers considerably and it often taxes the physician's acumen to the utmost; it is hard to tell, sometimes, how much of this nervousness is real, how much imaginary, and how much merely assumed.

THE FORTUNES OF NERVOUSNESS.

FORTUNE TELLING.

Every physician has to be a fortune-teller; the people expect it; they wish to know the future.

So we all try our hand at it and, so, prognosis has come to be one of the medical sciences.

We use experience, assurance, guess-work and luck in our work of fortune-telling; but the best of these is experience; perhaps the next best one is luck.

With all these we sometimes fail; the world is full of live men that the doctors "gave up"—fifty years ago it may be.

"I always tell a good fortune," said one *real* fortune-teller; "I never try to give people any more trouble than that they have."

Alas, why can not *we* always tell a good fortune? There is no reason in the world but one: it is that absurd habit of truth-telling that science forces its votaries into; without that we might tell just as good a fortune as the others.

XXXIII.

NERVOUSNESS AND LONG LIFE.

A little look at the men about us shows several kinds of man-power; some men seem to have a power to live, some a power to work, some a power to have fine children, and some a power to keep young-looking; but Nature never gifts all the forms of man-power to any single life.

The power to live is not bound up with bigness of body, nor with athleticism, nor with robust appearance; some burly bodies die at thirty, some frail men live to a hundred.

A man may be small and thin, a mere "bag of bones," as the philosopher Kant was; he may have a sickly youth that hardly hopes to live a year, as Pope Leo XIII had; he may lose years of his early life in the throes of "nervous prostration," as Herbert Spencer did; he may have to practice the greatest precautions to keep body and soul together, as the astronomer La Grange did, and yet he may have, somewhere within the threads of his emaciated frame, a power that resists the forces that kill other men—he may have the power to live.[1]

[1] Kant lived to 80; Pope Leo XIII to 93; Herbert Spencer lived to 85 and La Grange to 77.

The writer once treated a man of eighty-four who said that at the age of nineteen his hand trembled so from the abuse of drink and of tobacco that he could hardly write his name.

And Clifford Allbutt, the distinguished professor of medicine in the University of Cambridge, tells of a man who died about the age of eighty; the dead man had borne every nervous overstrain that man could possibly suffer, and yet autopsy showed the arteries youthful as that of a man of thirty!

Truly these men were woven to wear!

Nervous patients—ever the worst—are usually a good risk, from a life-insurance standpoint—and for three reasons:

1. Over-sensitiveness gets early and vigorous warnings; nature tells sensitive folks when to stop, and so saves them many a wasteful folly.

2. Over-sensitiveness learns prudence, moderation, carefulness; these ill-feelings that vex us so are often blessings in disguise; these illnesses of one, two, and three years' duration are often conservative; they order our lives, preserve them; they increase our output of service in the long run, and so increase our life's long happiness.

3. Something—whatever it is—seems to protect nervous people from the acute infections; in taking the histories of a large number of nervous patients one is struck by the scarcity of any history of acute infectious disease; most of these anxious, nerve-suffering men and women have never had diphtheria, nor scarlet fever, nor typhoid—nothing but measles.

Some nerve-trained bodies do, indeed, die of it; the poisons that play so great a part in nervousness destroy them; emotion poisons, fatigue poisons, intestinal poisons push round and round the body and damage it badly in places.

Sometimes these poisons contract the smaller vessels and throw a strain upon the heart; sometimes they weaken the arteries and disease them; as Osler said of Dr. Pepper, "the strain of thirty years told heavily upon his arteries," and some men even believe that the poisons of over-fatigue are able to produce diabetes, Bright's disease, and cancer.

But nearly always the men who succumb to nervous poisonings are not of the sensitive type; they are

men who have had few warnings; men who have been able to go on to the sad end.

So cheer up, brothers and sisters in nervousness; there is life in the old dog yet; many a long year still to suffer in; long after these strong men and active women that we admire so much have disappeared from the scene, we shall be on deck—reading every new book upon nervousness that comes along.

XXXIV.

NERVOUSNESS AND ACHIEVEMENT.

Few men achieve their maximum; few of us ever put forth our full powers.

And even the men of action, the demons of activity, the "heroes of over-work" that pace and plague us so, often find that their toil has been in vain—a dead-sea fruit, in the end.

What makes a man of action?

1. good body-stuff to begin with;
2. large nerve-cells—especially the motors;
3. a good set of inherited nerve-mechanisms;
4. a good set of acquired nerve-mechanism—built up by our own toil;
5. a good stock of ideas.

Our body-stuff often fails us, partially or wholly, temporarily or permanently; then our machinery is second-hand; it can not compete with newer, larger, stronger plants; the sheer power is not there.

Then we have to depend upon our stock of ideas, and sometimes that carries us through.

The stock of ideas rises in our bodies as the cream rises on the milk; it is our response to life; it animates us, moves us, holds us back, determines our worship, directs our aim, and holds us steadily upon our course.

A bag of bones with a good stock of ideas is often better than a burly, brawny body without; thousands

of frail bodies have moved the world; billions of burly ones have hardly been able to move themselves.

Nervousness is often over-sensitive—to imperfection and to criticism, and so hard to satisfy.

In workmanship it often sets up high ideas of excellence, higher standards of achievement than it can reach.

But very often it reaches part of the way; and so nervous men and women often do a high grade of work out of their very nervousness; the higher kinds of the world's work are largely done by nervous men and women; they do it, but they suffer in the doing.

On the other hand, nervous men and women are often held back by suggestions—of inferiority, by ideas of incapacity, by expectations of failure.

All that makes one "diffident," timid, shy; it makes us hold back, shirk, hide our light under a bushel, run away from opportunity and from effort; many of us do all that when, all the time, we have something to give that the world wants—only nervousness will not let us give it.

So when it comes to achievement we have two cares:

One is to clean and fix and build up our second-hand bodies the best we can.

But, sometimes, even more than that, we need to renovate our sadly chosen stock of ideas; we need a stock of ideas that will make us fertile instead of one that makes us sterile; we need ideas that will help us to live instead of ideas that only help us to die.

XXXV.

NERVOUSNESS AND FATHERHOOD.

The greatest gift of life, the choicest blessing that High Heaven has to bestow upon man is the gift of one or more fine children; we do not sense it all at first, but as we grow older we see that it is so.

The power to have fine children is peculiar, as the other powers are: it is quite apart from bigness of body or even from vigor of mind; the finest children often spring from the poorest of bodies and from the humblest of homes.

Men gifted with extraordinary powers in other ways are often deprived of the power to have fine children:

Napoleon, whom Daudet described as "the greatest reservoir of human energy in all history," died at 52, and left only one son—"the eaglet"—the poor little King of Rome;

Napoleon had the power to work — but not the power to live; he had the power to subdue all Europe, but not the power to have fine children.

Cromwell, whose iron will cowed the souls of sturdy English men, died at 59, and left nothing of himself but Richard Cromwell.

And those gigantic intellects—Newton, Franklin, Webster, Carlyle, what have they left of themselves —nothing but words.

The Sterility of Great Men.

The sterility and the feeble fatherhood of great men may be explained in several ways.

Even in embryonic life, before we are born, the brain may rob some of the other growth-stuff; men of superhuman brain activity are rarely given reproductive power to match. In adult life, too, exalted brain activity robs the lower levels of the nerves.

Probably, too, the great man has some power that we, fortunately, do not have, of drawing upon the stock-stuff—the very germ-plasm, the stored growth-stuff of all the ages: a power of using this in a culminating effort that destroys the line.

Finally nature can not afford too many great men; one Napoleon, one Cromwell is all she can use at a time—a multitude of demi-gods might make the very gods themselves afraid.

One might suppose that a great mind would inspire, enthuse, impregnate other minds near it—independently of physical fatherhood—but it rarely happens so.

As Carl Snyder says in his fascinating "World Machine," "Poland did not become the leader of the intellectual world because of Copernicus, nor Germany because of Kepler, nor Italy because of Galileo."

The trouble is there is nothing to impregnate; the brain-stuff that grasps great truths—that rises into the heights of large visions is not there. So whole races, like the Chinese, remain forever sterile in great ideas; and so, too, the average man shuffles along like some wretched *boueur,* keeping his eyes upon the gutter and its findings, never raising them to the sky, nor even to the shop windows by the way.

Nervous men are often afraid to marry; afraid they shall not make good husbands, afraid they shall not have fine children. But the fact is that nervous

men, even the saddest of sexual neurasthenics, after they lose their sore spots and their apparatus strains, often beget remarkably fine children.

It seems that nature permits a man to waste some of his own strength, but not always the strength of the stock from which he springs.

Nothing can be more pleasing than the delight some of these nervous fathers show in a bouncing ten-pound boy.

That is fine medicine for some men; it does more good than all the talk and all the treatment that some of them insist upon—for years together.

These children of nervous parents are apt to be plump and bright up to the age of four or five years; then they become thin, and often begin to show signs of nervousness.

Such children have to be reared carefully, especially during the years of puberty and of school life; a little wisdom may help them on to a fine and useful manhood and womanhood; a little ignorance or a little folly may lead them into years of suffering or into a lifetime of failure.

XXXVI.

NERVOUSNESS AND HAPPINESS.

What makes a man happy in this world? very different things for different men; one finds happiness in a drinking-place, one in a library, one in a church, one in a jungle; the sources of happiness are often hidden even in the lives of those we know the best; truly, as Stevenson says in his famous essay on the Lantern Bearers, "the ground of a man's joy is often hard to hit."

But for the average man, as far as we can see, happiness comes from health, comfort, congenial work; it comes from success, from the appreciation and the affection of other men; from a lively interest in the world's wonders and in its work; from home-life and children and from some sort of play that each man chooses to delight his soul a little, day by day.

Nervousness touches or threatens or undermines one or all of these, but let us speak of one, the affection of others—because few of us can be happy for long without a little of that.

Nervousness often loses us comfort, achievement, playtime and even interest in life, and we grieve over that.

But more than that, nervousness often loses us our best behavior, and that often loses us our best of friends—our best of life.

For nervousness often "limits our field of consciousness," contracts our sympathies, loses us all

of our ten selves but one—our self-conscious, self-encentered self—so nervousness often makes us act selfishly.

Sometimes nervousness makes us act oddly; we act from secret motives; then our behavior seems incomprehensible, inconsiderate, obstinate, to some who would like to love us—and that loses us a lot.

Sometimes nervousness makes us act disagreeably and then we make others act so too, for truly

"we awaken the same emotions in others that we show them in ourselves."

A man who shows affection will nearly always receive affection; a woman who shows forth kindly words will nearly always receive them in return.

Sometimes nervousness makes us act too slowly; we lose that way; sometimes too quickly; we are not thinking of other people then, but only of ourselves.

Our nerve-tired sufferings might remain a secret to ourselves, but our nerve-tired actions often label us, discredit us; they grieve our loved ones and repel those who would love to be our friends.

So, seeing furthest, the significance of nervousness lies not wholly in the physical sufferings it brings us, but in the actions that it drives us to—actions that belittle us, belie our ideals, wrong our true spirits, and abase our better selves.

But, some say, the greatest happiness in nervousness is to get well; to find a cure; let us say what we think of that—all through the rest of the book.

NERVE-CURE IS A STRUGGLE—OF STOFF UND KRAFT.

THE CLASS IN TARGET PRACTICE.

There are five things to aim at in nerve cure:

1. "feelings";

2. ideas—the frame of mind; false fears, evil expectations, bad beliefs; half truths, distorted truths, rank errors; pre-occupations, obsessions; secret motives, mischief-making motives, sterile motives; sulky responses to life, futile attitudes towards fate; all the nervous dissociations of self-hood—and all the rest;

3. organ failures—wakefulness, eye-tire, indigestion, or what not;

4. ill assimilation; faulty storage of flesh and of force;

5. the physical and chemical deteriorations of nerve stuff that hide behind all these mere surface signs.

Let those who will aim at the edge of the target, let us aim at the bull's eye; other aims may indeed hit the centre sometimes, but not often. Let us see with our mind's eye the shrinking cell-stuff, the crumbling core-stuff, the chemical degradations of nerve-stuff that precede, attend and follow all the merely superficial appearances of nervousness.

Then we shall have a test for every remedy and an end for every aim.

XXXVII.

AIMING AT FEELINGS.

Once there was a merchant who suffered wakefulness, worry and strange thoughts that he kept to himself; it went on week after week until he was quite worn out with it.

Then one day the merchant heard of a sleeping powder; one little white powder taken at bedtime made him sleep eight hours—made him awaken refreshed.

The sleeping powder seemed an ideal cure; it acted promptly, surely, safely—so the druggist said—without loss of time or of money; what could be more satisfactory? It was more than a year before the merchant learned that the sleeping powder was a two-faced friend—helping a little here and undermining a lot there, until the downfall.

The sleeping powder cost the merchant a lot in the long run—years of invalidism, an opportunity that never came again and thousands upon thousands of dollars of money.

But why could not the merchant—keen as he was—foresee all this?

Because he was not keen all ways; because he was no expert in this line; because ambition or avarice or whatever it was undid him; because he made a move that never wins; he thought to outwit nature, but in the end, she was the one to outwit him.

The story of the sleeping powder is the story of many another promising cure: all seems perfect at

first; our remedy is without a fault; our logic without a flaw.

Then as the years go by our plan for an easy, sure, safe cure begins to show inconveniences, inefficiencies, evils; sometimes our remedy turns out worse than the disease.

The feelings of fatigue are signs to us that something is wrong with the stuff of our bodies; signals for us to switch off; prayers for us to do something different. When we smother these signs in a fog of sophistry, or when we mask them in maze of new feelings, we only prevent the use of wiser remedies; we only help ourselves on to the sure penalties that nature ever exacts for continued disobedience to her unbending laws,

Our feelings of fatigue fool us, too, many a time; one may feel better for taking a drink and worse for quitting tobacco; one may feel better under stimulus, even under excitement, worse under needed rest and under a wise moderation, and a hard truth for some nerve-tired patients to realize is the one that tired nerves may be feeling the best when they are faring the worst, and the other one that they may be faring the best when they are feeling the worst.

The feelings of nervousness are very unpleasant; we all desire to end them speedily; wakefulness, worry, pain crave relief; exhaustion seeks a sense of strength.

All this can usually be managed by men who know the nerves; one can nearly always palliate or even end the ill feelings of nervousness, quickly, safely, pleasantly, provided he can have full charge of all the forces that are at work in any given case.

But mere aiming at feelings, unbalanced by any further compensating care, is one of the greatest evils in the history of healing.

Aiming at feelings—and at nothing but feelings—involves the stupid use of tons of palliative drugs; it gives us the chloral habit, the morphine habit, the alcohol habit; it will give us other chemical habits fast as chemical science can create the means.

Aiming at feelings—much as any other single thing—produces nervous wrecks: exhausted men and broken-down women for whom nerve-cure is a matter that is measured not in weeks or in months but in years of lost time, opportunity and happiness.

All these truths are known in a way; even the people speak of them in a way; but not in that way that moves to wise action.

And so, aiming at feelings continues to be, in our own time, one of the most popular of the ways of healing; one of the deeper follies of popular medicine and one of the graver reproaches of scientific medicine—rather, let us say, of those who represent it.

XXXVIII.

AIMING AT IDEAS.

Some schools of healing aim almost wholly at ideas; unhappy ideas make us ill, they say; happy ones make us well; for some the whole art of healing consists in changing the mind.

Let us agree at once that ideas are among the profounder forces that make or mar our human lives; unhappy ideas can literally "break our hearts," shock us to death, drive us mad, waste our bodies to a skeleton.

Nay more, the writer is of those who believe that unhappy ideas can produce arterial disease, Bright's disease, diabetes, arthritis deformans, mucous colitis, cancer—any bodily deterioration that begins in a lessened resistance of the body's stuff.

And happy ideas can and do exalt the bodily resistance, and so save us from destruction; they can and do constantly cure some of the graver forms of physical disease.

The Suggestibles.

Unhappy ideas form part of the mental equipment of most men; even the sanest and the serenest are impressed and reimpressed by the evils of life; fears, doubts, discouragements possess the souls of all men at times and make sad motives to sad action.

In every age wise men have recognized the futility and the mischievousness of unhappy ideation and have formed philosophies against it; some have found refuges, some pursue cults, some use maxims

and mottoes and some invent psychological catch-words that tend to frame the mind more hopefully, more courageously, and that tend to give us more helpful motives to more useful action.

But there is one aspect of unhappy ideation and of all that it leads to, that needs to be more thoroughly understood and emphasized by mental healers and physical healers alike.

When a nervous man or woman shows signs of persistent fear, anxiety, depression, these phenomena are no mere accidents of chance, no mere fancies of the mind, no mere disease of the spirit; they are always signs of deep-seated physical changes in the body's stuff, in the very core-stuff of the nerves that need to be understood and ministered to in no narrow-visioned way, but in all the ways that experience can think of.

Over-suggestibility—or whatever we choose to call that habit of mind that responds to life fearfully, doubtingly, despairingly—is a sign of nervous over-sensitiveness; over-impressionability, over-plasticity, over-readiness of the finer nerve-elements to suffer physical changes that impair their usefulness.

All men suffer fear, doubt, discouragement at times, but sound men do not suffer it long; with them fear is soon transformed into thought and thought into action; the strong man plans to fight the feared thing whatever it is.

But ten thousand nervous men and women suffer fear, doubt, discouragement—and re-suffer it—again and again — spite of all talk, spite of philosophy, religion, psychology—spite of ample understanding of all the bearings of unhappy ideation upon health and happiness.

Then we have a physical trouble to deal with more than a mental one.

The nerves' stuff in these cases is over-sensitive, over-impressionable, over-suggestible, over-plastic; but these are mere words; what do they mean?

In health "a functional act is a nutritive act"; every bodily action is attended by changes in the finer elements of the body that tend to upbuild and to preserve it.

But in nervousness, a functional act is often a de-nutritive act; the action decomposes the finer elements of the nerve-stuff instead of composing it; it tends to break down instead of to build up.

The nerve-stuff of some men and women is like the asphalt pavement upon a hot day—too soft; it receives the imprint of every grinding foot and holds it for a long time after the coming of the cold.

The proteid molecules of tired nerve-stuff suffer new arrangements, new combinations, the atoms, too, undergo new groupings of their electrons; and these changes in the finer elements of nerve-stuff constitute the final physical basis of all that we call nervousness.

So a wise nerve-cure will ever aim at the ultimate source of nervous ideation; ideas are only one of many factors that make or mar the nerve-core—there are others and we must try to remember and to manage them all.

The Four-Horse Team.

When financial worry, or love-sickness, or adversity seem to be undermining a man's strength, ideas may become first of all the remedies; but nearly always a man in such a case suffers other stresses, other strains; other poisons than the emotional ones; then aiming at ideas must often fall short; it is trying

to pull the wagon out of the hole with one horse when four perhaps are needed.

Consequent Ideas.

Again unhappy ideas are often the direct effect of some bodily disease; eye-strain or any apparatus-strain may depress a man's spirit to the depth of suicide; the poison of grip often leaves one melancholy for months; the poisons of brain-fatigue and the poisons of intestinal self-infection are often peculiarly and intensely depressing; mere talk goes for little in such cases; we are beginning at the wrong end then; we have to cure the physical stresses or sweep out the circulating poisons before we can hope to do much with the talk part of nerve-cure.

The Vicious Circle of Nervousness.

Or supposing that a man is floundering in that slough we call "the vicious circle of neurasthenia"; bad habits of life lead to one or more of the nervous indigestions; abdominal poisons push past the tired liver, circulate all among the brain-cells; that causes wakefulness, worry; that in its turn causes fatigue — over-breakdown of built-up nerve-stuff — new poisons—emotion poisons, poisons of brain-tire pour forth; the tired nerves in-nervate the tired abdomen less and less ably; the tired abdomen vexes the tired brain more and more persistently, and so it goes—round and round and round.

Mere talk is of little use in such a case; physical labor is what is needed here—cleaning, trussing up, fixing, building; a little genial talk by the way does no harm, it may do much good; but it is not the main thing; ideas are not the things that a wise healer will choose to aim at in such a case.

Health Worry.

Then consider the victims of health-worry—men and women who suffer keen anxieties and sterile motives, losing, in this way, it seems, some of the best years of life.

Surely talk would seem to be valid here. What could be better than to talk away all these fears, now, today, at once; to restore these sufferers to happy, helpful work?

Some kinds of health-worry do indeed need care—not alone talk, but all the many-sided planning that wisdom and experience can suggest.

But other kinds of health-worry are conservative; it is good for some men and for some women to worry about their health for awhile; the period of health-worry that some nervous patients pass through, in early life, is one of the best things that ever happened to them; it sets them in the right way; it makes them temperate and prudent; it orders and prolongs their lives; makes them happy and productive—in the long run—far beyond all they would have been without it.

And there is a class of nervous patients who need nothing quite so much as a prolonged spell of health-worry; if we could only get some of our intractables into that way we might hope to get them well.

So, aiming at ideas, is not all-sufficient in nerve-cure; it does not meet all the needs of the case; it sees too narrowly and aims too inexpertly; it must ever remain one of the lesser forms of effort.

XXXIX.

AIMING AT ORGAN SYMPTOMS.

It seems rational enough, at first glance, to take heart-tablets for a weak heart, pepsin for dyspepsia, ergot for menstrual failure, laxatives for chronic constipation, yet in a large proportion of cases, these merely organ remedies, and many others, miss the mark completely.

Every one of these tired, insufficient, impotent organs has a complex nervous mechanism behind it—and then a complex body behind that. In a large number of cases where irritability or weakness possesses some organ, the real trouble is not so much in the organ itself as it is in the other parts of the body. A diseased organ may indeed irritate and cripple the entire apparatus to which it belongs and the body besides; but the organ is rarely badly diseased in nervous cases; the trouble lies in the nerves; they may be robbed by more active nerve areas, or they may be broken down a little in their own substance; then they "in-nervate" the organ poorly; they leave it poorly nourished, poor in tone and in power.

Aiming remedies at organ symptoms in such cases is only a waste of time; it is only a trimming at the branches of a sick vine and a leaving of the diseased roots of the trouble untouched.

Aiming at the Eyes.

When our eyes tire too easily our first thought is naturally of the organ involved; our first aim is there. Sometimes, indeed, this aim succeeds; the refractionist

discovers an eye-strain, relieves it, and we are, so far, cured.

But, as every one knows, the best refraction-work often fails not only to relieve nervousness, but to relieve fatigue and incapacity in using the eyes. Then it is plain we must seek the source of trouble elsewhere.

In that class of men and women in whom the eye is an organ of least resistance and in whom the visual apparatus bears the brunt of shocks and of fatigues from all parts of the body, one may track the trouble to strange sources.

One finds it in the mind—in some secret cark or in some subconscious thorn—one in the stomach—switched thence with every indigestion; one finds it in the sexual organs—oftener than some of us suppose.

But the best way is to get back to the nerve-core at once; it is the center of operations, the very switchboard of all these switchings and shuntings—the manipulator of all these subtle nerve combinations. There we occupy a point of vantage—one where we may consider *all* the varied forces that play along the nerve paths, instead of one or two merely; our outlook is larger there; we stand higher on the hill; we can see from this height something of all that is going on.

Some oculists do all this; they are physicians as well as eye doctors; more than that, some men know when and where to lay aside the rough tools of their craft for a time, to robe themselves from head to foot in purest white and to speak words that soothe—words that heal.

Aiming at the Stomach.

Probably more medical treatment is aimed at the stomach than at any other organ in the body; medi-

cines, diet, lavages, electricities, rest-cures, even surgical operations—all the vast resources of medicine and surgery are brought to bear, in different cases, upon the different forms of nervous indigestion; even so, some cases resist all our stomach treatment; they persist in acting badly as they did before.

In a large number of cases of nervous indigestion the source of trouble is to be found in nervous overfatigue, and cure is only to be found in building up the broken-down areas of the nervous system.[1]

Aiming at the Pelvic Organs in Women.

Consider the case of nervous women; almost the first suspicion that rises in the medical mind is the pelvic one; some pelvic irritation irritates the nerves and makes them act as they do.

Yet the most careful and conservative pelvic treatment rarely cures nervousness in women—not because such treatment is always improper, but because it is often incomplete.

The best men, both in surgery and in medicine, have protested against the vast sum of ill-advised, ill-directed treatment that is still aimed at the pelvic organs of nervous women.

Such treatment not only fails to cure, but positively harms nervous women in four several ways:

First, the shock of surgical procedure in case of nervous women is sometimes very severe—persisting for months or for years.

[1] Dr. Lewellys F. Barker *"On the Psychic Treatment of Some of the Functional Neuroses," International Clinics, seventeenth series, Philadelphia, 1907:* "It is one of the commonest experiences in my wards at the Johns Hopkins Hospital to see patients who have been on a rigidly restricted diet for months or even years, and who, perhaps, have been subjected for a long period to gastric lavage or intestinal irrigation, eating, at the end of a week's time, like perfectly healthy individuals and enjoying and digesting all they eat."

Second, aiming too intently at the pelvic organs in women often involves forgetting and neglecting other and equally necessary measures.

Third, prolonged unsuccessful pelvic treatment of nervous women sometimes develops an all-absorbing consciousness of the sexual organs, or state of sexual hypochrondriasis — of *folie gynaecologigue* that is very hard to remove.

Fourth, removal of one or of both ovaries, or of any of the pelvic contents, for mere nervousness, or even for just surgical cause, is sometimes followed by a state of prolonged nervous wreckage that is lamentable and sometimes all but incurable.

Aiming at the Prostate.

Nothing is more common among nervous men than the condition called "sexual neurasthenia"—slight or severe, imagined or real; sexual nerve troubles play a great part in the early and middle life of many over-sensitive men.

Our first thought in such cases is to cure the sexual organs; we sound them, instillate them, massage them, electrify them; we employ all the varied procedures that Ultzmann, Guyon, Beard, Gross, Keyes, Fuller, Valentin and other skilled men have taught—procedures excellent as far as they go, but, in the case of over-sensitive men, very often procedures that fall far short of all they aim to do—cure the trouble.

Most of these cases of sexual neurasthenia, as we call it, suffer something more than damage to this or that reproductive tissue.

Sometimes the whole nerve mechanism behind the reproductive organs is impaired, unstable, "irritable" —after all our local efforts.

Sometimes the whole nervous system is more or less involved in the local irritability and weakness.

And, as often as not, the over-sensitive man suffers one or more of several profound nerve impressions that have been made upon the nerve-stuff during adolescence—during the most impressionable, plastic period of the nerve-stuff's history.

Here are some of these unhappy impressions:

1. A long-borne burden of secret health worry.

2. A more or less complete stock of erroneous ideas—acquired during years of inexperience—from all sorts of ignorant or else sinister sources.

3. A more or less complete misunderstanding of the normal standards of sexual health and power.

4. A long-standing sub-conscious grief — some deep-lying, obscure, persistent sense of secret shame; some loss of self-respect; the man does not know how it stands with other men; he feels himself to be exceptional, monstrous—worse than he really is.

5. A long-standing mind-trouble that has become fixed into a habit; fear of not getting well; fear of discovery; fear of failure.

6. A chronic state of self-impression that has grown out of false teachings; the man repeats in his own mind the false and sinister teachings of past years—continually.

7. A chronic state of self-impression that has grown out of the fact and the memory of failure; the man has failed in the past and expects to fail in the future, and "a thing expected is half achieved."

8. A chronic, more or less complete distrust of doctors, the outgrowth of many disappointments in the past.

These mental states of nervous men are no mere whims nor fancies nor follies nor obstinacies; they are at bottom physical faults—flaws in the very nerve-stuff.

These chronic mental impressions are only the surface signs of deep-lying physical impressions—stampings upon the nerve-stuff real as the stamping that a seal ring makes upon wax.

There has been a physical change in the molecules of the nerve-stuff; the atoms have been re-grouped; the electrons re-arranged; the combination of this safe has been changed.

It must be so; or else why do many nervous men think and act as they do for months and years together?

XL.

AIMING AT THINNESS.

In every sanitarium for nervousness there are light-weight women—weighing one hundred pounds—a little more or a little less. We try to fatten them—forced feeding—cream, butter, rest, massage—everything we can think of; still spite of all our efforts some of these light-weight women will not gain a pound—or if they do we all crow over it for days and days—until they lose the poor pound again; even after that we continue to draw hope from the memory of our made pound—because we think what has been done once may be done again.

Another class of nervous patients fattens readily under isolation, forced feeding and all the technique of the rest-cure; they may gain fifty pounds in two or three months; they lose some of this weight after they get up, and some of them show a good deal of the nervous weakness that they did before.

Aiming at flesh and force storage would seem to be a reasonable and promising course; when we fatten the outside so much we must fatten the inside a little; we must put a little nerve-fat among the tired nerve-cells and so far cure.

But abundant experience shows that aiming at body-weight does not always suffice.

Our effort is too short-lived for one thing; when nerve-tire is a growth of ten years, nerve-cure must be an outgrowth of more than three months. But beyond that, there are often lurking factors that

forced feeding cannot reach—subconscious griefs, bitter memories, secret thoughts, subtile stresses, antagonistic attitudes, mysterious motives—that hold the finer combinations of the nerve-elements locked in complex combinations that our key does not fit.

Whenever a nervous man or woman will not gain weight under careful management, or whenever one will gain weight without gaining much nerve-strength, there is always some ultimate source of trouble that we have not yet discovered.

XLI.

WHAT SHALL WE AIM AT THEN?

Most men who know nervousness will agree that the physician's personality is often first of all the forces that tend to cure it; such a personality, at its best, includes sympathy, earnestness, self-confidence, optimism, thoroughness, and firmness in proportions that differ in different men.

Whence comes the personality that cures nervousness? A man's natural sympathies and traits are one source; a man's understanding of the natural history of nervousness is another.

One may read in medical books for hours, weeks, years without ever coming across a clear statement of the meaning and nature of nervousness; he may live and die without ever finding an inspiring, stimulating theory of nerve-cure.

Yet the literature of medicine is full of fragments that afford a clear statement of nervousness and an inspiring theory of nerve cure if we will only take the trouble to put them together into some sort of a whole.

Nervousness comes out of nerves; they are the source, the things we have to study; but nerves are so small that it is hard to see them; we have to receive much from the researcher; we have to trust much to him; we have to imagine much in this field, and there is where most of us fall short.

In order to comprehend nervousness we have to penetrate the mysteries of the infinitely little; physi-

cists and chemists do it and so can we; we have to show insight—the sight that sees in; we have to see with our mind's eye the hidden life of the nerves; we need to know, far as we can, all that goes on there; in short, we need to become image-makers, so skillful that we can form, in our minds, the perfect image of a broken-down nerve-core just as clearly as we can form the image of a broken thigh-bone within the capsule.

It is a wonderfully great help to have any sort of a pathology for our nervousness; let it be vivid, enthusiastic, unscientific if we please; we who believe in the reality of our images will cure many a time when those who doubt will only fail.

A man who is able to form a clear picture of the bodily deteriorations of nervousness in his mind's eye has five great advantages over one who is not able to do so.

First, he has something to aim at—something to work upon; he can afford a little sympathy now, and that makes the beginning of confidence, and that makes the beginning of cure.

Second, he is inspired to do something — to be earnest, prompt, positive where he was perhaps shiftless and resourceless before.

Third, we can afford self-reliance; no need to harken to other men or to medicine vendors how to cure; we can think the thing out for ourselves; we have a test for every remedy—will it or not tend to build up broken-down nerve cells—if not, it is no true remedy and we are only wasting time.

Fourth, our vision of the dissolving nerve-core will ever inspire us to thoroughness; let others busy themselves with one or two factors of the struggle; we must know and manage them all; our thought then will

no longer be of eyes or of stomachs merely, but of all things that can break and build the nerves.

Fifth, the man who tries to get to the sources of his nerve symptoms—remote, fine, intricate, mysterious as these may seem at first—will come into a courage, an enthusiasm, a persistence in nerve cure that men of nearer and narrower vision never, never can come into.

FINDING THE SORE SPOT.

FINDING THE SORE SPOT.

"He saw the suffering human race
And made its secret sorrows clear;
He put his finger on the place
And said, 'Thou ailest here—and here.' "

XLII.

THE WILEY CURE.

Every doctor has his friends who think there is no one like him; every one has his critics, too, who "would not trust him to doctor a sick cat."

One day Mrs. Ward was sounding the praises of old Dr. Wiley; her niece had tried nineteen doctors, without avail; then old Dr. Wiley took hold of her and, in three years, got her well.

Young Dr. Smart laughed, in his beard, when he heard this; he thought the old lady's praise rather equivocal; his idea was that these old doctors are all too slow.

But that was before Smart had met a case of asthma complicated with wakefulness, wandering kidney, ovarian prolapse and spinal irritation; afterwards he thought the old doctor did well to cure his case so soon. Smart's case is in its seventh year now, and not well yet; but he is hardly to blame, poor fellow, because what doctor in the world ever cured his own wife?

Mrs. Warner was thirty-five when she came to Dr. Wiley—a widow, a weak, worn, wistful woman's body—a mere wisp of her former self.

She was half American and half Czech—the last figure of a legation romance in gay Vienna.

The child-mother died in giving her birth; then they sent the baby girl to Boston, to be "raised"; they tried hard—the good aunts in Boston—to make

a little Puritan of the child, but the mother's Czech blood fought them every step of the way.

At the age of nine her father was hurt, to death; he held her in his arms, frightened dumb, until he died.

At fifteen she was a fine figure of a girl; then she suffered some of those attempts a motherless girl, fine-figured, must, sometimes, suffer; she was not burned—only scorched a little.

At eighteen a friend of the family tried his best to wrong her—and almost succeeded. At twenty she married this very man—a handsome body without a soul; she learned more and more of the seamy side of mankind—of the bestial side that lurks sometimes in the best of men.

Once a great joy rose in her woman's heart; a promise of motherhood, but the husband took her to a "doctor" who ended all that.

The husband grew to be a heavy drinker and made her drink, too; he hated to see her so damned sober; sometimes the wine made her a little silly; it amused him to see her so; sometimes he laughed 'till he cried; it was good as a show.

At twenty-six, she stood four hours one day in a strange house before a closed door, waiting for her husband to come out; she was tortured beyond endurance, yet, forced by an impulse she could not resist, to face the other—the preferred one.

At thirty the husband died—shot to death by another husband; it all came out in the papers, in the largest type they had.

At thirty-one a traveling "spiritualist" robbed her of a thousand dollars; the next year her bank failed; then a trusted maid disappeared with some diamonds.

At thirty-five Mrs. Warner was, as she said herself, a nervous wreck; she suffered ferocious head-

aches, intolerable backaches, and cried sometimes for days together. In short, Mrs. Warner's life, up to the day she met Dr. Wiley, had been a sad drama of disappointment, a finished education in distrust.

Mrs. Warner had suffered many things of many healers before she met Dr. Wiley, but no one had ever been able to cure her "nervousness"; they cured all the rest of her body but could not seem to cure the nerves.

One "glassed" her; one burned her nose; one treated her stomach for over a year; one cut her ovaries out; one sent her abroad; one put her to bed; one sent her to a sanitarium.

They were all good men, skilled in their work, professors in the medical college, men of repute.

How came Dr. Wiley to cure her, after all these greater men had failed?

Because—he found the sore spot.

Dr. Wiley was ignorant of many things; he never had the opportunities that some men have; besides he was old now, and behind the times.

He never heard of psycho-therapy, much less of psycho-analysis; he never saw a sphygmograph, and hardly knew the sinusoidal current from another.

But Dr. Wiley had some of that fine good sense in his upper story that atones for much lack of science in the lower story; more than that, he had a store of sympathy and a power of in-sight; he seemed to see, somehow, that this sad-eyed woman was soul-sick more than she was body-sick; he divined, before long, that "her illness was nothing but the sum of all her disappointments"; he knew the druggist kept no remedy for troubles like hers; so he set himself to work in a kindly, genial, human spirit and used such remedies as he possessed.

Why can not we find the sore spot in some of our sad-eyed cases as well as Dr. Wiley?

Alas! we want something—most of us—that he had—time, sympathy, in-sight, fine-feeling, genuineness, character.

How can we confess sick souls, who, ourselves so sorely need confessing? The sick soul is clairvoyant; it knows whom not to trust as well as whom to trust; if it fails to trust us perhaps it is because we have never made ourselves worthy to be trusted.

XLIII.

THE IMAGE MAKERS.

"Any one who is practically acquainted with scientific work is aware that those who refuse to go beyond the fact rarely get as far as the fact."—*Huxley.*

Whenever we get to thinking—religion, philosophy, science—we always come, in time, to a place where the material of our thought runs out; we are still far short of a conclusion; then we have to imagine things to help us out.

The mystic imagines God; the metaphysician, soul; the astronomer imagines his unseen suns and dark doubles; the physicist imagines ether and electrons; the chemist, formulas and ions.

Now the physiologist is just as good at image-making as the rest; he imagines molecules of proteid, enzymes, hormones, toxins, anti-bodies—and ever so much more.

We have never seen any of these images. We make them up in our own eager lively brains; we are image makers and yet we believe firmly in the images that our brains have made; we believe that they are all there.

If any one doubts the reality of our images we reply that the test of a thing is the way it works out.

These images of our brains help us to live; we could not live without them; they are the realest of our realities; the strongest of our supports; take them away and we are lost.

In childhood we see the flat land, the still earth, the canopied sky; it is only later that we rise to the realities that lie behind these false appearances

—to the curved land, the whirling earth, the abysses of infinite space.

Most of us remain children, intellectually, all our lives; we go on trusting our senses, dupe us often as they will; we put our faith in appearances; we have no faith in the realities that lie behind appearances; we have no power of imagination, no gift of in-sight.

The history of science is one long story of blindness in masses of men; men have ever hooted and stoned the discoverer—and sometimes do so still.

The history of literature is the same: men have ever been indifferent to greatness near by; no one of their day saw a demi-god in Homer, Dante, Shakespeare; few saw even a talent in poor Chatterton nor in poor Tannahill nor in doubly poor Francis Thompson.

And all through history men have failed to see what was going on; "the real significance of the event was not perceived until long afterwards"; we, too, are making history, every day, but few of us grasp anything of the meaning of our acts nor see where these tend to lead us, nor what is to come after.

And it is vitally so in our every-day commonplace lives; we miss the deeper meanings of nearly everything that we see; we miss the miracle drama of creation, and all its moral; we miss the beckonings of the stars; they are trying to say something to us, but we cannot make it out, and hardly try; we miss, too, the real man that hides in every man-shape that we meet—the inner man; we cannot comprehend the hidden hopes, the secret joys, the sadder sorrows of our dearest friends; we cannot see and they cannot make us see—neither the husband the wife nor the son the father; so we meet and part without one true hail—"mere ships that pass in the night."

Why do we never realize this ancient, historical, ever-present blindness of mankind? why are we so cock-sure, so jaunty; why do we still deny the realities that lie behind mere appearances; why do we sit before the dropped curtain all our lives?

Our first duty as healers is to know our matter, the stuff we work in; there can be no wise healing without that.

Our second duty is to go beyond mere matter—to go beyond the fact so we may get as far as the fact; there are truths we cannot see nor touch; after our material substance runs out a great gap lies between it and a wise conclusion; when we stand face to face with a nerve-sick man or woman, then, we must ever take account of this something our senses cannot see, nor handle; we must make images, too; all the other scientific men do it—and so must we; in a word, we must show a little in-sight—the sight that sees in past organs and tissues, into the very soul of the sickness.

Our third grave duty as healers is to know our limitations; we take a high responsibility with every case we treat; we must not assume that too lightly; we must not make any more mischief than we can help; we must not treat the wrong disease; we must not waste the sick man's poor precious things that remain to him — his poor strength, his time, his chance and his money.

Our fourth duty as healers is to do our best with the gifts we have; to give each one who trusts us the same consideration and the same earnest effort we would give to our own first-born.

XLIV.

FINDING THE BIG LEAK.

In his book on "The Major Symptoms of Hysteria" Janet speaks of that "lowering of the nervous level" which underlies, as he says, all the forms of functional nervous disease.

Imagine a mountain lake—a crater lake—a pure fountain of potential energy.

Then, imagine that one or more secret subterranean passages form and begin to drain the lake and to lower its level.

Lower—down the mountain's side—a whole chain of lakes circles the summit; their waters are shallower, muddier, less wholesome, potentially feebler, as sources of power.

Then imagine that these lower lakes flow away—in streams of sorrow, to the foot of the hill.

The crater lake stands for our primary source of nervous power—adequate for all natural demands; the subterranean streams stand for causes that overdeplete it; the lower lakes stand for one or another of the forms of functional nervous disease.

There are two aspects in every case of nervous impairment, in every case that persists: one is the inherited or the acquired nerve-deterioration of higher, "last evolved" nerve mechanisms; the other is a leak, very often a mysterious and subterranean one, that is ever draining off the diminishing nervous force before our very eyes.

We cannot wholly mend inherited nerve weakness; all we can do is to fix it so it can show its greatest possible, its maximum, of power. But we can nearly always make a nervous sufferer fairly comfortable or a nervous cripple fairly efficient, if we can find the hidden something, the extra-burden, the straw that broke the camel's back, the big leak—and subtract it from the daily life of the weakened nerves.

It is easy to find the big leak sometimes; there is nothing subterranean about it; it shows for itself; the patient knows it as well as the doctor; all the patient's friends know it, too; the trouble is to stop it.

It is hard to find the big leak other times; it lies too deep; we have no way of getting at it; sometimes the crater knows where the leak is, but will not tell.

But, quite as often, it is our own near-sightedness, half-vision, prejudice, that misses the vein.

Our narrow specialism searches upon one side of the hill; digs in one particular place, and failing to find the trouble there gives up the search.

The mental healer sees the mind-strain but not the eye-strain; the oculist sees the eye-strain but not the mental one; one man looks for abdominal trouble, another for pelvic; one digs for pus-poisoning, another for "uric acid"; failing to find the special object of our search we give up in despair.

As healers we all have names that serve—to save us trouble and to save us confession of much ignorance; "malaria" used to be such a word; "syphilis," "uric acid," "neurasthenia," "suggestion," serve us still.

How often we label an ailing, complaining, barren man or woman hypochondriacal, or neurasthenic—off-hand, as it were, with fine discrimination, without

ever searching the body to see whether anything more may be the matter?

So we constantly fail to detect the beginnings of arterial disease, of brain-disease, of thyroid disease, of lung disease, of abdominal or pelvic disease; so too we miss many a subtle circulating poison and leave it in the body free to continue its baleful work.

Every once in a hundred years some doctor gets off a saying that lives: it was Romberg who said that "pain is the prayer of a starved nerve for food"; this saying still stands, although in a deeper sense than Romberg knew; it was Cazalas who said that "a man is as old as his arteries," and Borelli who coined the phrase *Qui bene diagnoscit, bene curat*—"the man who diagnoses best cures best."

It is a pity we are all so provincial—mind-healer, psychologist, oculist, internalist, surgeon—all blind in one eye and two-thirds blind in the other.

Because—of all the wearied souls that haunt the presence of healers none stand more sorely in need of unprejudiced, large-visioned, comprehensive, pains-taking, experienced search for the causes of the trouble than those whom we dismiss so often with the airy phrases, "only functional," and "nothing but nervousness."

XLV.

GOING OVER THE WHOLE PLANT.

Coming home one day—if a hotel room can be called a home—we found a man "cleaning up," as he said, "after the plumbers."

It was a new hotel—one of the nicest in Los Angeles; everything had worked smoothly since the opening excepting the hot water; that, it seems, had refused to rise to the top floor; it would rise to all the other floors, but not to the top.

"It worried 'em a lot," said the man; "nobody here could find out what the matter was; they had to send to San Francisco for experts—had to pay 'em fifteen dollars a day."

Well, did they find the trouble?

"Yes, sir; it took 'em a week though; they just went over the whole plant from top to bottom; they never missed a thing."

What was it, after all?

"Why, the outflow pipe from the boiler was too small; they put in a bigger one and she worked all right after that."

Then, with an odd little chuckle, the man added: "I guess them fellows from San Francisco knew what the matter was first thing; but they warn't goin' to let on too soon—gittin' fifteen dollars a day."

What a lot of trouble we should save ourselves and what a lot of suffering we should save our nervous patients if we too only could—and would—go over the whole plant.

How can psychology or mental healing, for example, go over the whole plant? These deal wholly in appearances and not at all in pipes; all these sciences see is the fact that the water wont rise to the top floor.

Be a little patient with us, brothers; we are not cross; indeed we owe you much.

We have been just as blind in our way as you have been in yours, and you have shamed us into seeing it.

But if we are going to take a hand at healing we must all do better than we have done.

We must all quit playing with nerve-cure; we must stop being amateurs; we must take off our best clothes, put on our overalls, roll up our sleeves, and get to work.

But, alas, that is the whole trouble for most of us.

It is *so* much easier to take a six hours' course, or a six weeks' curriculum in one of the provincialisms of nerve-cure.

And it is *so* much harder to serve that long, tiresome apprenticeship that tries to learn a good trade.

But duty is duty and we've just got to do it.

THE WHOLENESS OF NERVE-CURE.

THE HIGH SCHOOL OF NERVE-CURE

Every doctor wearies of medicine at times—wishes to be out of it and into something else; so we did once—pacing up and down our cage at the sanitarium—fretting to be free.

We were simple-minded enough to think we might start a high school of nerve-cure; we planned all the classes—the class in rhetoric, the class in arithmetic, the class in detective work, the class in target practice, the class in spiritual healing, the class in mental healing, the class in physics (put there to ballast the class in mental healing), the class in thoroughness and the class in patience.

Surely, we thought, some of the healers will wish to come.

We laid it all before a friend of ours; one in whose wisdom we have unbounded faith, but he discouraged us dreadfully; he said no one would come to our high school; no one, he said, would ever pay a tuition fee to study any such stuff.

So we put it with the other plans; only here is the class in arithmetic, and a few of the other classes, in print, as big as life; as for the rest, we never expect to see it there.

XLVI.

FRACTIONS AND INTEGERS.

"O! the inveterate partialness of man."—*Carlyle.*

One summer Mrs. Waller went to seven healers, one after another.

She was weary of lying awake night after night, year after year, weary of pain, weary of health-worry and she wanted to be well.

She went to a mental healer first; that was the cheapest—and the most promising; next she tried a nerve doctor, but found it just as some cynic has said:

"So great their science and so small their art."

Then she "tried" (and tried him sorely) a popular internalist—just back from Berlin; he located the trouble in the gall-bladder; but if it was really there it stayed there for all that he could do; then an eye-man "glassed" her; a nose-man burned her; a womb doctor cut her; a sanitarium doctor laid her up for repairs; that seemed to help, but not all that Mrs. Waller wanted.

It was just as Dr. Jerry said: a man with seven watches never knows the time of day and the woman with seven doctors never knows what the matter is nor what to do.

Why do healers have so little likeness; why do doctors differ so?

Other workmen agree in main things; sculptors, painters, builders work according to a plan; but

healers disagree in main things, they work all kinds of ways, according to their whim; they do not seem to have any fixed plan.

It all comes out of immaturity; the healing art is still unformed; it is getting itself together, and some day will take shape and seem as sound and as sensible as the others.

Who is right among all this horde of healers? hardly one.

As spiritual healers (if many such there be) we see visions of truth that mere materialism cannot see; we use remedies, too, that others cannot use; but we miss one inexorable truth; the spirit of man is subject to the law of substance in this life; spirit and body are inter-dependent, vibrant, one to the other, until the end.

As mental healers we have discovered one great truth: ideas profoundly influence the body's health —even its stuff; but, all too often, our wisdom stops there; we feel the same self-satisfaction, the same stupid superiority, the same intolerance in our field that the merely physical healer so often feels in his. So we often involve ourselves in tragic blunders and in bitter condemnations—all because we are fractions in the world of healing, no integers.

As physicians, too, we often see the body empty, without a spirit, even without a mind; mere chemist, physicist, hand-worker; we see mere physical realities and ignore all others—dismiss them into the region of the unreal and the impractical.

So we often incur the profound distrust of multitudes of men, who feel instinctively that something is wanting in us that should be there; we, too, are fractions, no integers.

But surely, in the coming years, a race of healers will arise to wonder at us; whole men, integral men, men of healing integrity; men able to see all that is to be seen; all the mystery and all the promise of unknown truth; all the secrets of the spirit of man and all the marvels of mere matter.

XLVII.

THE WHOLENESS OF NERVE-CURE

"whose even-balanced soul,
From first youth tested up to extreme old age,
Business could not make dull nor passion wild;
Who saw life steadily and saw it whole,
The mellow glory of the Attic stage,
Singer of sweet Colonus, and its child."
—*Matthew Arnold.*

Maupassant said of one of his characters: "he was a good man truly, but his soul had never crossed the threshold of his shop."

How many of us, brother healers, are like that, living in a street and number, little caring for anything that lies beyond?

Let us rise out of the rut for once—high as the stars, and note the rolling world; let us see with our mind's eye all that men do and all that they suffer in the sacred name of nerve-cure.

What a variety of healers minister to the nerves; how differently they do their work; the much-abused, matter-bound, monistic healers have no monopoly of this field; every one seems to be taking a hand at it; priests, psychologists, mental healers, masseurs, laymen—all lay hand upon sick nerves.

Psychologists tell us that no one can imagine all the surfaces of a sphere at once, and when we try it we find that they are right.

Truth is a sphere and narrowness, provincialism, is still the greatest limitation of the human mind.

We see our little hamlet more or less clearly, but lose all that lies beneath our horizons; for us it is not there.

The feelings of health or of illness that appear in our poor human bodies are Resultants of many factors.

Our bodies are infinitely complexed mechanisms, sensitive to the play of innumerable forces; a few miles above or below sea-level we die; a few degrees of heat or of cold kill us; it took the earth millions of years to get things ready so that we could live at all; a little fault throws our bodies out of the nice adjustment to internal and external things that permits, and preserves our lives.

Even in health our bodies are sensitive, responsive instruments, quivering in the center of a hundred subtile forces; climate, weather, milk, water, smiles and frowns, gains and losses, move our spirits and our bodies, hour by hour, and day by day—as cold and heat move the mercury in a thermometer.

How simple-minded it seems, then, to pin our faith to any single idea or to any single plan of cure.

The physician is one who tries to comprehend *all* the forces that reach a human body; he tries to know the physics of flesh and blood; "physiology," as Chapman said, "is now and always has been the corner-stone of medicine."

But the great physicians that appear in every age know more than physics; they penetrate the mysteries of *meta* or after physics; they know the power of fear, of hatred and of jealousy; they know the strength of hope and of trust—they know the human heart.

Sometimes a saying goes further than a sermon—further than a volume of them; here is one that would go a long way if we could only say it rightly:

The largest nerve-cure is that which tries to comprehend all the forces that make and mar the nerves; the wisest is that which discovers the individual need that exists in every case—and ministers to it.

XLVIII.

RATIO.

Suppose we are sitting in the office, behind our desk; the patient sits in front, with his hat in his hand.

We are going to play the game called Consultation; it is more subtile than chess; the idea is to find the sore spot; the game is a little peculiar in this: both players win—or else they both lose.

Perhaps the patient is a nervous one; his tale is of wakefulness or of pain or of health worry; his progress is somewhere along that weary way in which irritability tends to end in exhaustion.

Then we know we have a sum in addition to deal with, and after that a problem in ratio.

In the first place we know the man is "nervous"—born-so or come-so; he is neuropathic, "neurotic," pre-disposed to just such things.

It must be so; else the man would not be ill so long in this particular way; he might be ill some other way, in some tubercular or some gouty way, but the fact that he is ill in a nervous way shows that his nerve-stuff is his particular place of least resistance—the place that cannot defend itself well against its enemies, the place that breaks down first.

So then the chemical instability of nerve-stuff equals x.

The second factor is something that tends to break down chemically unstable nerve-stuff over-rapidly.

This may be some stress of unhappy ideas; some stress of nerve current mischief, some stress of thorns

in the flesh or of apparatus strain, some stress of poisoning.

It may be worry, wakefulness, eye-strain, tooth-decay, intestinal poisoning—or what not.

So the second factor equals x.

Most of us rather ignore the first factor, and hurry to find the second; we think less of the pre-disposing, more of the exciting cause; we hardly notice the target, but eagerly scrutinize the arrows that may be sticking into it.

So our sum in ratio does not always come out rightly, nor our nerve-cure either.

In planning a nerve-cure it is very necessary to weigh each of the unknown factors of nervousness, because that affects our efforts, materially.

For example, a man may have wakefulness and he may have eye-strain; we cure the eye-strain—if we can—but we do not always therefore cure the wakefulness.

The nervous man may be vulnerable to other destructive forces; this target may be stuck through with other arrows; this nerve-stuff may be suffering other strains.

So the only real nerve-cure is that which tries to sum up everything and to attend to everything. The formula is this:

the antecedent	+ the consequent	= the sum	= the ratio
heredity[8]	+ intestinal poisoning[2]	= the sum[10]	= the ratio $^{8}/_{2} = 4$
over-sensitiveness[7]	+ financial worry[3]	= the sum[10]	= the ratio $^{7}/_{3} = 2.33$
over-sensitiveness[6]	+ eye-strain[1], over-work[1], wakefulness[1], emotion poisons[1]	= the sum[10]	= the ratio $^{6}/_{4} = 1.50$

A high ratio calls for high cure, more than most of us know; very often we have to teach a nervous man or woman how to live with over-sensitive nerves.

XLIX.

SUBTRACTION.

In 1899, Dr. Roberts Bartholow wrote a paper on the medical history of Sir Walter Scott; it was inspired by a recent reading of Lockhart's Life and sketched with a master hand, and with a heart that showed somehow between the lines, the chain of causes and symptoms—the errors of eating and drinking, of over-work and worry, that wore down Scott's iron frame and killed him at the age of sixty-one.

One feels the sadness of it in almost every line and thinks again and again "if Scott had only known."

Bartholow died in 1904; he was in his own way one of the greatest of physicians, and one of the best beloved; doubtless he too had a medical history, and perhaps with all his learning, could not control the chain of causes that bore him to the grave.

The human body is a battlefield where two armies of contending forces ever struggle for the mastery.

One army tries to tear the body down, the other to build it up; as long as the two armies show nearly equal strength we are well; as soon as the army of destruction begins to prevail we are ill.

No one knows all the warriors that fight for and against the body; hundreds of years hence physicians will discover new forces that we of to-day have never dreamed of; but we of to-day know enough to make us wiser than we are.

The best physician is the one who knows the most of all that is going on; the one who stands highest on

the hill; the one who commands the largest vision of the fight; the best patient is the one who comprehends the situation; the one who is wise enough to see that subtraction must often precede addition in nerve-cure; the one who is willing to suffer and to sacrifice something in a good cause.

The best tonic, the one that cures the most, is the earnest effort that a good physician and a good patient make to subtract the things that are harming the nerves.

Very often nothing more is necessary.

What are the things that harm us then; what is the shape and the size of the subtrahend?

Seven things harm the nerves: unhappy ideas, destructive nerve-currents, pressures, sore-spots, thorns in the flesh, apparatus strains and circulating poisons.

Unhappy Ideas.

Stress of sorrow or the burden of some long-borne disappointment or worry may change our faces so that our friends say, or perhaps only think, we look "dreadfully."

But unhappy emotions and ideas do more than merely pale and line and waste and age our faces: they pale and decompose and shrivel the nerve-stuff to its very depths.

When mental healing cures, as it often does, it cures physically; not in that vague, ill-defined way we call "psychic" but in the clearly defined way we call chemical; a happy "psychic" influence reaches the very depths of the nerve-stuff at last; it rearranges and regroups the nerve atoms into happier combinations; it gives them an appetite; and helps them to assimilate and to rebuild.

Distrust is the most unhappy idea: distrust of God, distrust of men, distrust of the future, distrust of doc-

tors, distrust of ourselves; all the fears, anxieties, worries, expectations of evil strain the nerve-stuff and prevent it from resting and from assimilating and so from gaining strength.

Ill-humor, too, affects nerve nutrition badly; all those tensions, impatiences, antipathies, intolerances, estrangements, hatreds agitate and tire the finer elements of the nerves.

The self-abasements do more than discourage *us;* they discourage assimilation to the very depths of our nerve-stuff; diffidence, distrust of self, self-depreciation do more than diminish *our* powers; they diminish the powers of nerve-cells to feed and to grow strong. And all the honest griefs and sorrows that life brings to all harm *sensitifs* more than others because they are multiplied, by five, by ten and by twenty.

Subtract unhappy ideas and one third of our "cases" of nerve-trouble are already cured.

The Nerve Current Mischiefs.

When a man works too hard, or too long, or bears too heavy a load of responsibility; or when he overplays, dissipates, speeds, games, lives by night, quivers under new fierce excitements, or commits excess in any way, he does more than merely tire. Such a man literally blows out fuses, burns out nerve-paths, disconnects whole nerve mechanisms, disables whole physiological apparatus.

Sometimes nature will repair the damage if we give her a chance; sometimes the doctor has to play the part of line-man. In either case the damaged plant usually has to be closed for a time "for repairs."

The Pressures.

Pressure plays a great part in mechanics and so it does in the human body; physicians ever keep a look-

out for pressures of blood in the brain or in some "irritable" organ; pressures of gas in the abdomen; pressures of displaced organs one upon another; pressures of morbid thickenings anywhere in the body; when we find a pressure we try to ease it.

Sore Spots.

It is always pressure of blood or of fluid or of displaced organs or of morbid thickenings that makes a sore spot; we may find our sore spot in the brain, or in the spine, or in the nerve-sheaths, or in the muscles, or in any internal organ; take it away.

Thorns in the Flesh.

A localized irritation may remain local in some bodies, but in *sensitifs* it is very apt to radiate—sometimes to the furthermost parts of the body.

We look for these thorns all over the body: in decaying teeth, in suppurating tooth-roots, in diseased tonsils, in catarrhal noses, in localized areas of pus-flow anywhere in the body, in circular muscle irritations, in congested organs, and when we find a thorn in a nerve-tired body it is always good practice to pull it out.

The Apparatus Strains.

Eye-strain is not the only apparatus strain; almost every physiological apparatus in the body may suffer a repeated and chronic strain that may wear upon the nerve-core and rob it of some of its strength. So we look for ear-strains, circulation-strains, abdominal and pelvic-strains, and subtract them, when we can.

Circulating Poisons.

The physician has to know his body poisons, as the druggist knows his stock; he hunts for them in every new case and is a little pleased to find them because that promises prompt improvement.

The brain pours out fatigue poisons of over-doing: emotion-poisons — decomposition products of over-emotional excitement.

The intestines contribute many poisons—products of enfeebled digestion and of germ-action.

The food we eat often fails of assimilation and wanders round the body in chemical forms that poison us.

The body-cells everywhere often break down their core-stuff—their nuclei—in their continual fight with invading poisons and come to be poisons themselves —"uric acid" as we call them: only it is not that.

Then, not content with all these, we add a few extra-poisons — alcohol, tobacco, drugs — to help along.

The subtraction of poison-stuff is one of the most constant cares of nerve-cure.

Subtraction is easily one half of nerve-cure; sometimes it is the larger half, sometimes, indeed, it proves to be the whole, because after we have subtracted this or that burden from the tired nerves we find that nothing more is necessary; the "case" of nerve trouble is cured.

L.

ADDITION.

Roger Bacon, inventor of the magnifying glass, "*doctor admirabilis*" and intellectual giant of his time, believed in the rejuvenating power of gold; he dissolved it in *aqua regia*, that is to say, in nitro-hydrochloric acid, and called the solution "potable" gold.

Once Bacon sent some of this potable gold to his Holiness Pope Nicholas IV, with this story:

An old man ploughing one day, in a Sicilian field turned up a vial full of yellow liquid; supposing it to be dew he drank it off, and was soon transformed into a vigorous and handsome youth.

Chemists say gold will not dissolve in water; even the great Faraday thought his red liquids were not solutions of gold, but only suspensions of it in the water.

But Zsigmondy[1] has shown conclusively that gold can and will dissolve in water; according to his method one liter of freshly distilled water will solve one gramme of pure gold.[2]

The writer has never been able to get so good a result as the Sicilian did, but he believes in gold; he considers it one of the best tonic remedies which we have.

Ever since Science appeared in its swaddling clothes—in Egypt and in Greece—men have sought to add something to the body's power.

[1] *La Nature*, Paris, 1889.
[2] Coined gold, or jewelers gold, will not do.

Some have thought to live forever—searching out waters of immortality, devising elixirs of life, hunting for grand elixirs, and for the philosopher's stone; others have sought strength, some means to quicken the vital processes, some draft to add to the gift of life, some potion, some solvent, some rejuvenator, or as we say in our day (just as anxious and just as credulous as of old) some alterative or some tonic—something, anything to make us strong.

Is there anything we can add to our bodies to build them up; increase their power, enrich them in nervour force?

Yes, there are many such things.

In our day phosphorus is talked of most; tons of printing plead its case; tons of bottles and of pills visibly swell the commerce of our time.

But physicians who know the nerves make little use of phosphorus; it may do good, but not so that you can notice it; the truth is that phosphorus has a limited alterative power that soon spends its force.

It acts, as arsenic, iron and other metals sometimes do for a brief time; it acts as a "fixer of oxygen"; it is a habit breaking drug like the others, it helps the chemical stuffs that make up a body hold together for a brief period; it keeps them from breaking down too fast.

What *can* we add to our bodies, then, to make them strong? here are a few of the best tonics:

The Medicine of the Spirit.

The spirit of man differs from the mind: a man may have a great mind without much spirit; he may have a fine spirit without much mind.

The spirit has many sorrows, many sicknesses, but there are remedies for every one; others find these remedies, why not we?

The first of the medicines of the spirit is Trust. We, modern men, live in the printing age; so we read and hear of much evil—a thousand times more than earlier men heard of; it all makes us fearful, anxious, suspicious, distrustful.

Trust in God cures some men; few seem to find that remedy fully; but perhaps we can trust in unknown truth; in the mysteries of time and space; consider the nebula of Orion; the possibilities of that one place are almost overwhelming.

Trust in the men and women around us—more than we do—is good; men are not so bad as we have come to think; every bad man has some good in him; we all need to be more charitable in our judgments, more social—extending *our* selves and our sympathies a little into the human life about us; all that warms and strengthens us.

Trusting the doctor, too, instead of "trying" him helps a lot; let us choose him with care and then trust him; we trust the railroad man and the steamship man; trusting the doctor lifts a great burden of anxiety and responsibility from our minds; we shall not worry our strength away then, fast as the doctor can put it there.

Trusting the future a little, too, helps us wonderfully; hoping instead of despairing; the thing we hope for may not come *but expecting it to come will always help it to come;* "a thing expected is half achieved."

Fortitude is a kind of pride and self-respect that keeps us from whining, from "showing the white feather"; from abasing ourselves too much under the stress of ill-feeling or of adversity.

Cheerfulness, good humor, a habit of mind that makes the best of things instead of the worst; that puts the best foot forward; that makes the spirit

shine instead of gloom and so makes a fine climate for our own lives and for the lives of others near us.

There is only one drawback to this remedy; it brings us too many friends.

Some healers use many more medicines than these, but these will go a long way in nerve-cure.

Where can we get these medicines of the spirit? the druggist does not keep them.

We catch them; we get them by the process of associating; we get them out of good books, good sermons, good plays, good art; we get them by confession and consultation with a trusted adviser; they stream into us, sometimes, out of the personality of some stronger better man.

Then we take the little strength we get so and use it in action; every time we conquer an evil impulse, every time we carry out a good one we are strengthened more and more.

The Medicine of the Mind.

The medicine of the mind differs, somehow, from that of the spirit; it is more scientific, more frankly selfish, more subtle, more tricky; it wants warmth.

Mental medicine does detective work; it tries to track out sore spots in the subconscious mind; to dig up choked emotions—strangled in the depths of the lower brain for twenty years, it may be—and to lift these up into the clear light of day.

Mental medicine tries to enlarge the mind; it tries to develop *all* the six primary instincts of man; tries to keep *all* a man's ten selves together; it tries to extend the contracted fields of consciousness and to manage all the sad associations and disassociations of nervousness.

It plays all kinds of new games—the game of "finding right names for things"; the game of attention-turning; that of habit-forming and the game of

"association,"—one of the finest games in nerve-cure. The medicine of the mind suggests; aims at the stored memories of the past; speaks to that dim twilight region—home of a thousand fears and prejudices and bug-a-boos; so it rearranges and regroups the chemical atoms of the nerve-stuff in happier combinations.

Mental medicine uses theories, philosophies, explanations, teachings, demonstrations.

It makes great use of symbols—catch-words, mottoes, maxims, phrases, reminders, formulas, diagrams, prayers, charms, amulets, phylacteries, mezuzahs—to help the nerve-tired mind.

But personal influence—mastery and discipleship—the inspiration, the hope, the courage which a stronger, wiser, healthier mind radiates upon a weaker, less experienced, nerve-tired one is the greatest medicine in mind cure; without that mere methods may count for very little.

Making a Shift with Medicines

When our carriage breaks down we are very glad to find a bit of rope by the wayside, and to make use of it until we get home, but we should be ashamed to use it afterwards.

We make a shift with medicines in nerve-tire much as we make use of the bit of rope, because we cannot command, for that time, any better remedies.

But we should be ashamed to go on drugging our tired nerves; that is mal-practice; the number of medicines that really help in nervousness is small—less than ten; and they have a limited use in time.

The immense consumption of sedative and stimulant drugs does a thousand times more harm than it does good; we should be far better off without any medicines in nerve-cure than to use them recklessly as we do.

A wise patient will always choose to remain ignorant of the names of the medicines he may be taking; medicines always *act* better so; and so the nerve-sick soul avoids making an acquaintance that may trouble him for years and years.

Personal Hygiene.

The care of the body is one of the foundation-stones of all good, of all social service, of all national strength; it has to be adapted to individuals and to cases; it has to be peculiarly adapted to nerve-cure.

Sleep alone would cure many a man; but that involves knowledge and care of the irritable brain; and that is not so simple as some amateur healers seem to think; the cure of wakefulness leads us, at times, into every highway and by-path in medicine.

Diet, too, includes not only selection of foods, but cooking and table manners—in the hygienic sense; forced feeding for one, a middle course for another, Fletcherizing for a third; milk fattens one but poisons another.

Even exercise has to be planned and safe-guarded; different ages, different temperaments, different disorders need very different plans; only in nerve-cure all exercise ought to fall "short of fatigue."

Fresh air, too, is a fine remedy, but not always safe; the very first night one of our patients "slept out" he got a "rheumatism" that lasted three months; so even fresh air has to be tempered to the cold catching constitution.

The day's work has its hygiene as well as the other things — its right best way; its way of maximum achievement and of minimum wear.

We shall all save ourselves many follies in personal hygiene by remembering that "one man's meat may be another's poison"; every plan—whether of sleep, or

of diet, or of exercise, or of work—that does good in one case may, and often does, do harm in another.

The Skin Touch.

The skin and the nerves are twins; born out of the same germ-layer, brothers from the very beginning of embryonic life; they continue in peculiar sympathy all their lives.

The procedures of the skin touch—water-cure, massage, and all the forms of hand-work; machine touch—reach the very depths of the nerves; every nerve-end in the skin has another end in the nerve-depths; so the skin touch is one of the most effective procedures in all the physics of nerve-cure.

It is fine to have a palace full of machines and conveniences for hydro-therapy, chiro-therapy and mechano-therapy, but a table and a cover, and cleanness withal, with wisdom thrown in, is better than all the costly outfits in the world, without the wisdom.

Electricity.

Electricity serves us so well other ways we might expect great things from it in nerve-cure; these expectations are only moderately met; indeed some physicians rather look upon electricity as a toy—good to amuse the patient, while he is being cured in other ways.

But, truly, it is something more than that.

Some currents—the galvanic and the static—reach the nerve-depths very much as baths and massage do; they arouse powerful nerve-reflexes, through the nerve-ends of the skin, and so profoundly influence internal organs.

Other currents—the Faradic and the sinusoidal—high tension, alternating currents—are able to penetrate the body powerfully and may be used to exercise, vibrate, massage, so to say, the most inaccessible portions of the body.

The various radiations — violet rays, *x*-rays — generated by passing high-tension currents through vacuum tubes have not thus far found any great use in nerve-cure.

In spite of all our costly apparatus, electricity is rarely used with the same enthusiasm, the same knowledge of nerve anatomy, the same *technique* that medicine and surgery are; it is not taken as seriously, somehow, as some things are; so it often fails to do good; so it sometimes does harm.

Yet when electricity *is* used with enthusiasm, with exact knowledge of nerve anatomy, and with a careful *technique* it becomes a real help in nerve-cure.

The Rest Cures.

We hear of rest more than of any other single remedy in nerve-cure; it is a large word covering a great variety of passivities and activities.

Every day ought to have its little rest cure; its little play, its little relaxation, its little re-creation; its little loaf; its little margin of leisure; its little solitude; its little retreat out of the stresses of life.

Every night, too, needs rest; study at night is bad because the brain is full of the fatigue poisons of the day's work; night work is bad for the same reason; all the evening activities that ambitious men so often pursue, between the hours of dining and of midnight only add a second day of action to the other; night work always costs more nerve-force and nerve-stuff than day work; night sleep is better before midnight than after it.

The week-end rest from Saturday noon to Monday morning is necessary; it is a mistake to scrimp it or to cut it out.

The yearly rest; the summer vacation is necessary for most brain-workers, city men, sedentary livers;

failure or refusal to take a yearly vacation brings many a man to a good long enforced rest in the end.

The Weir-Mitchell rest-cure — isolation, forced feeding—or not—massage, rest, personal influence of the physician and of a specially selected nurse—starts many women upon the road to cure; it succeeds less often with men.

The Sanatorium Cure.

The sanatorium cure is something more than a rest-cure; it is a combination-cure including most of the healing forces that experience has found good in nerve-cure; the sanatorium cure affords a complete care, a better and more easily borne discipline, a fuller control, a better opportunity for whole-ness in nerve-healing than is possible any where else.

The Action Cure.

Some old "cases" of nerve-trouble, who have lived a long time in the consciousness and in the atmosphere of invalidism, and have grown into the invalid habit, need nothing quite so much as to get out of that bad climate; they need to finish up this over-long rest-cure and try the action cure.

The Change Cure.

A fern that is fading needs a change, and so, often, does a man; the absence-cure is best in some cases—getting away from over-familiar duties, faces, scenes; we may call it climate-cure or the springs-cure or the camp-cure, or the travel-cure—but, in nerve trouble—it is absence, much as anything else, that does it.

All these addition remedies fail, at times, and when they do, it is nearly always because we have not begun our nerve-cure rightly; we have tried to begin with addition when we needed to begin with subtraction; we have tried to put the cart before the horse.

THE GREATEST NEED IN NERVE-CURE.

THE RING AROUND THE MOON.

One evening Robbie saw a great ring round the moon; he asked his father what it was.

"That," said Mr. Reed, "is a halo."

"What makes the halo?" asked Robbie.

"Why—er—it's a meteorological phenomenon," replied his father.

"Yes," persisted the boy, "but what *makes* it?"

Just then Mr. Hall happened along; he taught physics in the high school.

"Robbie wants to know what makes that ring around the moon," said Mr. Reed.

"Bent moonbeams, Robbie; the moonbeams meet with a layer of fine ice-crystals in the air and some of them bend away out of a straight line; it is these bent-out beams that reach our eyes as a ring."

"Father," said Robbie, after the professor had gone, "how does Mr. Hall know the moonbeams are bent out? he has never been up in the sky."

"Why, he has studied it all out, I suppose," replied Mr. Reed; "that's his business."

Then Mr. Reed murmured, a little musingly, "Every man to his trade."

LI.

THE GREATEST NEED IN NERVE-CURE.

What a variety of healers ministers to the nerves; one talks to us, one fixes our eyes, one diets us, one drugs us, one cuts us, one rubs us, all these differences of thinking and of doing may be reduced to one fundamental difference, in the end—a difference of aim.

One healer aims at ideas, finding that aim to succeed sometimes; another aims at feelings, content to palliate and to stop there; another aims at some organ-symptom—at the tired eye or at the dilated stomach—a good aim as far as it goes; another aims at flesh and force storage; another still at some theory —of diabetes, arthritis deformans, or mucous colitis, it may be—exhaustion states, these often are, outcomes of fatigue.

The greatest need in nerve-cure; the greatest need of social helpers and of physicians alike in this field is a deeper, surer aim.

As social workers we need to know that "nervousness" is no mere meteorological phenomenon — no mere phantom mirage, spectre of the Brocken — without any physical basis; it is no mere mood of the mind, nor fancy of the nerves; no merely spiritual unrest to be charmed away with mere talk—however earnest and skilful.

And as physicians we need to know that the ill-feelings, ill-thinkings, ill-actings of "nervousness" are no merely functional trouble; there are no merely functional troubles; they are no mere "symptom-

complex," as some of us say; not always an appearance of our pet theory of poisoning; no merely localized apparatus strain—kindly made to order for our medical specialties.

"Nervousness"—whatever name we choose to call it — is a structural disease of nerve-cells surely as eczema is a structural disease of skin-cells or anæmia of blood cells.

Nervousness, whether slight or severe, transient or permanent, is always a surface sign of physical and chemical changes-for-the-worse in the finer elements of the nerve stuff; it is always a sign of short-lived or longer lived intra-cellular deteriorations that are real as the fracture of a bone.

When we stand face to face with a broken bone we can see, with our mind's eye, the jagged fragments; no need to break the skin to see; we know just what is there.

But when we stand face to face with broken-down nerves we cannot always see, with our mind's eye, the broken-down fragments; we cannot image the decomposition products of fatigue clearly as we did the bone break, but they are there.

Our trouble is that the fragments of broken-down nerve-cells are so fine; they elude our clumsy senses; even our microscopes much of the time; they transcend our poor powers of image-making.

But give us the same power of scientific insight and the same permissions of image-making that astronomers, meteorologists, physicists and chemists are given and we can see the dissolution *debris* that underlies, at the last scrutiny, all the mere appearances of nervousness.

When we know what the *matter* is with nervousness, we shall never make the mistake of trying to

mend it with one single remedy; when we are able to form a clear image of the chemically degraded nerve-core in our mind's eye, we have found something to aim at deeply and surely.

That helps a lot—pragmatically; it inspires us with sympathy, earnestness, self-confidence, promptness, thoroughness, *technique*—virtues that are often wanting in nerve-cure; it inspires the patient, too, with submission, trust and patience—virtues that are often sadly needed; it stimulates us to try and think of *all* the varied forces that reach and rack and repair a badly acting nerve-core instead of one or two merely; it gives us a test for every remedy; will it or not tend to build up broken-down nerve-stuff? if not we are only wasting time; and finally our lawful scientific image-making gives us an intellectual rallying-place for every idea that has been, is or shall be said of nerve-cure.

A POSTSCRIPT, A GOOD SIGN AND A STIRRUP-CUP.

Reader, are you still there? our thanks are due for that; others left before it was over, but you stayed until the end; that is a good sign, a sign of staying power, a sign of power to withstand almost any fulness of fatigue, should such befall you, which Heaven forbid.

We have lived a little stretch of life together; remember it kindly as you can, and before you go take this saying of Steele's for a stirrup-cup; it is from his essay on long-winded people, and may, perhaps, please your present humor:

"I would establish but one great general rule to be observed in all conversation, which is this, that men should not speak to please themselves, but those that hear them. This would make them consider whether what they say be worth hearing? Whether there be either wit or sense in what they are about to say? And, whether it be adapted to the time when, the place where, and the person to whom it is spoken."

Poor Steele! misunderstood and much maligned in life, his name stands in our day for one of the manliest, kindliest figures of his time.