regards the use of substances which cause such a firm clot as perchloride of iron would. I would not feel comfortable or satisfied to adopt such a procedure. I certainly believe in the hot water injections in a great number of cases, if not all, using also strong pressure on the uterus of the patient, continued for hours if necessary, which one physician cannot do if it is necessary to keep it up for any great length of time. A man's hands will certainly tire out and he cannot do that and must call help; but those are very rare cases; I never met but one case and in that case pressure was kept up for several hours. I think in the great majority of cases of post partum hæmorrhages, and they are not very common, hot water injections constantly kept up for a long time if necessary, will control the hæmorrhage. So far as the introduction of vinegar, lemon juice and things of that kind into the uterus is concerned, I would not think of it for a moment.

Dr. Puls: Post partum hæmorrhage is an accident which happens not so very seldom after all. I remember of having had a number of cases. Of course the causes differ, but in most cases the hæmorrhage is due to atony of the uterus, and simple massage and hot water injections will suffice generally to stop the hæmorrhage. Of course, if you have a case of retention of parts of the placenta, the only course is to remove that part of the placenta to stop the hæmorrhage. Another source of the hæmorrhage is tearing of the cervix or perineum which must not be overlooked; if it cannot be remedied by sutures, the tampon will probably be the only way; a hot water douche would not stop the hæmorrhage. Kuestner lately reported a case of post partum hæmorrhage due to aneurysmatic changes of the artery and also to arterio-sclerosis as being a cause of hæmorrhage. The blood would not clot. Now, in most of these cases, wherever we have a rent of the cervix, or where we have no clotting of the blood in the uterus to stop the hæmorrhage, it is natural to tampon the uterus; and if Dr. French succeeded in his case in saving the patient, it was due to the clots. As Dr. Washburn well remarked, by introducing his hand into the uterus he induced a contraction of it to take place, and by applying the ice he got firm contraction. I do not advise the use of ice, but I advise the use of iodoform gauze to pack the uterus. It is a method adopted by Duehrssen about three years ago, and since then probably two hundred cases have been reported altogether treated in that way, with no case of septicæmia resulting. Nor has any case of iodoform poisoning followed. In my practice I have used that method probably three or four times with no septicæmia following and without any fever. The best way if you have no iodoform gauze on hand, is to take ordinary cheese cloth prepared in carbolic solution and apply that. I remember a case only two months ago where the blood came oozing out of the uterus as thick as one finger, and I felt that the woman was dying right under my hands. It was a very rapid delivery; I had nothing at all to introduce into the uterus except my hand, and I called for the basin in which I had the cheese cloth ready, and I took one of those cloths and packed it into the uterus and the hæmorrhage stopped, and I extracted the cloth the next day. I certainly would advise this method in cases of natural birth or after an abortion, not waiting to employ ergot.

Dr. Burgess: When a hæmorrhage occurs anywhere, when it has been of sufficient extent, the patient faints. In that condition the energy of the heart relaxes, and the treatment followed by the laity as long as whiskey has been known, is to pour in whiskey and other stimulants to start the heart up to pump more blood out. It struck me when Dr. French spoke of using whiskey in that case, that it was not good treatment for the reason that you only stimulate the heart to greater exertion, and perhaps, in that way increase the hæmorrhage. If a person faints it does no harm, but does good. Why not? It is the exact condition you want to bring about.

In regard to tamponing the uterus, that may be well enough under certain conditions in proper hands; but I think if you set everybody who attends to midwifery cases to tamponing the uterus to stop hæmorrhage, he will do it with his fingers and it will not be half done, and if he uses instruments he will be very likely to stick them through the fundus of the uterus occasionally. It is a valuable measure perhaps, but must be used with circumspection.

Dr. Shimonek: I have had quite a number of cases in my practice. I have always succeeded very well in stopping hæmorrhage by massage, and stimulation of the uterus internally by the hand. I had one severe case among those, that very nearly bled to death, a case in the country that I was called in to see. The woman finally recovered. I found

the uterus filled. I expressed the clots, contraction took place and the woman recovered. But I certainly should not advise the treatment proposed by Dr. French in regard to allowing the clots to remain in the uterus. I do not think that is very good treatment. I should not rely upon it. I do not know what effect the doctor got from the injection of strychnia and atropine, but it seems to me that it would be likely to produce more serious hæmorrhage from increasing the circulation. As soon as I can I always inject ergotin hypodermically.

Dr. French: In respect to the injection of strychnine and atropine, that was some hours after the hæmorrhage had ceased, and also the use of the whiskey was at the same time. This woman was in a state of collapse, and it was a great question as to whether she was going to pull through from one minute to another. Her extremities were cold. She was ice cold all over, and although the hæmorrhage had stopped, still with the pulse missing a beat about once every third beat, and when I could not tell whether the pulse was in her wrist or in my fingers, it seemed to me that it was necessary to use some stimulants to keep the action of the heart up. I readily agree with Dr. Burgess in the matter of the use of stimulants under the fainting condition where the hæmorrhage is in its active period; but there is another point to be considered in that respect; that although the whiskey may produce an increased action of the circulation, there comes a question as to whether it will not also stimulate the worn out condition of the uterine muscles. I well remember an incident related by old Dr. Buckingham, the professor of obstetrics, where he gave a woman ten teaspoonfuls of laudanum and produced a contraction of the uterus immediately, or within a very short time. I would like to ask Dr. Puls how long he would keep the gauze in?

Dr. Puls: Twenty-four hours, if necessary.

Dr. French: As I say, I see that the gentlemen would not agree with me in this method of treating this case. As I said in my paper, it was directly contrary to rules I had followed in other cases, but it seemed to me that this case was one that it seemed necessary to treat in this way if it would not yield to other methods of treatment. Dr. Copeland has spoken about sending for assistance. When you get caught in a case of this kind, unless assistance is next door or around the corner, it is pretty difficult to get the assistance there to help you.

THE INFLUENCE OF BODILY EXERCISES UPON LENGTH OF LIFE.

Read at the Annual Meeting of the Association for the Advancement of Physical Education, April 12, 1892.

BY J. MADISON TAYLOR, A.M., M.D.,
OF PHILADELPHIA.

It is not possible to estimate statistically just how much length of days is enhanced by physical exercises, but it is feasible to establish two propositions: (1) That judicious activities of the body tend to maintain and increase its efficiency, and (2) That the hurtful effects of violent athletic competitions are popularly overrated.

It would be most agreeable to me to consider the first of these, and drawing from history and experience, illustrate amply what few will be disposed to deny. Concerning the second there may be differences of opinion, and here it is well to apply the test of carefully marshalled facts and suffer inferences to evolve themselves. I hope to escape the rôle of advocate, but propose reviewing such meagre data as I have been able as yet to collect, and deduce therefrom only warrantable conclusions. My study so far is most imperfect, but my hope is to elicit discussion and comment so that the truth may come ultimately forth. Within the coming year I shall hope for much light and added knowledge. I have reason to expect large additions to the data yet collected, and these may have a value of which you shall judge.¹

¹ Dr. Taylor will be gratified for any information connected with this subject.

Against the growing interest in athletic matters there are constantly urged objections to the effect that many perfectly healthy young men are injured beyond repair by strains and shocks to vital organs had in the course of training or competitive sports. Even among those who avow much confidence in the value of physical exercise, yet many declare the pity of it, because such havoc is wrought thereby. Instances are cited, rather vaguely 'tis true, of fine fellows utterly wrecked by contests on land or water, lives cut short by overtasks at so-called sports.

If these accusations are soundly based, let us then, who should understand the kinds and degrees of their perils, be quick and persistent to sound warning notes. We, of the medical profession, are endowed with the grave responsibility of defining and pointing out dangers and urgently insisting on their avoidance here and elsewhere. In this direction lies our greatest privilege and duty. Insidious evils lie about our feet perpetually, toxins lurk in our very food and air and water. Mayhap certain of these are only relatively hurtful, but at least, it behooves us to teach youth how to avoid disease and attain to vigorous age; and one of the most valuable measures is to train the body to grow in best proportions. During this process of training the thrilling joy of sports and competitions naturally comes in to hurry and overcolor our judgment. The special inquiry as to what hurts may follow in the wake of these is only secondary to the first need of direction how best to train.

As showing how far even the best and wisest of medical teachers can err in opinion, let me cite as typical of what many say, the assertion of Dr. Benj. Ward Richardson, than whom few men stand higher, and deservedly, in the estimation of medical thinkers:

"I can scarcely overrate the dangers of these fierce competitive exercises which the world in general seems determined to applaud. The state of perfection arrived at is at best artificial and sustainable but for a brief period. The mode of life for perfection is itself incompatible beyond a limited time with the ordinary requirements and necessities of life. And when the artificial system of training ceases, the involuntary muscles, the heart especially, remain in strength out of all due proportion greater than the rest of the active moving parts of the organism." He goes on to say: "I venture to affirm there is not in England a trained professional athlete of the age of thirty-five who has been ten years at his calling who is not disabled."

Now this authoritative statement has swayed the judgment of thousands of thinking people, so powerful are *ex cathedra dicta*; and yet on the face of it, it is too over-sweepingly denunciative to be good argument. I have had these views on the damagement of the involuntary muscles quoted to me again and again, and knew not whence they came, till at last this vigorous passage caught my attention. Such states are indeed possible and from such causes do they come, in the laborious ranks of iron workers and those who put forth in long days excessive and continued muscular exertion. In this country we have not had many years of systematized amateur athletics from the records of which to judge. They began about 1868, and only slowly grew in scope.

It is beyond measure difficult to get at the facts relative to the present state of even these whose addresses I have been able to obtain, and the mere

names are troublesome to get from college and other registers. Systematized records should be kept on the subject in the interest of vital statistics in all organizations even moderately equipped.

Among professional athletes the heaviest strains must come, as upon the output of most concentrated force alone comes to them honest reward. I have collected the brief histories of a score of these men now living, which at least illustrate how vigorous and sound such men may be, even long after the age limit which Dr. Richardson has chosen to put for them. To those names I can add many, and hope yet to collect more. It may be safely affirmed, however, in conclusion, that the judicious pursuit of bodily exercises either in the line of ordinary avocation, special duties or sport, tends greatly to maintain and enhance the vigor of both body and mind. Those who practice these steadily through life enjoy the best promise of adding to their years and usefulness as citizens. The vital powers of those who omit these activities through choice or compulsion are not so efficient, and to such the accidents of changed circumstances from their simple routine to arduous exertions are far less well endured.

Finally, the hurtfulness of severe muscular exertions short of profound exhaustion are not shown to be otherwise than temporary and recoverable; and lastly, upon investigation, dangers to internal organs and vital centres are comparatively rare. In short, I present brief histories of a few old athletes, now in good condition, with apologies to these gentlemen if by so doing I offend, though it seems to me they have every reason to be proud and thankful to the good power who equipped them so nobly; and further in the care which they have undoubtedly exercised to maintain this so well. My long-tried and valued friend, Professor George Goldie, sometime of Princeton College and now of New York, has given me these:

W. W., age 74; height, 5 feet 9 inches; weight 170 pounds. Rowed in sixty boat races between the years '39 and '60 when they rowed in Whitehall boats, taught gymnastics at the Y. M. C. A. until two years ago; now in business in New York, in perfect health; would pass for a well preserved man of sixty; lived a careful life always.

E. S., bareback rider and tumbler; age, 77; height 5 feet 5 inches; weight about 130 pounds. Retired from the circus in 1868 at the age of 56; was as active then as he had been at 30. Owns a quarry and lives on a farm in New Jersey; was living and in perfect health last winter. Not having heard of his death, presume he is still living. Lived until he was 56 the same as most circus men live, steady in his habits, worked very hard, and naturally could not be very careful in his eating, and often had a short allowance of sleep.

Professor V. S., age 70; height, 5 feet 7½ inches; weight, 140 pounds; taught boxing all his life. Is still teaching as efficiently as ever; his school is in New York; lived the same as the average man does.

W. W., age 58; height, 5 feet 8 inches; weight 150 pounds; still teaching gymnastics in his own gymnasium; in perfect health; lives as the average business man does.

Professor A., age 57; teaching gymnastics in Brooklyn, New York; height, 5 feet 9 inches; weight, 180 pounds; in perfect health, a careful liver.

Donald Dinnie, 58 years old; height, 6 feet 1 inch;

weight, 218 pounds; an all round athlete, is still wrestling, lifting and throwing weights; comparatively temperate in eating and drinking. I heard a year ago from a friend who saw him, that he was in good health; he is living in Australia.

N. A., 59 years old; height, 5 feet 11 inches; weight when 35 years of age, 190 pounds; an all round circus performer; retired seven or eight years ago; living in Worcester, Mass. The last time I heard from him he was in good health; lived a very irregular life.

There are dozens of old circus men over 50 years old living in retirement all over the country who are in good health. Most of them retire at that age; they are then too old to learn new feats, and as the business is continually progressing, young men take their places. As far as their general health goes, it is better than the average man's. Ord, whom I remember in my schoolboy days in Scotland, was 70 years old the last time I saw him perform. From his actions you would have taken him to be a young man.

Blondin, who must be over 60, is still in good health.

William, George, Alfred and Edward Hanlon, the best (in my opinion) all round gymnasts and acrobats that have been in this country, range from 50 to 60 years.

George Grassick, James Stewart, Laurie Robertson, men getting well on to 70, were well known Caledonian athletes forty years ago; they are all in good health.

Professor George Goldie, aged 52; height, 5 feet 8½ inches; weight, naked, 160; just as good a gymnast and acrobat as ever; for seven months of the year works longer hours and harder than he ever did; although has had some very severe falls, they have not affected his general health; today his health is perfect in every way; has always lived very temperately. Subject in his managing capacities to numberless severe mental strains, and worries this superadding to his physical wear and tear.

The Ward Brothers, professional oarsmen, are living and in good health; the youngest of them must be over 50.

Amateur athletics started in this country in '68, so of course there can't be any very old men among them. It is very hard to follow the lives of amateurs, as they give athletics up after a few years.

The most notable examples of amateurs are W. B. Curtis, age 55; height, 5 feet 9½; weight, 175; in excellent health, though he is confined to an office all day. In '68 I saw him lift 3,230 pounds in harness, curl and put up easily two 100 pound bells, run 100 yards in 10½ seconds. For three or four years he, along with Yates, held the double scull championship; when over 40 years of age he held the championship at hammer and 56 pounds weight throwing. Today he thinks nothing of taking a 40 mile tramp, making four miles an hour all through the walk; very temperate in his habits.

H. E., aged 53; height, 6 feet; weight, 210 pounds; was 100 yards runner, the best in his day; shot putter, weight lifter, heavy weight amateur champion boxer; could today, in my opinion, beat any amateur boxer in the country; his spare time now he devotes to bicycle riding, rowing, swimming, skating, etc. His wife accompanies him in all his excursions; she can hold her own with all these with the best men

in the country, I don't mean at racing, but long distances that require endurance; she is well on in middle life. B., is in business in New York, in perfect health; his mode of living is the same as the average business man's; athletics he has followed only as a recreation.

I add to these the following note from a recent copy of the *London Lancet*:

Major Knox Holmes, a veteran cyclist of England in his 83 year, one of a tandem military bicycling team on a trip of 100 miles in 10 hours 5 minutes, came in ahead of the rest. In twelve weeks under training in a striking manner "developed muscle" in external and internal vasti and rectus muscles. This refutes physiological doctrine that muscle is not newly developed after three score and ten.

I myself took sparring lessons from Mr. Thomas Barrett at the age of seventy-two, a famous all round athlete and prize fighter, and withal a charming person. He then could hold his own against most comers, and with us youngsters could play as with children. I lastly give, with his permission, a brief outline of the life of that marvelously vigorous gentleman, Mr. Wm. B. Curtis, and esteem it a great privilege to be allowed to do so.

SKETCH OF THE LIFE OF WILLIAM B. CURTIS.

William B. Curtis stands prominent in American athletics to a degree which is entirely unique. His athletic history is in itself almost a liberal education in such forms of physical feats as are performed by what is technically known as a heavy weight athlete. Added to this are some remarkable records of lighter kinds. He has been so good as to put into my hands a bare outline of his history, to which I have been able to add such comments as seem to me only just. His own modesty forbids him to do more than give me the actual records of feats which today stand unbroken, many of them scarcely approached. His best performances were:

Running	-	-	50 yards	-	-	5¾	Seconds
Running	-	-	60 "	-	-	6½	"
Running	-	-	75 "	-	-	8	"
Running	-	-	100 "	-	-	10	"
Running	-	-	220 "	-	-	23	"
Running	-	-	440 "	-	-	51½	"
Walking 1 mile,	-	-	-	-	8 Minutes	51	"
120 yard hurdle race	-	-	-	-	-	19	"
Skating, 1 mile,	-	-	3	"	-	18	"
Swimming 100 yards,	-	-	1	"	-	40	"
Swimming 200 "	-	-	3	"	-	39	"
Rowing, single sculls, 1 mile	6	"	-	-	-	49	"
Rowing, single sculls, 2 "	13	"	-	-	-	57	"
Rowing, single sculls, 3 "	23	"	-	-	-	13	"
Rowing, double sculls, 1 "	6	"	-	-	-	9	"
Rowing, double sculls, 2 "	12	"	-	-	-	23	"
Rowing, pair-oared	3	"	22	"	-	48	"
Rowing, four-oared	3	"	18	"	-	18	"
Rowing, six-oared	1	"	5	"	-	38	"
Running long jump,	-	-	-	-	19 feet 4 inches	-	-
Running high jump,	-	-	-	-	5	1	"
Throwing hammer,	-	-	-	-	90	"	-
Throwing 56 pound weight	-	-	-	-	24	"	-
Putting up one dumb-bell,	-	-	-	-	168 pounds	-	-
Putting up two "	-	-	-	-	Each 100	"	-
Lifting with hands alone	-	-	-	-	1323	"	-
Lifting with harness	-	-	-	-	3239	"	-

Mr. Curtis tells me that his father was a poor New England farmer's boy. The son worked upon the farm in various capacities until the age of 24. He then, alternately laboring and studying, worked his way through Middlebury college and Princeton Seminary, then became a Home Missionary, and finally President of Knox College, Galesburg, Ill. His

mother was a New England farmer's daughter, accustomed from childhood to aid in all the work of the house and garden. The father was a man five feet eight inches in height, broad shouldered and active, but was never possessed of more than average strength and entirely uninterested in all matters of sport. His mother died when her son, who became the remarkable athlete, was but two years of age. She is described as a woman of queenly presence, magnificent in form and beautiful in face, but her death appears to have been due undoubtedly to phthisis. In a general review of his family history, Mr. Curtis attributes much of his own vigor, and rightly perhaps, to the fact that all his ancestors were temperate, hard-working people, entirely ignorant of the vice of excesses, and all living and dying in the country. There is nothing peculiar in the ancestral tendencies except that they had all died, so far as he knew, with few exceptions, of consumption. This is rather remarkable, however, as showing how this deadliest of human tendencies can be thrust into complete abeyance or stamped out.

W. B. Curtis was born January 17, 1837, the eldest of a family of fourteen, with one own brother and twelve brothers and sisters by a step-mother, who died in her thirty-fourth year, also of consumption. Of the children, but two step-brothers beside himself survived. The first eleven years of his life were spent at home, then two at Burr Seminary, three at Wabash College and one at Bell's Commercial College in Chicago. After leaving college he assisted his father for a year in newspaper work, then acted as bookkeeper and subsequently as cashier until the breaking out of the war. He thereupon enlisted as a private, but soon became captain and A. A. G., and served on staff duty until after peace was concluded. Returning to Chicago he was made a member of the Board of Trade, also the New York Gold Room; removed to New York in 1866, but returned to Chicago in '69, and again to New York in '78. The Chicago fire of October, 1871, causing the ruin of so many financially, numbered him among her victims and left him some thousands of dollars worse than nothing. After a struggle of six years and a half to regain his former business standing, which had been in the line of athletic teaching, etc., he gave up the fight and accepted his present salaried position on a paper in New York, where he has remained ever since.

Up to the year 1871, I learn that he always looked noticeably younger than his years, was frequently challenged and made to swear to his age when attempting to vote, as late as his twenty-eighth year; but the hard struggle with fortune after the Chicago fire aged him considerably, and made him look rather older than his years. He undoubtedly was what might be considered a very handsome man. My personal recollections of him go back quite twenty years, and I remember that he struck me then as having unusual clearness of eye and complexion, though always a little pale, and that the shape of his features was massive and handsomely strong. In his clothes he strikes one as being not a large man and rather stooped. This comes, however, of the immense size of the muscles of his shoulders and chest and a tendency not to stand as straight as he might.

While at school and college he was active in boyish games,—swimming, rowing, sailing, jumping, wrestling, running, playing at ball, and such like.

He did not then especially distinguish himself. At twenty years he joined a boat club and rowed several races, but not liking the sport, gave it up. At about this time a gymnasium was opened in Chicago and he became a member. It was the distinct impression of his parents and their family physician that the relentless hand of consumption had marked him for its own; and therefore they rather encouraged his tendency to exercise, thinking that it might possibly prove useful, and if, peradventure, the measure should act in the opposite way and kill him, they resignedly looked upon it as but a slight anticipation of the inevitable. However, in this gymnasium he soon became astonishingly expert, early proving himself the equal of any professional, and while still very young made the extraordinary record, which still stands unbroken, of putting up two one hundred pound dumb-bells at the same time, one in each hand. During this time also he discovered quite accidentally that he was a very swift runner for short distances. In 1859 he made a series of careful experiments with the then professional champion of America who was training at Chicago for an important race, and found that he could outstrip him in any kind of a start; could beat two or three feet in fifty yards, ran a dead heat at seventy-five, and that this professional could beat him from four to six feet in one hundred yards dash, beyond this point he falling still further behind, at two hundred by twenty-five or thirty feet in the rear, and at a quarter of a mile, by fifty or sixty yards. From then on until 1876, he ran against every amateur he could find at all distances up to two hundred yards, and was never beaten until that year, at which time he was thirty-nine years of age, and at least nine years beyond the age at which sprinters are supposed to retain their fastest form.

During the war he was a mounted officer, riding an average of thirty miles a day for four years, and became so sick of the saddle that he has utterly eschewed it ever since. After the war his life was constantly that of a gymnast until 1868, when some of his associates in New York City coaxed him into a boat to supply the place of a friend who had met with an accident. He rowed this race and many others, largely at their solicitation, for this sport really never interested him, yet continuing thus for quite ten years. In 1868 he became one of the founders of the New York Athletic Club, and ever since has dabbled in various sorts of athletic games. To exhibit his marvellous versatility, it is interesting to glance over his gymnastic prowess, taking prizes and making phenomenal records on the parallel bars, horizontal bar, rings, trapeze and at leaping, at putting up one and two dumb-bell, at lifting with hands and with harness; in open air sports at running at the fifty, sixty, seventy-five, one hundred, two hundred and twenty and four hundred and forty yards, at a one mile walk, at one hundred and twenty yard hurdle race, at running long jump, at running high jump, at throwing the hammer and fifty-six pound weight. At the individual tug of war I believe he was never beaten. At skating one mile, at swimming one hundred and two hundred yards, at single sculls, double sculls, pair oared and four oared, and six oared boat races, he almost always succeeded in bearing off the prize. At about half of these various games he won championships at different times. Many of these performances were, when made, the best on record, and

three still retain that honor, namely: at four oared rowing three miles with a turn, lifting with harness, and putting up two dumb-bells at once.

He says, "Almost everyone considers my weight-lifting with harness as the most noteworthy of my feats, but I do not. I pin to this sheet a memorandum which will explain to you how it was done. I have a natural talent for mechanics, and had, by constant experiment and alteration, adjusted my lifting harness so perfectly, and took such care in all my trials, that accident or injury was well-nigh impossible, and my apparatus was so skilfully adjusted as to give to my arms and back just what they could carry, while putting the whole load on my legs, which were Herculean in shape and strength. I am too small a man to be a lifter of the heaviest weight, and this distinction is due not so much to my strength, as to my methods and my mechanical skill. I have seen a dozen men who could have learned in two years to lift 3239 pounds, with my apparatus adjusted to their size and shape, but never saw two who seemed to be able to learn to put up two 100 pound dumb-bells. My adjustable dumb-bells, and all my lifting belts, tables, weights and other gymnastic apparatus were destroyed in the Chicago Fire of 1871. I have never replaced them, and have never since practiced gymnastic exercises or lifting, either for pleasure or with a view to competition."

It is interesting to study with some care the physical history of a man who has been through such extraordinary strains and vicissitudes. He seems never to have had any infantile disease. At ten years of age he injured his knee-cap, which left the joint stiff for three months; at college had chills and fever. In 1860, while practicing the feat of shouldering a barrel of flour and transferring it from one shoulder to the other, he dropped the object, standing with his right leg somewhat flexed and directly under him and the left leg sticking out to the side and straight, which was broken, as he described it, "downwards and inwards." From this there appears to have been no permanent damage. In 1862, while in the army, he had the measles, and since there was nothing else to do, he kept in the saddle and in the rain for three or four days and nights, finally gave out, and was left at a wayside cabin, without food except the native hog and hominy, and without doctors or medicine. The outcome of this was typhoid fever, a hospital cot for several weeks and pretty profound exhaustion for two or three months. This appears to have been his last day in bed from accident or sickness up to the present time.

In 1867, in New York City, while trying to stop a runaway team, he wrenched his left leg and lamed his bad knee. To use his own words, "It seemed to me as if I had ruptured some of the fibres which guarded the joint, and that the synovial fluid was escaping in small quantities. Probably I was mistaken, as it eventually healed and wholly, but I could feel what the doctors could not see, and the joint seemed dry and would creak, and needed oiling. I consulted Dr. Carnochan, also Dr. Peters, and got a little comfort. They assured me that it might be a good enough family leg, but would never be able for athletic duty again. They swathed me in rubber bandages from toe to thigh, and rubber knee cap with compress where the lesion seemed to be, and I wore this for two years to my extreme discomfort. In

1882 I wore this while competing in hammer throwing, shot putting, tug of war, etc., and am far from sure that it did me any good. Since after this injury I won the championship of America in running, rowing, hammer-throwing, fifty-six pound weight throwing, tug of war, and lifted over three thousand pounds one hundred times, the knee seems to have done pretty good service despite its condemned condition. It still has, however, the ungentelemanly habit of telling me when the barometer falls."

In 1886, while skating, his left foot went down into an eel hole, while his right and forward foot kept on in front of him until "I was split down like a circus contortionist. The boys hauled me on a hand sled to a house, thence on a load of hay to the railroad. Medical examination showed a rupture of some of the fibres of tendon and muscle at the upper part of the thigh. Two months with a cane, however, brought me round all right." Eight months later he fell out of an apple tree and smashed his right shoulder, "breaking off, I believe, a little piece of the shoulder blade. I lived for two months with my arm strapped to my body under my shirt, but it finally got well, and has not since bothered me in any way."

He describes having suffered more or less for thirty years with a mild nasal catarrh, and having tried pretty much everything for its cure, but finally abandoned all and is none the worse for it. He never has taken cold in chest or lungs. "Whenever I take cold it goes to my head, and I blow it out of my nose in a few days." He announces with some satisfaction that he never takes any medicine, doesn't even use liniment for his sprains and bruises, but only cold water. He has never had rheumatism. Being slightly myopic, Mr. Curtis remarks with some satisfaction that his eye sight is as clear now in reading as ever. As to the use of tobacco, he made some early attempts at smoking, but since the weed gave him unusual horror, he has never practiced it, and confines his use of it "to what smoke ill-mannerly fellows puff into my face on the occasions which I cannot prevent."

After reviewing the rules by which Mr. Curtis has been guided in caring, either intentionally or unintentionally for his health, one is struck by certain extraordinary incongruities. His habit of living is very simple, and just about such as one might assume would be the choice for a man of active temperament, but as touching his diet, he has most extraordinarily unwholesome tastes, as he frankly admits. I add in his own language his views on his slow decadence of youthful vigor—a very fair estimate, too:

"My last boat-race was at the Watkins Regatta, in the spring of 1878, and my last public athletic competition at the championship meeting, in the fall of 1882. Since then I have taken no exercise, athletic, aquatic or gymnastic, for exercise, or with a view to improvement or proficiency, but only for amusement. I think my average falling-off in ability, from my best days, must be about 20 per cent. In some things it may be more, and in some is certainly less. In running it is all of 25 per cent. 100 yards, formerly in 10 seconds, would now need at least 12½ seconds, and the quarter-mile, formerly 51½ seconds, would now need 1 minute 5 seconds. In dumb-bells about the same as in running. I have at my summer home a pair of 75 lbs., and sometimes manipulate them for the edification of curious friends. Last year I tried them twice, and found it exceedingly difficult to do

with them what I used to do quite easily with the pair of 100 lbs. each. In rowing, hammer, 56 lb. weight, hurdling, skating and jumping, I think the deterioration is rather less than in running and with dumbbells. The distance which I used, at my best, to swim in 1 minute, 40 seconds, I can and did, last summer, cover in 1 minute 52½ seconds. On the streets, with hands down, I used to walk 5 miles in the hour, now 4½ miles keeps me busy. On a track, stripped, and with hands up, I used to walk six miles in the hour, but do not now think I could do more than 5 miles." 1504 Pine St., Philadelphia.

METHYL VIOLET AND BLUE.

Read before the Ohio State Medical Society, Cincinnati, May 6, 1892.

BY JAMES T. WHITTAKER, M.D.,
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As I am able in the short time allotted to each paper to present but part of my subject, I will ask permission to read a short *résumé* of the observations made by others, and then report my own cases in what time is left.

The first general knowledge of the aniline preparations came to us through the studies of the bacteriologists. As is now well known, the tubercle bacillus was discovered and declared by Koch in 1882 with the aid of methylene blue. The next reference was the claim by Kremiansky, 1888, to destroy this bacillus by causing patients to inhale this coloring matter. Then J. Stilling, Professor of the University of Strasbourg, 1890, made the discovery that certain aniline dyes exercise a destructive effect upon bacteria in the living organism, and especially upon *suppurating surfaces*, hence he gave one of them the name pyoktanin, from *πυον*, pus, and *κτείνω*, I destroy.

Pyoktanin not only excludes noxious matter from the wound, he says, but destroys it in the wound and thus heals wounds and ulcers. It is entirely innocuous and odorless, but colors tissues profoundly, a point of value to the physician, as it gives him control of the region of application. The color is easily removed by the spirit of soap. It is used in the following forms: Powder 2 per cent., ointment, pencils, pastilles for the preparation of solutions; bandage 1 per cent., of gauze, cotton, silk.

The author issued a second edition of his first report in the same year. Antiseptics hitherto in use, he said, not only destroy bacteria, but also injure tissues to such a degree that a number of surgeons had abandoned them altogether, and were content with simple cleanliness with the use of heat and sterilized water. The botanists have long been acquainted with the fact that bacteria, bacilli and cocci of every kind are destroyed so soon as a membrane is thoroughly permeated by the diffusion of aniline dyes and intense coloration of protoplasm. Anthrax bacilli, pus microorganisms, etc., absorb these colors like a sponge. Bacteria are found to be colored before the coloring fluid can be seen in the field of vision. With intense coloration, movement ceases; the cell perishes. To determine whether these things which can be so easily recognized in cultures and upon the object glass may be seen also in the living organism, was the question which the author set himself to solve. Stilling engaged with him in his work J. Worthman. They discovered that the violet aniline colors were the most practicable. Other dyes, fuchsin, methyl blue, vesuvine, were less valuable. Methyl

violet excelled all the colors, but had to be abandoned at first on account of its impurities with arsenic. In experiments upon animals, it was found that methyl violet introduced into the conjunctival sac, colored everything profoundly, and imparted with its deposit a metallic lustre to the conjunctiva and cornea. The epithelium desquamated in great masses in a few days, and showed under the microscope marked fatty degeneration, almost the picture of the phosphorous kidney. But these masses, together with the whole conjunctival sac, were free of bacteria.

Methyl violet in man causes dilatation of the pupils without paralysis of accommodation. Introduced in strong solutions, 1-1000, into the eye, it colors the sclerotic and conjunctiva intensely. The iris is markedly colored. Strange to say, it traverses the normal cornea without sensibly coloring it. But if the epithelium be broken, however slightly, the cornea is colored intensely. By the next day nothing of the color is to be seen. Great quantities can be injected subcutaneously in the rabbit and guinea pig; as much as 20 ccm. of a 1-1000 solution without injury. But great quantities introduced into the peritoneal cavity quickly produce death. Examination post-mortem shows the whole contents of the abdomen intensely colored blue. The blood keeps its normal color, and strange to say again the blood-vessels, even of the colored abdominal organs, remain entirely free. Of serous exudation or even of inflammation, there is no trace. Death follows probably in consequence of coloration and therewith paralysis of important nerve centres. All this of course concerning chemically pure aniline colors.

Theoretically, the author has found that a hypopyon *keratitis* in rabbits, artificially produced by inoculation with the staphylococcus pyogenes aureus, was quickly jugulated with the instillation of a few drops of methyl violet solution. Not only the surface of the ulcer, but also the pus floccules in the anterior chamber were colored. Scrofulous corneal ulcers which had hitherto defied all treatment were seen to heal under it by the instillation of a few drops, or by sterilization by means of the aniline pencil. Similar results were obtained in *blepharitis*, *conjunctivitis*, *phlyctenulæ* and *eczema of the lids*. Quite as remarkable were the results obtained in parenchymatous keratitis, serous iritis, and even in internal diseases, disseminated choroiditis, sympathetic ophthalmia.

The same effects were observed in surgical cases, as in *suppurating inflammations*, in the bed of the finger-nails, panaritium, burns, etc. The authors soon reached the conclusion that suppurative wounds and ulcers treated with aniline colors are certainly sterilized, provided only the dye be made everywhere to reach the pus. An old man of 70 had on the whole of the left leg a profusely suppurating *varicose ulcer* which refused to heal. After thorough sterilization with the aniline dye, it healed in a few days. The authors extended their observation to the field of antiseptics in gynecology and obstetrics. Methyl violet solutions of 1-1000 to 1-2000 suffice for the sterilization of instruments. Wounds are washed with solutions of 1-2000 to 1-1000; sewing silks, cotton and gauze are impregnated with 1-1000. Stitch abscesses are impossible under this *régimé*. Florid suppurating processes must be subjected to appropriate technique by insertion of solid masses with pencils, powder, etc.