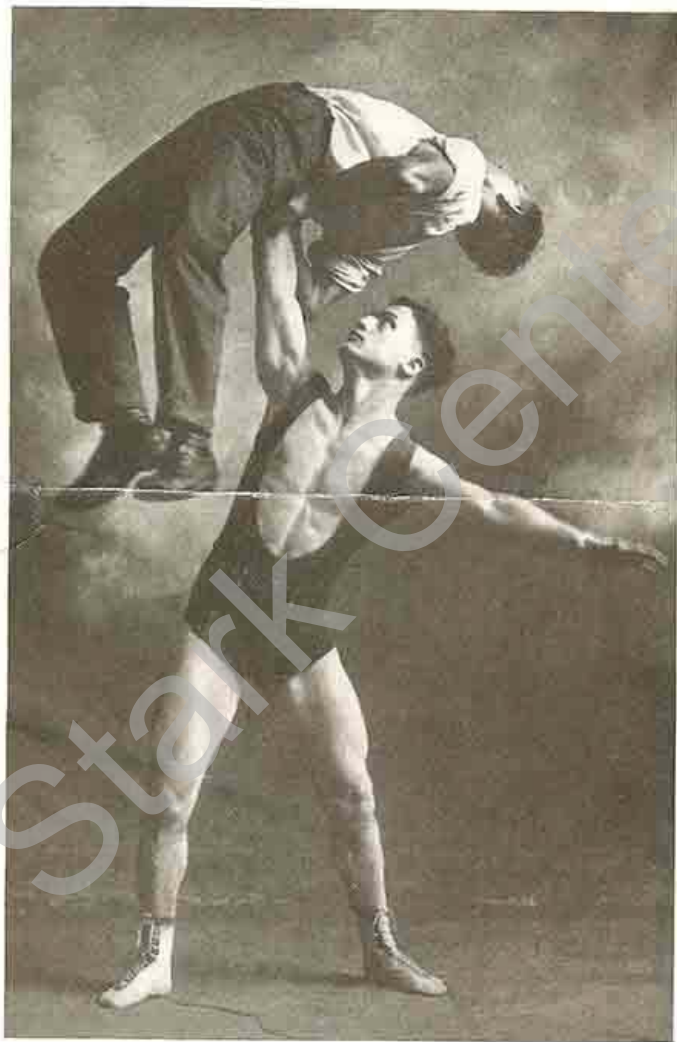


"STRENGTH"

JANUARY, 1917.

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ROBERT SNYDER

(See article on page 17)

Issued by
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1116-1122 Olive Street
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"STRENGTH"

JANUARY, 1917

ANNOUNCEMENT

There was no November number of STRENGTH. I did not have time to issue one. Consequently, I had to omit a lot of matter from this January number. There are a lot of new stars whom I would like to tell you about, and some articles that I ought to write, but I simply have not space for them, so they will be pushed over until the March number.

In this number there was no space for the article on "Muscle Control." Another instalment of that article will be published in the March number without fail.

I will do my best to publish six (6) numbers of STRENGTH in 1917, but on account of the increased cost of paper this magazine costs me one-third more to publish than it did a year ago; I have a great many thousand names on my mailing list, and I am continually receiving applications from new readers who want their names put on the list. If for any reason whatever you don't like the Strength magazine, or do not want it sent to you, please write me to that effect; I will cheerfully take your name off the list. Don't be afraid of hurting my feelings by taking such action, because there are two or three applicants for every extra copy.

I want to see this magazine keep on growing. It is a pleasure for me to send it free to everyone who is interested in body-building through the medium of Progressive Exercise, so I can still take care of some new readers. I cannot issue any more coupons. I cannot advertise this magazine as I have done the last few months, but if you have a friend who says he wants the STRENGTH magazine he can get his name put on the list by writing to me direct and mentioning your name, or you can write the letter sending me his name, if he will endorse your letter.

THE MILO BAR-BELL COMPANY leads; others follow. If I publish articles of a certain kind in this magazine, then a few months later other magazines write articles on the same subject. What we teach and advocate to-day, our competitors will be advocating a year or so from now.

The pictures in this magazine have been greatly admired, as is shown by the fact that many of them have been copied by other concerns. One firm, which manufactures vibrators, actually published an advertisement for which the illustration was an extremely poor copy of a drawing which appeared in the STRENGTH magazine for May, 1916. Some other concerns do not copy our illustrations, but they do copy our ideas; which, of course, is very flattering. We cannot prevent people from copying our ideas, but we can and will prevent people from reproducing the illustrations of the STRENGTH magazine. All the original photographs which appear in this and other numbers of STRENGTH magazine are copyrighted by THE MILO BAR-BELL COMPANY. Readers of STRENGTH cannot obtain original photographs, either by writing to me or by writing to those of my advanced pupils whose pictures appear in the magazine.

ALAN CALVERT,
Proprietor of
The Milo Bar-Bell Co.

Acquiring Perfect Proportions

By ALAN CALVERT

Almost any man between the ages of 16 and 45 can acquire muscular development and strength very rapidly, providing he takes the right kind of exercise, and, what is even more important, he can obtain the perfect health that goes with a perfectly developed body. In making this statement, I have in mind, of course, men who are sound. I do not include chronic invalids, and I do not believe that men with tuberculosis, or kidney trouble in a severe form, or valvular trouble of the heart, or men who have constitutions which have been ruined by the ravages of sexual disease and over-indulgence, can be improved much by any kind of exercise. It is my experience that four out of five young men are physically sound, and those men can improve themselves by spending two or three hours a week at a progressive system of physical exercise. When I say "progressive" I mean work that is made progressively and systematically harder in order to increase the frame and bring out the size and strength of the muscles.

For the benefit of my new readers (who number many thousands) I reprint herewith an article from the October, 1914, number of STRENGTH:

In a number of books on gymnastics you find a heading, "How Much You Should Measure," and under it, in tabulated form, "ideal measurements" for a man of 5 feet 1 inch, a man of 5 feet 2 inches, and so on, up to 6 feet. Apparently, a man over 6 feet tall has no right to an ideal, for I at least have never seen any measurements given for very tall men. Again, the ideal measurements are always supposed to be of fully developed adults—the growing boy is never considered.

Who first got up these tables I do not know. Generally, the book grandiloquently asserts that the tables represent the opinions of some famous artists or physicians, or both.

Personally, I do not take much stock in such tables. Men differ too much in inherited physique. The only rule that applies, so far as I know, is that *usually* the bigger the bones, the bigger the muscles they will support. (I say "usually," because some of the best developed athletes, such as Sandow and Thomas Inch, have been rather small-boned men; and some very powerful athletes with very large bones have had comparatively small muscles.)

Therefore, in figuring out how much YOU should measure, it is wise to consider the size of your bones. On the principle that the ends of a bone are in proportion to its diameter, it is considered that the joints—particularly the wrist—indicate the size of the bones. The average man's wrist is from $6\frac{3}{4}$ inches to $7\frac{1}{4}$ inches in girth.

Let us make comparisons in the case of a man 5 feet 8 inches tall, with a 7-inch wrist. Understand, my standard is merely my personal opinion based on results secured by my pupils.

I have pupils whose height and wrists are 68 inches and 7 inches respectively, but who *exceed* my standard in every other part of the body, so I am not exaggerating the effect of Progressive Weight Lifting as a body builder, nor am I selecting one isolated case as a standard.

	"IDEAL" TABLE	MY STANDARD
Height	5 ft. 8 in.	5 ft. 8 in.
Weight	155 lbs.	165 to 170 lbs.
Wrist	7"	7"
Forearm	12"	13 $\frac{1}{4}$ "
Upper Arm	14 $\frac{1}{2}$ "	15 $\frac{3}{4}$ "
Neck	14 $\frac{1}{2}$ "	16"
Chest	40"	43"
Waist	31"	34"
Thigh	21 $\frac{1}{2}$ "	24"
Calf	14 $\frac{1}{2}$ "	15 $\frac{1}{2}$ "

I believe that any one of my adult readers can calculate what they should measure by the following rules:

- Normal chest: 63 per cent. of height.
- Waist: 8 or 9 inches less than chest.
- Forearm: $17/8$ times as much as wrist.
- Flexed upper arm (biceps): 20 per cent. more than forearm.
- Thigh: 35 per cent. of height.
- Calf: 7 or 8 inches less than thigh.

It is not quite as easy for a lightly built man to acquire a perfectly developed body as it is for his heavier brother to do so. There are some men whose frames are so very light that even if they develop to the proportions I have given, they will be far from being Samsons.

The average sized wrist is about $6\frac{3}{4}$ inches. Occasionally I get cases of full-grown men whose wrists are only $6\frac{1}{4}$ or 6 inches; but even the man with a 6-inch wrist can develop an 11 $\frac{1}{2}$ -inch forearm, 14-inch upper arm, 39-inch chest, and other

JAN 17

measurements in proportion; that is, he can do it if he takes progressive exercise with gradually increasing weights.

There are compensations in everything. The man who starts with a very slender frame, develops along very graceful lines, and presents a fine appearance when fully developed. The small size of his joints lend a lightness and grace to his figure. Hundreds of my own pupils come of slender stock, and yet have, without much trouble, acquired the physical proportions of an Apollo. Almost all my advanced pupils whose pictures have appeared in **STRENGTH** are men who combine agility and Strength, and were naturally slender; in fact, many of them are still slender; that is, they have slender waists, wrists and ankles.

Nowadays, the favorite type of Strong Man is the Sandow, Carr, Matyssek type—a build which combines maximum strength with maximum agility, and, consequently, gives a maximum beauty of figure. In some lifts men of this type have actually raised more weight than the ponderous Cyr could raise at his best.

Who Wants To Be a Professional "Strong Man?"

Every day I receive letters from men who start out by saying: "I do not want to be a professional "Strong Man"; I do not want to break world's records—but I DO want to become just as strong, and just as well built and just as healthy as it is possible for me to be." This is an attitude of which I most heartily approve. Personally, I do not see why anyone should wish to become a professional "Strong Man", or to go on the vaudeville stage.

I would like to make clear that a professional "Strong Man" is not necessarily a bit stronger or a bit better built than a first-class amateur. As a matter of fact, the amateur is apt to be stronger. The explanation of this is very simple. Theatrical managers do not like genuine Strong Acts. These managers claim that their desire is to amuse their audiences, and that any athletic act to be successful must be in the nature of a novelty or else very sensational. A man who does genuine feats of strength has very little chance of making a success on the stage; whereas a fairly well developed man who is a good actor, and who can do a lot of fake feats, may succeed.

Arthur Saxon, who was a world's champion in his prime, and one of the strongest men who ever appeared on the stage, had a hard time getting engagements. Saxon was a great lifter, and a wonderfully strong man, but he insisted on doing genuine feats of strength; he refused to "play to the gallery," and consequently he did not make

As I said before, over 80 per cent. of men under forty are physically sound, and can take progressive bar-bell exercise with advantage to themselves. They are the men whom I can build up and benefit. Every month I turn out a crop of new stars. The developing of wonderful lifters is a fascinating employment, but it is not a bit more interesting than handling cases of men who care principally for development, strength and vigor. For instance, Mr. Polonic, whose pictures appear in this number, does not care anything whatever about record lifting, yet I am just as proud of having developed him as I am of having developed the greatest record breaking lifter on my list.

Some people say that I am very successful as a teacher, and if I have any success, I believe it is due to my power to inspire my pupils and to make them study and work. I have never done any professional lifting myself, but, nevertheless, I have developed the finest lot of "Perfect Men" this country has ever seen, and I have only just started.

a hit with the theatrical managers. Nevertheless, Arthur Saxon's lifting records and his bodily strength have been an inspiration to thousands of young men. Healthy men admire muscular development and great strength, and a genuine Strong Man always has a great many admirers, who try to equal the strength and development of their hero.

Sandow also did great work as an example of physical perfection, and was the inspiration which caused thousands of young men to try to improve their own bodies. Both Saxon and Sandow were genuine artists, and were just as famous as lifters as they were stage performers.

The moving picture business has largely killed vaudeville. "Strong Acts" that formerly drew two hundred dollars a week cannot draw forty dollars a week nowadays. Therefore, if you see it stated that "Strong Men" get big salaries, you had better investigate theatrical conditions before you take this statement at its face value.

I have pupils whose pictures have appeared in the pages of this magazine who are stronger, and, in my opinion, better built than most of the "Strong Men" you see on the stage. Some of these pupils have turned professionals since the pictures were published in the magazine, but their professional work is more along the line of teaching than in stage work.

So if you want to become strong and well built, disabuse your mind at once of the idea that the ownership of an adjustable

ABOUT STOUT MEN

Some few men are naturally stout; they have heavy round figures from early boyhood to old age. The weight is evenly distributed over the whole frame, although it is generally most noticeable at the waist line. A man like this has but little chance to reduce himself by exercise; it only makes him hungry, and as everything he eats seems to be turned into fat, he actually gets heavier as a result of exercising. It may be possible to reduce this type by "banting" (half-starving oneself), or by some particular diet, but it must be remembered that under-feeding results in a loss of energy, and is just as bad as over-feeding.

The most common type of "fat man" is the individual who takes on flesh through over-eating and under-exercising. The successful business man who occupies a position requiring no bodily exertion, frequently falls into the habit of eating very rich food, and stimulating digestion by consuming wine or liquor of some kind.

In this type, most of the fat accumulates along the front of the abdomen; a lesser amount of fat is deposited around the chest, the hips, and the upper arms; the forearms rarely accumulate any fat, while the legs (which are the only parts of the body which get any exercise) remain fairly muscular. Such a man can reduce himself by restricting his diet, cutting out stimulants and taking exercise of the right sort. I find that very few of such business men are willing to work in order to reduce themselves. They have made a success in the business world through the hardest kind of work, but after they have made their money, they are accustomed to buy everything which they want, and they erroneously think they can buy health and strength.

It does not take much work, or very hard work, to reduce the size of a fat man's waist, and to remove the flesh from the other parts of his body. But the exercise must be of a kind that brings into active play the muscles of the abdomen, the sides of the waist, the hips, and the thighs. Arm and shoulder work is of little value in weight-reduction cases.

The contrary is the case when you use the legs. If you do an exercise which develops the muscles of the thighs, you bring the waist muscles into active play. Likewise, any exercise which calls the abdominal muscles, or the side muscles, into direct play, calls the muscles of the hips and thighs into indirect play.

Therefore, bending and stooping exercises are the kind a fat man should take; yet if there is anything in the world that a fat man hates to do it is to bend or to stoop.

It is unquestionably the fact that an accumulation of fat on and in the abdomen is dangerous and detrimental to one's health. The external fat is unsightly; the

internal fat interferes with the action of the organs.

Then again, there is the danger of the organs themselves becoming subject to fatty degeneration. To enable the stomach, liver and kidneys to perform their functions properly, these organs must be massaged, kneaded, or shaken up. I do not mean that a man has to be rubbed by a masseur, because he can massage his own organs by using his muscles. If a man bends from side to side he kneads and squeezes his liver; if he lies flat on the back and raises his legs straight in the air he brings the abdominal muscles into play in a way that benefits the stomach.

A business man who has only a few minutes a day to exercise, cannot hope to reduce 25 pounds in a month the way that some ball players do. But a business man can reduce himself 25 pounds in three months without diet by taking direct exercises for the waist muscles.



"Drawn by Clyde Newman. Showing the type of leg development produced by Progressive Bar Bell Exercise. Note the wonderful development on the underside of the thigh."

OSCAR MATTHES

All of us who are interested in muscular development and heavy dumbbell work owe a debt of gratitude to Mr. Oscar Matthes, of Lawrence, Mass., who was one of the pioneer lifters in America. He made great records thirty years ago and is well known as a lifter all over New England. Mr. Matthes is the man who is responsible for the development of John Y. Smith, and induced Smith to make the lift mentioned in the July number of **STRENGTH**.

When Mr. Matthes was active in the lifting game, his precepts and example were instrumental in inducing scores of young men to take up heavy dumbbell exercise.

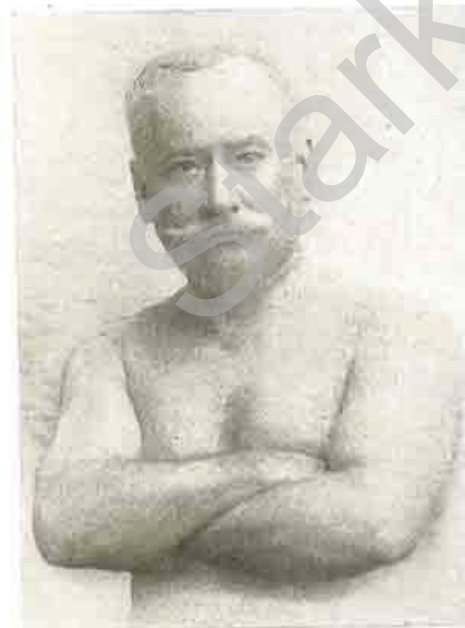
Mr. Matthes tells me that when he was 16 years old he discovered that the light dumbbell work promoted suppleness, but did not create strength and development, so he bought a pair of 25-pounders; but in order to test his strength he had to hold both bells in one hand. Soon after he had to buy a 75-pound solid dumbbell. In those days you could not buy adjustable dumbbells, so Mr. Matthes went to a foundry and had made to his order a shot-loading dumbbell, and a shot-loading bar-bell. It is a great pity that Mr. Matthes did his training before the day of adjustable dumbbells. With the conveniently adjustable articles we are using at present for training purposes, Mr. Matthes would have doubtless made even bigger records than he did. He says that he always used both right and left hands so as to get an even development. After he was able to put up a 105-pound dumbbell and realized that he was rapidly increasing in strength, he worked continually with large bells. To quote his own words, he says:

"I know from my long years of experience as a weight lifter, that work with heavy weights is the only thing that gives muscle-power and strength which stays with you. I advise all who take up this form of sport to begin with moderately heavy bells, and then increase the weight as you grow stronger, and you will be successful; avoid overwork; stop when your muscles are tired. When you use heavy bells it puts the work not only on one set of muscles, but the developing strain is felt all over the body; it also strengthens the internal organs, and employs the whole nerve system, creating vitality."

Up to 1895, that is, at the time he was 32 years old, Matthes had never attempted the Bent Press. Up to that time he had always



The half-length front view with the hands clasped behind the waist is particularly interesting to me. When I was 14 years of age I started collecting newspaper clippings about Strong Men. The very first one I ever saved was a half-column article about Matthes, and it was illustrated with a line-cut made from this very photograph.



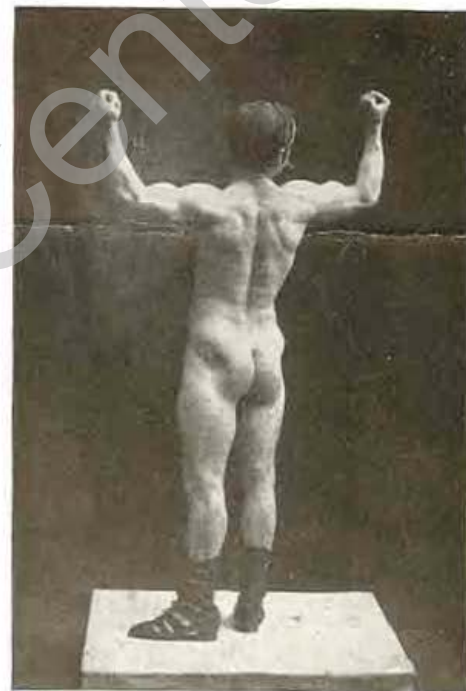
used a straight push. I give some of his records in pressing dumbbells; mind you, these are pure strength lifts. In looking over the list you must always keep in mind the fact that Matthes weighed only 110 pounds and is less than 5 feet in height. This makes his sprinting and high jumping records as remarkable as his lifting records. In 1895 Matthes could put up 117 pounds in a straight push. He then started to learn the Bent Press, but he said that it was some time before he was able to put up 100 pounds with either hand in that lift. After a few months' training, however, he succeeded in pressing 156 pounds with the right arm, and 140 pounds with the left.

His pictures are very interesting. In the half-length back view we see the lower insertions of the trapezius muscles—they form the shape of the letter "W." I have never seen this shown as plainly in any other athlete. Note the difference between the two back views: in the half-length picture he has his shoulders spread apart; you can see a rope of muscle running down each side of the spine; in the full-length picture he has jammed his shoulders blades together, which makes his back look narrow, but brings out groups of muscles that are not shown in the half-length picture. In the half-length picture we can see the wonderful deltoids on the points of the shoulders, and some remarkable muscles on the outside of the forearms.

In the bottom picture, p. 6, we see Mr. Matthes at the present day, age 53. The management of a large business leaves him but little time to devote to active lifting, but the strength is still there. Like most healthy men, Matthes has grown a bit stout in his fifties. A few weeks ago I had the pleasure of receiving a visit from Mr. Matthes' eldest son, a compactly built young man of 28. He is a member of Sousa's Band. Young Matthes told me that he had done some lifting under his father's direction, and that when he weighed 128 pounds he had pressed 175 pounds with one hand.

All these pictures of Matthes were taken about 1896 when he was 33 years old; his height was 4 feet, 11 inches, weight 110 pounds. His measurements were: Neck, 14 inches; chest, 40 inches; waist, 28 inches; hips, 35 inches; biceps, $14\frac{1}{4}$ inches; forearm, 12 inches; wrist, $6\frac{1}{4}$ inches; thigh, $22\frac{1}{4}$ inches; calf, 15 inches.

Put up from shoulder to arm's length over head, one hand: 65-pound bell 38 times; 76-pound bell, 26 times; 100-pound bell, 6 times (straight push); 110-pound bell, 2 times (straight push); 140-pound bell once with left hand (slow press), and 156-pound bell once with right hand (slow press). Also other feats: 100 yards in $10\frac{3}{4}$ seconds. Running high jump, 5 feet. Draw up body on bar 3 times one hand, 42 times with two hands.



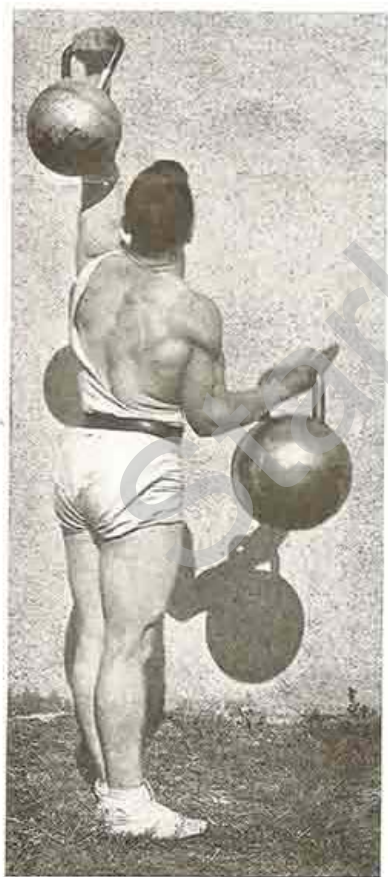
In the full-length view with arm raised we see his shapely legs and marked abdominal development; also the plainly marked muscles at the sides of the waist. You will find these muscles highly developed in men who specialize on the one-arm press. These, by the way, are the muscles that are always so prominently marked in the statues of the old Greek athletes.

A. P. TAUSCHER

Mr. Tauscher, one of the most famous of the advanced pupils of THE MILO BAR-BELL COMPANY, is the present American amateur record holder in the one-arm Jerk, having raised 210 pounds in that manner. He weighs 162 pounds, and has raised 157 pounds in the one-arm Snatch, so he has gotten within five pounds of his own body weight in that particular lift.

The two full-length pictures on this page will give you an idea of Tauscher's present development. On the next page we have several action pictures.

The full-length back view picture will give you an idea of Tauscher's development. His muscles are large in size and tremendously powerful, but his development is so symmetrical and so harmoniously balanced that the whole effect of the figure is of lightness, com-



ined with strength. For pure shape and development young Tauscher equals the best professional models; for sheer strength we doubt whether he can be matched by any man of his weight (162 pounds) in this country.

In the back view picture we have a snap-shot of an unstudied pose of Mr. Tauscher using a pair of kettlebells. With his left hand he is holding aloft 105 pounds; with his right hand he is "curling" 75 pounds. Not at all hard for Mr. Tauscher, and way below what he can do, but at the same time just about twice as much as the average man can handle. This picture gives you an idea of his wonderful development. I doubt whether you have ever seen more pronounced development of the back and shoulder muscles, and you rarely see such a symmetrical pair of legs.

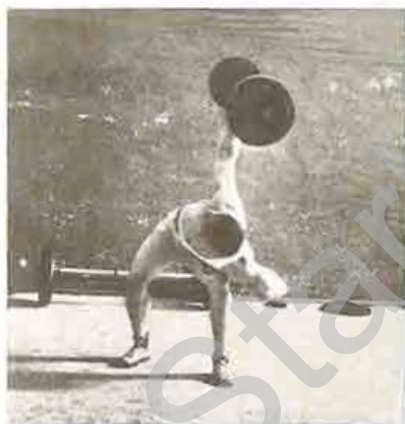
In the full-length front view, next page, Tauscher is shown holding the 75-pound bell in the right hand.

The smaller pictures show Tauscher practicing the Bent Press. In the picture on the left he is using a 200-pound bell, and has just gotten his right arm straight, and is preparing to rise to an erect position. In the picture on the right he is using a 220-pound bar-bell and has his arm pressed about three-quarters straight.

“In practicing the 2-arm lifts, I start with a small weight and slow press as far as 205 pounds, and then start jerking with 225 pounds and go up to 296 pounds.

I find my limit lifts up to the present time are as follows:

Two-Arm Jerk	296 pounds
One-Arm Jerk	210 “
One-Arm Swing	143 “
Bent Press	220 “
Two-Arm Snatch	196 “
Two-Arm Slow Press	205 “
One-Arm Snatch	157 “
One-Arm Military Press ..	98 “



(Continued from Page 4)

bar-bell has anything to do whatever with the professional stage. I have thousands of pupils in small country towns, and on farms, who do not have access to vaudeville theatres, and who tell me that they have never seen a professional “Strong Act”; and many of these same pupils who have never seen a professional “Strong Man” have themselves become just as strong, and just as well developed as any professional they would be apt to see if they went to a theatre in one of the large cities.

There is developing a wave of enthusiasm

for physical beauty and power, and I believe that there are to-day one hundred times as many magnificently built men in this country as there were 15 years ago; and I hope that I have had something to do with it.

It seems to me that supreme health and strength are in themselves things worth having. Few things give as much satisfaction to a young man as the possession of a splendid figure and unusual bodily strength. Sickly men cannot have such figures and such strength.

LIGHT EXERCISE

EXERCISE No. 5 for deltoid muscles on points of the shoulders. Hold a weight of any kind in each hand (a 5-pound dumbbell will do, or a flat iron, or an iron plate, such as is shown in Fig. 5. Lean forward from the hips, keeping back perfectly straight; raise the arms to the side until they are level with the shoulders, then lower them in front of you, and repeat until the shoulder muscles tire.

This exercise is very much better when performed in the bent-over position than it is if you stand upright, because if you stand straight and raise the arms to the sides you use only about one-half of each deltoid muscle. By leaning over in the position shown, and then raising the arms sideways to the level of the shoulders, you bring into play almost every part of each deltoid muscle.

EXERCISE No. 6. Special exercise for stretching and developing the muscles on the underside of the thigh, and developing the muscles of the back. Stand on left foot; place right heel in the palm of the right hand, being careful to have the knee outside the elbow. Now straighten out the leg as in Fig. 6. At first you will not be able to get the leg perfectly straight, but after a little practice the thigh muscles will stretch.

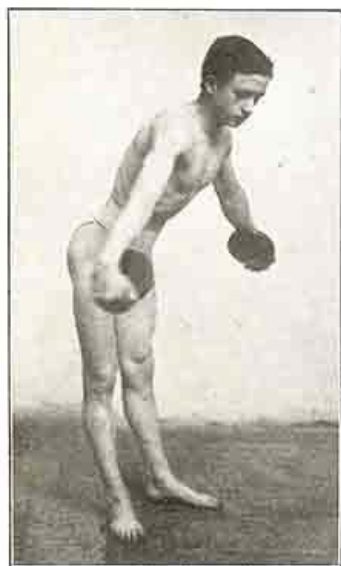


Fig. 5

After you have worked the right leg, then put the left heel in the palm of the left hand, and straighten out left leg, and continue until you have repeated a dozen times with each leg.

The lower you hold the hand, the easier it is to straighten the leg. Therefore, as the muscles become stronger and more flexible, raise your hand and foot higher and higher until you learn to straighten out the leg with the foot on a level with the face.

This exercise is used by all ballet dancers to develop the back part of the thighs and to give flexibility to the muscles of that region.

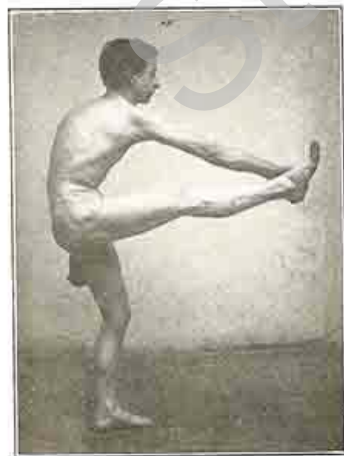


Fig. 6



Fig. 8

EXERCISE No. 7. Exercise for the sides. Stand erect, heels together so that you can reach out and touch the wall with the tip of the middle finger of the right hand. Then move an inch or two further from the wall, bend at the waist, and again touch the wall as in Fig. 7; move an inch further, bend again, and so on, until you have reached the limit of your bending power.

Here is the important part. You must keep the legs straight up and down. In the illustrations you will see that the legs are perpendicular and that all the bending is done at the waist. Of course, you must exercise the left side also.

EXERCISE No. 8. For developing the abdominal muscles and reducing the size of the waist. This is a rather difficult exercise, and you will have to work up to it. For the first few days lie flat on the back and raise the legs until they are perpendicular to the floor; slowly



Fig. 7

lower them, and repeat several times. After the muscles have become a bit hardened, then try to do the complete roll-over to the position shown in Fig. 8. This is easy for the young and slender, and difficult for the middle-aged and stout. It will take a stout man two or three weeks to learn to do this exercise easily and to repeat it a dozen times in succession, but there is this compensation: by the time he is able to repeat the roll-over a dozen times in succession, most of the fat on his stomach will have disappeared.

This exercise is a great favorite among professional ball players when they are trying to reduce their weight rapidly to prepare for the playing season.

LEVERAGE BAR BELLS

At various times in the last few years an attempt has been made to popularize a system of exercise which calls for the use of a leverage bar-bell. I see that they are once again being advertised, and as several of my pupils have asked me about them, I have decided to explain the fallacy.

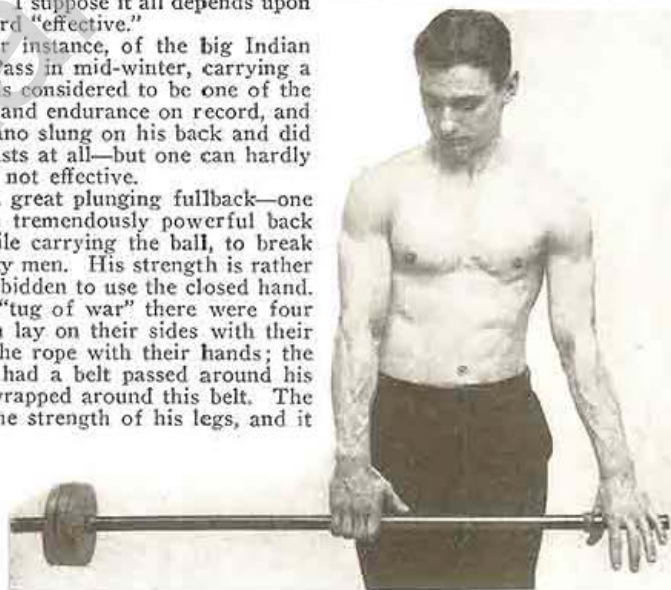
The theory is that the forearms are the most important part of the body, and it is claimed that a man's "effective" strength is limited by the amount of weight he can handle when gripping it tightly.

You can put a weight on one end of a stick, or a pole, or an iron bar, and by grasping the bar at the end far from the weights you can throw a great deal of developing strain on the muscles of the forearms; but if you do this you practically limit the development of your other muscles by the strength of the forearms. The muscles of the forearms are among the smallest and weakest in the body, and when anyone says that a man's effective strength is limited by the strength of his hands and wrists, he is making a statement which is rather difficult to prove. I suppose it all depends upon what you mean by the word "effective."

There is the case, for instance, of the big Indian who crossed the Yukon Pass in mid-winter, carrying a piano on his back. This is considered to be one of the greatest feats of strength and endurance on record, and yet the Indian had the piano slung on his back and did not use his hands and wrists at all—but one can hardly say that his strength was not effective.

Or take the case of a great plunging fullback—one of these big fellows with tremendously powerful back and legs who is able, while carrying the ball, to break through a line of big husky men. His strength is rather effective, and yet he is forbidden to use the closed hand.

In the old-fashioned "tug of war" there were four men on a side; three men lay on their sides with their feet braced and gripped the rope with their hands; the fourth man (or anchor) had a belt passed around his waist, and the rope was wrapped around this belt. The anchor did his work by the strength of his legs, and it



was often proved that the anchor did more work than the three men who were gripping the rope.

Instances of this kind could be multiplied—all showing that one's effective strength does not depend upon his arms and wrists. Even in bar-bell lifting we have many instances. In "curling" a bell from hips to shoulder, or in performing any exercise where the arm flexors are used, then grip strength is important, and is an aid in the performance of the feat.

In some special exercises and feats of strength with bar-bells and dumbbells a man will deliberately handicap himself if he exerts his grip. If, when the arm is bent at the elbow, you close the hand forcibly, you bring into play many muscles of the forearm, including one that is attached to the bone of the upper arm. This muscle is one that helps to bend the arm and, therefore, interferes with the straightening of the arm.

Give a novice a 40-pound dumbbell and ask him to push it aloft from his shoulder. The chances are nine out of ten that he will grasp the bell like grim death and will be unable to push it up, and his ill-success is partly due to the fact that he can not exert the full strength of his triceps muscle when he grips the bell tightly. Turn to the picture of Tauscher on page 9. If I wanted to make a test of the pushing power of a novice I would give him a kettle-bell and let it hang from his open hand the way shown in this picture. The novice could then exert the full pushing power of his arm without being hampered by the contraction of the gripping muscles. Every experienced dumbbell handler knows this. The harder you grasp a bell the less weight you can put above the head.

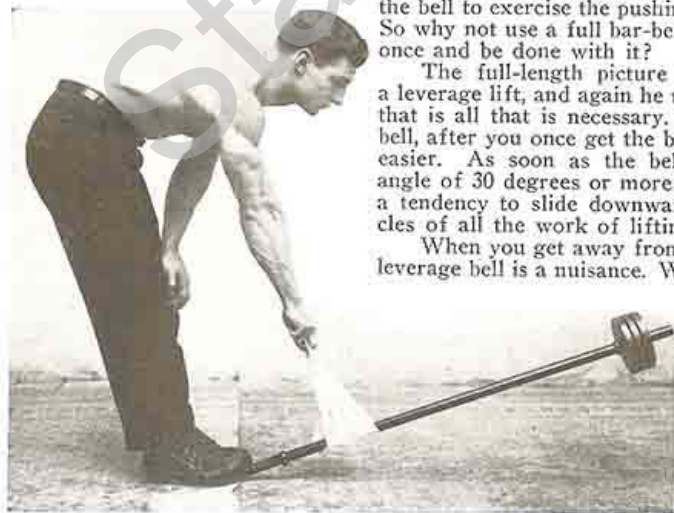
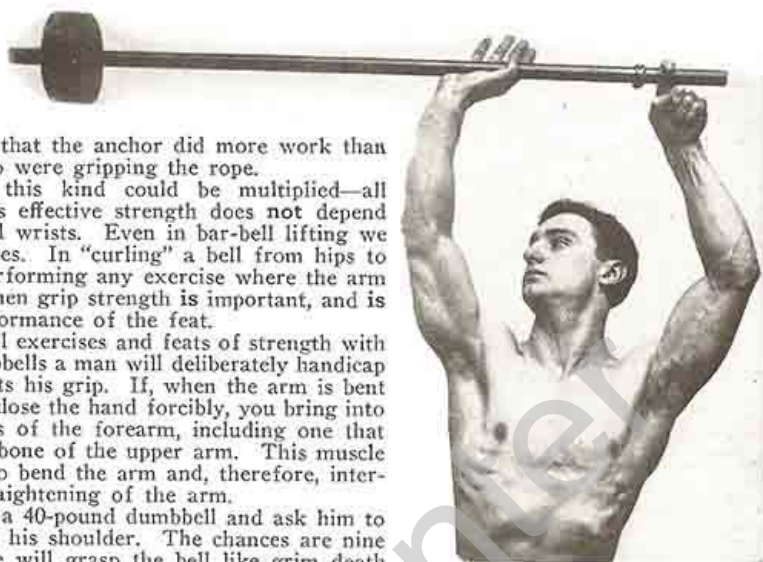
The pictures on these pages show the general idea of the Half-Bar-Bell. Some of these bells are made with comparatively light weight and a long handle. Exactly the same effect can be had by using a heavier weight and a shorter handle. The theory is, the closer you hold the hands together, the harder the work becomes. These pictures show how little gripping strength is really necessary. In the picture where the athlete is pushing the bell aloft, all that is necessary is to hold the left hand open and pull down with the right hand. In this picture the athlete is using only one finger, showing that little or no gripping strength is necessary. If a bell is pushed up in this position all the work is thrown on the

left arm, and then you have to reverse the position of the bell to exercise the pushing muscles of the right arm. So why not use a full bar-bell and exercise both arms at once and be done with it?

The full-length picture shows the athlete making a leverage lift, and again he uses only one finger because that is all that is necessary. In lifting a leverage bar-bell, after you once get the bell tilted, the work becomes easier. As soon as the bell gets into position at an angle of 30 degrees or more with the floor, the bell has a tendency to slide downward, thus relieving the muscles of all the work of lifting the bell.

When you get away from the forearm exercises, the leverage bell is a nuisance. Why lift a weight indirectly?

Why lift one end of a weight when it is much simpler to lift the whole weight? Any of my pupils who want to try these bar-bell exercises can construct a leverage bar-bell by putting plates on only one end of the long handle-bar, as shown in the pictures on this page.



NORDQUEST MAKES ANOTHER WORLDS RECORD

Several years ago Hackenschmidt, famous "Strong Man," while lying flat on his back, pulled across face to chest a huge bar-bell weighing 361 pounds and then slowly raised it in the air by straightening his arms.

In making this lift he used a bar-bell with ends 19 inches in diameter. It was considered one of the greatest feats of genuine strength in the history of lifting, but Nordquest excelled it when, on November 6, 1916, he raised 363½ pounds in the same manner in which Hackenschmidt had lifted 361 pounds.

Nordquest came to Philadelphia late in October, and tried to break the record, but failed by a few pounds. In New York, a few days later, he succeeded in making the new record at the Police Headquarters' Gymnasium. The affidavit is reproduced herewith; also two pictures showing Nordquest holding the bell aloft. You can see his great chest and tremendously thick and powerful arms.

Nordquest will shortly go after another record. Arthur Saxon once lifted 386 pounds in what is known as the "Shoulder Bridge," that is, he pulled the bell across face to chest, and then pushed it upward while resting on his shoulders and feet. This is just the way that Nordquest had started to train, and he says that it is a much easier position to press in than when you have to lie flat on the back, so by the time another issue of STRENGTH is published Nordquest will probably have smashed Saxon's record also.

When I last talked to Nordquest he told me that his upper arm had increased, and measured 17½ inches clean and 18 inches when he flexed it and pressed it against his side.



STATE OF PENNSYLVANIA
 COUNTY OF PHILADELPHIA
 AFFIDAVIT

I, the undersigned, do hereby depose and say that on the 6th day of November, 1916, at the Police Headquarters, in the City and County of Philadelphia, the following named person, to-wit: Nordquest, did lift and hold aloft a bar-bell weighing 363½ pounds in the same manner in which Hackenschmidt had lifted 361 pounds.

Subscribed and sworn to before me on the 6th day of November, 1916.

Wm. B. Fox
 Notary Public

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Subscribed and sworn to before me on the 6th day of November, 1916.

Jacob Nordquest
 Deponent

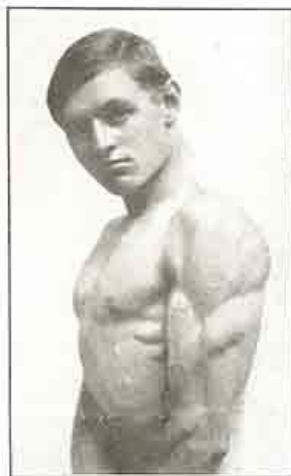
Wm. B. Fox
 Notary Public

Honesty in Weight Lifting

And the Necessity of Making Lifters Prove Their Claims

By

OTTLEY RUSSELL COULTER



O. R. Coulter.

The subject of honesty as pertaining to lifting is one of some interest to every admirer of strength, and of very great interest to the real lifting enthusiast. The latter, in his search for statistics, finds that he has a Solomon's job to sort the "wheat from the chaff." The close student of American lifting finds many claims of records. He learns that Pennel, Kennedy, Cyr, Rolandow, Travis, and a few others accomplished certain feats before witnesses, some in contests and some on other occasions, but all of a type set by the participants themselves, or by promoters who did not understand or care. The enthusiast, searching further, finds that many feats are credited to the American lifters which, owing to conditions under which they were made, are anything but reliable.

For example, Louis Cyr is credited with a 4300-pound back lift at Boston. On investigation it is found that Cyr lifted a number of men whose weight, as given by themselves, with the addition of Cyr's platform, totaled 4300 pounds. Fortunately for the reputation of Cyr he, personally, was not responsible for this. In due justice to Cyr I will say he was probably the strongest lifter ever produced in this country, but if such inaccuracy entered into feats credited to Cyr, one can only conjecture the inaccuracy of feats claimed by men who were not near Cyr's equal. The searcher for statistics finds that a few of the men, including those I mentioned previously, performed lifts under the jurisdiction of the Police Gazette, or in actual contest, but all were of individual specialties, and furnished no basis for adequate comparison.

The result of this investigation is that our truth seeker finds little reliance can be placed in the American lifts of by-gone days. He sees the dire need of a logical method of promoting honesty in lifting.

If we study the history of amateur sports, such as track and field athletics, we find that these are regulated by fixed rules. These sports are, for the most part, controlled by the Amateur Athletic Union which, as an organization, has formulated regulations as to how an event is to be performed and by whom it is to be judged regarding its conformity to the regulations. The result of this is, that all compete under the same conditions, and this means, consequently, a greater real rivalry. There can be no real rivalry without a basis of equality, and rivalry and competition are necessary to promote the sport.

As we find how well amateur sports flourish by proper regulation, why not apply it to lifting? Let us consider just how we can best apply it to lifting in this country. Now the first question is: Who should formulate the rules and judge the contests? This can be best answered by a little investigation as to the nature of the rules needed and, consequently, who would naturally be the strongest advocates of them. If we study lifting thoroughly we find that the kinds of feats are many, and the possible manner and positions for their accomplishment are numerous.

First, we will analyze the subject of stage feats, as they have the least connection with furnishing a standard for competition. Now stage feats are devised with the idea of making an exaggerated impression on the public, and hence their purpose in itself is not the best for promoting a series of tests suitable for strength competitions. Each performer, in his desire for originality and novelty as prime assets to his act, devises feats of his own and specializes on them. Naturally, individual specialization leads away from a single standard. Furthermore, the most of the exhibition feats are of the nature of supports rather than lifts, and although these feats require considerable strength, yet

it can never be ascertained how much is due to strength and how much is due to accuracy of position. I have found this to be so by actual experience, as I worked supports in public exhibitions. The real strength of a man can be best ascertained by testing the amount of weight his various muscles can contract against.

Many stage exhibitors and bridge supporters have a reputation for strength which in reality is more apparent than real. Some of the most insistent of these are not satisfied in "letting well enough alone," but must materially exaggerate their poundage. After careful thought I can think of no exhibition lifts, except the two-hand dead weight lift, back lift and harness lift, that can be classed as genuine strength lifts. But comparatively few lifters, whether amateur or professional, ever had the chance to practice harness or dead weight lifting, because of the expense of special apparatus, cost of transportation or lack of necessary space for its use. However, almost every Strong Man practices with bar-bells and dumbbells. They are suitable for the amateur, as he can use them in his own room. The professional invariably uses them. He owes his development to their use, and as they are cheaper for transportation purposes, he is sure to use them to some extent in his act.

Thus we see that stage tricks should be barred, and nothing but genuine lifts allowed. Among this latter class are the bar-bell lifts, such as the Military Press, Bent Press, One-arm Snatch, One-arm Swing, One-arm Jerk, Two-arm Snatch, Two-arm Press and Two-arm Jerk. These lifts are called the Standard Lifts, and have been rightly recognized in Europe as standard tests, just the same as the 100 yards and 200 yards dashes are standard events for a sprinter. Now it is apparent that, in order to insure rules to this effect, it is necessary to have the rules formulated by those who thoroughly understand lifting and have the sincere desire for the promotion of the sport at heart.

Now that we have seen in a general way how to regulate lifting, we will consider just what further rules are necessary for a practical regulation of the sport. If we study lifting as controlled in Europe (which is the home of lifting), we find that England has a British Weight Lifters' Association which has put lifting on a firm basis, and done more than all else to promote the sport in that country. In France lifting is governed by such clubs as "l'Halterophile," "Club de France," and the "Federation Athletique du Nord." Among the officials of the former we find such capable men as Desbonnet, Dubois, Robert, Beranger, and others. Again, in Germany and Austria, we find strict regulations formed by such men as Stolz and Albert Saurier. In these last-named countries every city has its lifting club, the same as every college in this country has its track team, and the lifting rules are the same in each club as are the track rules in each college in this country. In fact, the standards of lifting in Germany and Austria are practically the same. These countries practice the continental style, which we will define as Two-hands-anyhow-to-the-chest. The British favor the clean lifting, meaning one movement to the chest, but they have incorporated continental lifts into their organization. The French style is clean, and is the strictest regards form. However, the rules of the individual countries differ so little, and the styles are so well known to each other, that International World Championships are held, and participants are sent from nearly all the European countries, such as Sweden, Denmark, Russia, Holland, France, Germany, Austria, and others.

Up to the time of the war huge lifting competitions were held in nearly all European countries, and every Strong Man who made claims had to appear before a recognized athletic body and prove his claims before a jury of lifters. Any man who claimed championship class either had to enter in the regular lifting events, or else be ridiculed, just the same as a man in this country would be if he claimed he was able to clear eight feet in a high jump, and then refused to enter the high jumping event in any athletic event whatever.

All of this shows that Europe has a standard of lifting, and as she holds most of the records and sets the pace, it behooves us, if we wish to receive anything like world-wide recognition, to formulate rules and regulations in conformity with hers.

I think we all see the need of a lifters' organization in this country, and I have wished for some time to see Mr. Calvert take the initiative in the movement, as I have known him personally for some time, and know him to stand for the strictest honesty in lifting. I know he would not purposely exaggerate the feats of his pupils, or belittle the lifting of any stranger who lifted honestly. I have lifted before him personally, and have seen some of his star pupils attempt a lift and fail, and no claim was made for a record and no excuse offered for failure. He has a greater knowledge of lifting than any man in this country that I have ever associated with, and I am acquainted with the best. He has done more for legitimate lifting in this country than anyone else. I feel sure he is heart and soul in favor of the sport, and will do all in his power to promote honesty in lifting.

An Offer to Max Unger

I am heartily in accord with the ideas expressed in Mr. Coulter's article. I believe in the establishment of an association to govern lifting, and to make rules which will place lifters on an equal basis. Every good lifter will welcome such an association.

My experience is that every first-class lifter is always anxious to lift in order to prove what he can do. Strict rules never bother a good man. Every first-class lifter that I have known has not only invited, but welcomed, the most searching examination of his records, and eagerly seizes every chance to prove his claims.

Every record ever claimed in this magazine for pupils of The Milo Bar-Bell Company will stand every investigation. For instance, there is nothing Nordquest enjoys more than lifting for official records, and he joins with me in insisting on the weighing of the bells, and the rigid inspection of the scales, etc., etc. Nordquest holds the present American record in the One-Arm Press with 277¼ pounds.

I understand that Mr. Max Unger states that I do him an injustice and claims that he holds the record with 312 pounds. I have searched the records of every country, but am unable to find Mr. Unger's name among the list of record holders, and I looked both for his own name and for his stage name. I have made inquiries in every direction. Several well-known lifters have told me that Mr. Unger never pressed five-sixths of what he claims; but no man's claims should be denied without first giving him a chance to prove them.

I figure that five-sixths of 312 pounds would be 260 pounds. I will gladly make Mr. Unger a present of \$100.00 (One Hundred Dollars) if he will raise to the shoulder with two hands, and then with the right arm, slowly press to arm's length above the head a bar-bell weighing 260 pounds. I have mailed a certified check for \$100.00 to the Physical Culture Publishing Company with directions to them to hand it over to Mr. Unger if he succeeds in lifting the above amount of weight. The only conditions imposed is that the lift must take place in either New York or Philadelphia, before March 1st, 1917, and that it must be made in the presence of Prof. Rolandow, and Prof. Titus, and myself. The two gentlemen I have just mentioned are well known and highly honored in the weight-lifting world.

Understand, this is not a bet. Mr. Unger does not have to risk a cent. I simply present him with \$100.00 if he succeeds in making the lift. I have named the moderate amount of 260 pounds, because I figure that any lifter can at any time, without training, make a lift equivalent to five-sixths of his best performance.

Every courtesy that The Milo Bar-Bell Company affords and every assistance in our power will be offered to Mr. Unger if he makes the attempt.

No. 1250	PHILADELPHIA	January 17, 1917
ROBERT MORRIS TRUST COMPANY 3-110		
827-828 CHESTNUT STREET		
PAY TO THE ORDER OF <i>Physical Culture Publishing Co.</i> \$100.00		
<i>One hundred</i>		X DOLLARS
<i>Alan Calvert</i>		

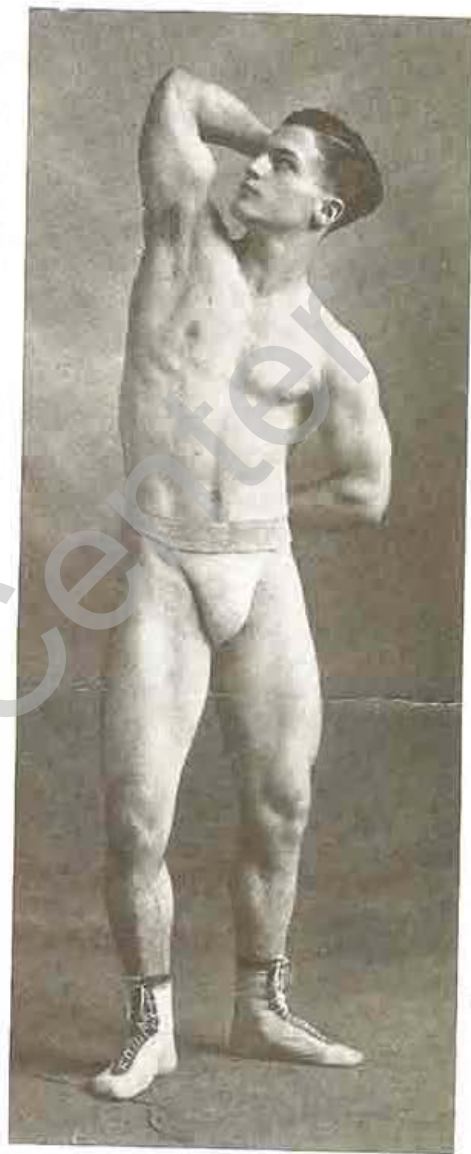
Robert Snyder, Jr.

My readers will be glad to see this new set of pictures of Robert Snyder, advanced pupil of the Milo Bar-Bell Co. and the present champion lifter in the light-weight class.

Snyder at present weighs 127 pounds and is, in my opinion, the best all-round lifter of his weight that I have yet seen. Besides being a champion lifter, he is a remarkable hand-balancer and performer on the flying rings. The tremendous strength which he developed by using the bar-bells makes it easy for him to perform very difficult gymnastic evolutions.

Mr. Snyder paid me a visit recently. There were several lifters present, and we had an impromptu carnival. Snyder made some quite remarkable lifts. Taking a bar-bell weighing 125 pounds, he Jerked it aloft several times in succession with the right arm. He made a two-arm Military Press with 170 pounds; he pressed aloft with his right arm a 150-pound bar-bell, and while holding it at arm's length above the head, leaned over and picked up a 45-pound kettle-bell with his left hand and then, standing erect, lifted the kettle-bell alongside the bar-bell. Taking an 80-pound bar-bell on his shoulder he held the left leg out straight in front of him and sat down on the right heel and came again to the standing position. All these feats were done without any apparent exertion. They were many pounds less than his best performances.

It was a positive treat to see him lift. He



did everything so easily that some of the other lifters had to heft the bells themselves in order to convince themselves that the weights were as heavy as announced.

Snyder's ambition at present is to make a two-arm press with 200 pounds, and a two-arm Jerk with 300 pounds.

Posing For Muscular Display

(Continued)

By Alan Calvert



The athlete should now turn his right side to the audience, place left hand at back of waist, rest right hand on top of head, throw out the chest as far as possible, and harden the muscles which lie beneath the armpit. This pose brings into partial relief the saw-like edge of the serratus magnus muscle. You can see this plainly in Figure 12. This beautiful pose is by Mr. Polonic, and shows his remarkable depth of chest. It is the ideal pose for showing the size and shape of the chest.

Now face the audience with left hand resting on hip, right arm outstretched, weight resting squarely on both feet. Turn the toes out so as to throw the thigh muscles in profile, draw the abdomen inwards, and at the same time spread the shoulders apart and harden the muscles under the armpits. This shows great breadth of chest as compared to a slender waist.

Then clasp hands in front of you, lean forward the merest trifle, and simultaneously harden muscles of the arms, chest, and abdomen, as in the pose by Mr. Tauscher, Figure 14.



Fancy Posing

The athletes who have made the greatest success in posing are those who have confined their exhibition entirely to poses which display the development of the muscles and the beauty of the form. Fancy posing has never made much of a hit. I have seen a number of



Matthes
(Fig. 15.)

men attempt it, but while they themselves understood what their poses meant, the audience did not seem to be able to grasp the idea. One man, for instance, posed as a gladiator wearing helmet and greaves, and carrying a sword and shield. These properties may have added realism to the poses, but they certainly distracted the spectator's attention from the muscles of the athlete.

If you want to do fancy poses, be careful not to wear a helmet, which is so large that it makes the chest and shoulders appear small by comparison. Be careful not to wear fringed or blousy trunks that make the hips seem wide, and, consequently, make the legs look thin. If, on the other hand, you are posing without costume, and your poses represent copies of statues or are supposed to represent types, you had better have your assistant announce what the tableaux represent, otherwise you may be

sure that half the audience will not know what you are driving at.

When doing muscle-posing you should try to avoid self-consciousness, and you should pay no attention whatever to any applause that is given you until the posing is over. When facing the audience be careful not to look at any particular individual in the audience, and above all, be careful not to smile. I have seen good posing acts spoiled by reason of the athlete smiling in a superior sort of way during all the time he was going through his different poses. He apparently did not take his own work seriously, with the consequence that the audience also refused to take it seriously.



Tauscher
(Fig. 14)

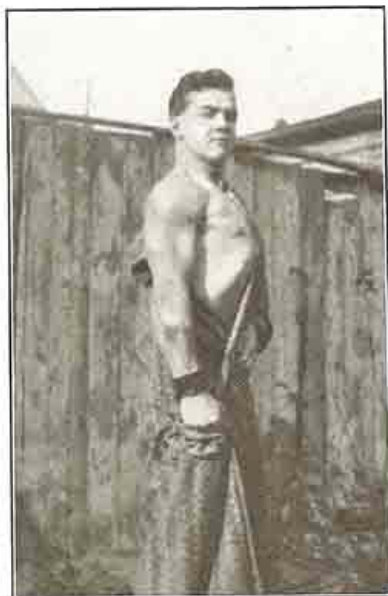
As a general rule, I am opposed to introducing stage properties of any kind into a posing act. Tableaux and dramatic poses are all right in an act where several people take part, and nothing is done except posing. A Strong Man poses to show his muscular development and the grace and beauty of his form. His posing is not supposed to represent any dramatic emotions or to counterpart any famous pictures.

Beware of making a posing act too long. Three minutes is the most that should be allotted to posing if you are doing a lifting act in addition. If the posing constitutes the whole act, then you can spin it out to five minutes.



Barker
(Fig. 16)

H. F. BAILEY



Here is a miniature Hercules who is built along the lines of Hackenschmidt.

Very little comment is needed on these pictures; they speak for themselves. I am especially pleased with the top picture on this page. This cut was made from a snapshot taken in the yard of Mr. Bailey's house, and it shows what can be done by an amateur. This pose is well thought out, and the effect is good, because Mr. Bailey is standing perfectly naturally, and has not flexed any of his muscles except the forearm. His arm is very large for a man of his weight. It is perfectly developed, as is proved by the effect of roundness. Note the great development of the triceps on the back of the upper arm; also notice the unusual development of the muscles on the outside of the forearm. I don't remember seeing another man who has outside forearm muscles equal to Mr. Bailey's.

Mr. Bailey has not neglected any part of his body. The deltoid muscles on the points of his shoulders are prominent and beautifully rounded. His chest is very deep, and shoulders very broad, his waist is square built, and his legs are in proportion to the development of his upper body.

In the front-view picture, with arms at the sides, notice how Mr. Bailey has brought out the pectoral muscles on the chest by pressing the arms closely against the sides.

His present measurements are:

Neck	15	inches
Chest (expanded)	34	"
Upper arm	14	"
Forearm	12	"
Waist	29	"
Thigh	21½	"
Calf	15¼	"

Height—5 feet 4½ inches

Weight—135 pounds



Buffalo, N. Y.
October 5, 1916.

Mr. Alan Calvert, Propr.,
The Milo Bar-Bell Co.,
Philadelphia, Pa.

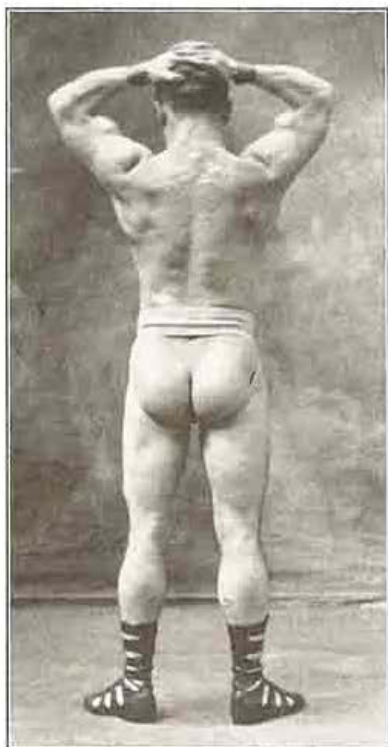
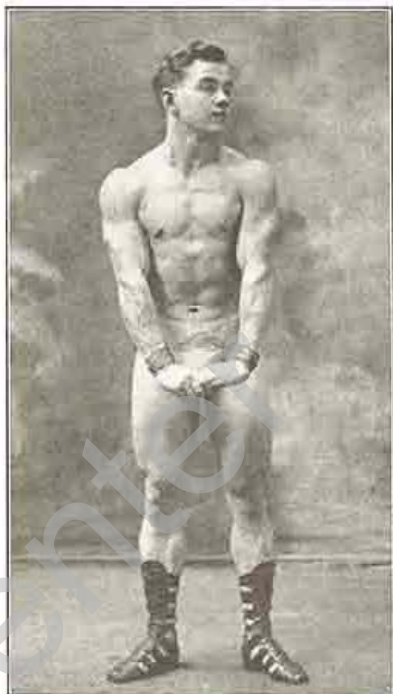
Dear Sir:

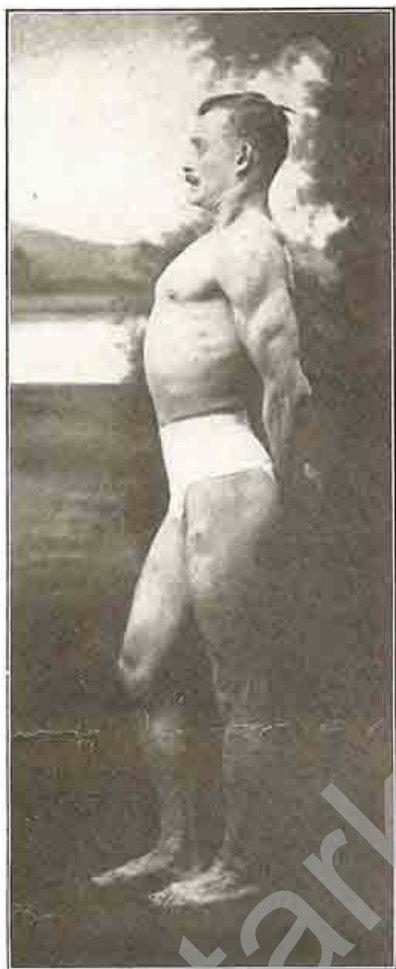
The Bar-Bell I purchased a little over a year ago is, I think, the best thing (with your course) that I ever heard of. It certainly exercises every

little muscle, and the large ones too; and you get quick results—that is, you feel better the first week, and after that it's steady building up all the time. Considering that I work nine hours a day in an office on a job that is considered to be a very nervous job, I think I show up fairly well for the little chance I get to exercise.

Last winter I practiced quite a bit with the bar-bell on my free evenings, and have felt fine ever since. Mr. Ross, whom I got to take a bar-bell, is steadily improving, and is one of your best boosters. You see, the doctors told him not to exercise, or do anything in that line, as he was supposed to have a valvular leak of the heart. I got hold of him and worked him up gradually for a month or two, then I wrote you stating his condition, and you gave him the proper weight to use, and it just fitted him, so he has been steadily improving, and has thanked me several times for what I and the bar-bell have done for him. No pain at his heart any more, and he has filled out, and, in fact, looks much taller and says he is beginning to enjoy life.

Respectfully,
(Signed) H. F. BAILEY,
116 Tenth Street.





Mr. Alan Calvert, Propr.,
The Milo Bar-Bell Co.,
Philadelphia, Pa.

Dear Sir:

I beg to state that I am more than satisfied and pleased with the dumbbells.

I am by nature of very small build, and I used to do a lot of gymnasium work years ago trying to get more strength and a better figure, but I was not able to improve very much.

Last fall and winter I practiced quite diligently with your bar-bell, and it did wonders; my chest, arms, and legs developed, and at the same time my strength doubled. When I first showed my bar-bell to my friends they all laughed at me because of my skinniness; but after I had practiced a year they were astonished at the results. Your system of training is wonderful, this is the only expression I have for it; I cannot praise it enough.

I am sure that every one of your pupils feels the same as I do; I can see by my own experience that anybody could acquire (by this proper kind of exercise) health, a perfect figure, and strength far above the average.

I feel angry sometimes that I did not start lifting years ago, but at the same time by training I will bring myself to a good showing.

Very truly yours,
(Signed) BRUNO POLONIC.

BRUNO POLONIC

One of the real pleasures in this work is in developing a star like Mr. Polonic. Here is a man who never touched a bar-bell until he was 25 years old. He then started exercising under my direction and inside of nine months has developed one of the most beautiful figures I have ever seen.

A year ago Mr. Polonic was considered "skinny"; to-day he could pose for a statue of Apollo. His bones are remarkably small; his wrist measures only $6\frac{1}{2}$ inches his ankle only 8 inches. It is the contrast of his small joints with his splendidly developed muscles which gives such an appearance of lightness and grace to his figure.

In writing to me, Mr. Polonic does not mention lifting; he says he will take up that later on, and that so far he has devoted himself entirely to developing his body, and improving his figure, and that he has used his bar-bell simply as a means for development, which, after all, is about the very best use to which a bar-bell can be put.

The most noticeable things about Mr. Polonic are the wonderful width and depth of his chest and the very graceful lines of his figure.



The Back Muscles

By ALAN CALVERT

My space in this number is so limited that I can only give herewith a very few poses and a few words in regard to same.

In a previous article I spoke of the latissimus dorsi muscle. I show here two pictures which will give you a clear idea of the location of this muscle. It fills the whole back from the waist almost as high as the line of the armpits. Its outer edges form the side of the body. In Figure A, this page, where the athlete has shrugged the shoulders forward in order to show the great breadth of his back, you can see the outside edge of the left half of the latissimus muscle, which starts just above the waist and runs up towards the armpit. In this picture the left arm makes a background for the edge of the latissimus muscle. By the spine the latissimus runs up as far as the central dark shadow, and then its upper edge goes forward and is attached to the bone of the upper arm.

Usually you cannot see the upper edge of the latissimus as it comes towards the spine. You can see the top edge of the latissimus running in an almost horizontal line from the lower point of the left shoulder blade towards the spine, but as it approaches the spine the line grows fainter and fainter as the muscle at that point passes under the trapezius muscle. Crossing the horizontal line is an oblique line running towards the spine, and ending about a quarter of an inch below the bottom edge of the picture. This is the lower point of the left trapezius muscle.

To the student of Physical Culture, the upper back muscles offer a great field for study. As the athlete raises and lowers his arms, or places them in different positions, new



Robert Snyder



Fig. B

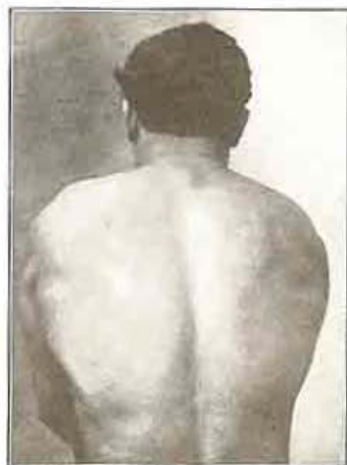
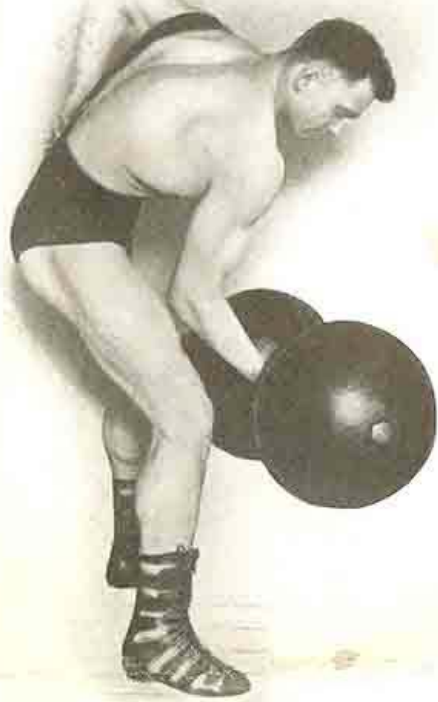


Fig. A



Matysek

blades forward, and has caused the side to project in the swelling curve right underneath the armpits. If the athlete relaxed these muscles the sharp saw-teeth outline would disappear, and his chest would apparently get narrower. In this pose the serratus magnus muscles and the muscles of the thighs are the only ones that the athlete has flexed.

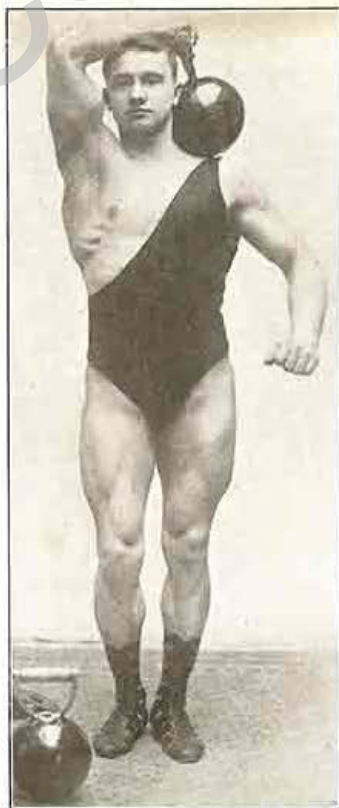
The serratus magnus muscle is also brought into a state of partial flexion when you raise the hand above the head, especially if the elbow is a bit forward of the line of the body. The exact location of this muscle will be indicated in the diagram published in the next number of STRENGTH.

In the lower picture of Matysek, page 24, you see the serratus magnus muscle beautifully defined. In the upper picture you can see the outer edge of the latissimus on the right side of the body. Both of these pictures are remarkable studies of muscular development and perfection of form.

sets of muscles apparently appear across the shoulders. The marked difference in the contours of the upper back muscles is created by the movements of the shoulder blades. When your arm is hanging by your side, the shoulder blade is practically straight up and down; when your arm is raised, the bottom part of the shoulder blade is pointed obliquely to the side and downwards. In Figure B the position of the inner edge of the shoulder blade is shown by a dark shadow at right angles to the rope-like shape of the upper fibres of the latissimus.

In my next article I am going to print diagrams showing the action of the shoulder blades and the muscles that control this action.

A very important pair of muscles are the ones called the serratus magnus. They are attached at one end to the ribs, and at the other end to the inner edge of the shoulder blades. When these muscles are flexed they pull the shoulder blades forward. When the shoulder-blades are stationary the contraction of the muscle lifts the ribs. Turn again to the full-length pose of Matysek, page 18. From each nipple to the side you see a jagged line showing the ends of the serratus magnus muscle. Serratus means saw. The muscle is so-called because its front edges appear as the teeth of a saw. It is the contraction of this serratus magnus that has pulled the shoulder



Matysek Fig. C