

# THE SACO-LOWELL BULLETIN

NOVEMBER 1928



Toyo Spinning Company  
Yamada, Japan

*In This Issue*  
**UTILIZING COTTON WASTE**

## Fair Weather Ahead

**T**HE upward swing in textiles has undoubtedly begun. We have no illusions that the cotton industry is booming, but we feel, as do the majority of mill men, that the bottom, at least, has been reached,—that the constructive forces are on the up side. It appears to be only a matter of time before this encouraging prospect becomes more clearly visible, with the textile mills working their way back to their rightful place among the large, stable, and profitable businesses of the country.

The last few years have seen a tremendous readjustment in the industry; and those mills that have weathered the storm are now beginning to see fair weather ahead. The situation is not unlike that of Gloucester fishing fleets racing home from the northern fishing grounds. Their holds are full of fish and the first ones to reach port will get the best price.

A winter hurricane hits them, but fishermen (like many mill men) never shorten sail. Rigging is carried away, and sails are blown to ribbons. They carry through, all but disabled. Then the storm begins to lull. The clouds break, the sun begins to dry the flooded decks, and a fair breeze begins to whistle through the torn rigging.

It is then that the soundest vessel, with the best equipment, can bend on new sails and leave the others wallowing along under torn canvas. She romps into port ahead of the fleet to collect top-notch prices for her cargo.

Now that the industrial storm is clearing, it is time for cotton mills to bend on new sails, rove new rigging, and be prepared to take advantage of the fair weather ahead. It will be the best equipped, most up-to-date mill that will make the largest profits. New equipment means more production, less labor, less power, fewer repairs, and better work.

Now is the time to take stock of the condition of your mill, install the best equipment obtainable, and be ready to take the greatest advantage of increasing business.

# THE SACO-LOWELL BULLETIN

*Issued monthly in the interests of efficient mill operation by the*

SACO-LOWELL SHOPS

147 MILK STREET, BOSTON

CHARLOTTE      GREENVILLE      ATLANTA

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## Utilizing Cotton Waste

**M**ANY cotton mills find it profitable to utilize their waste either by making waste yarns, by cleaning and opening it and turning a certain proportion back into their regular work, or by reclaiming it and selling the same to various manufacturers of waste products. Other concerns devote their entire work to the reclaiming and utilizing of waste.

Having these facts in mind, and realizing that vast quantities of waste are annually shipped out of the country to be manufactured abroad, we investigated the various methods and means in use in English and German Mills, where waste yarns of great variety are successfully manufactured on a commercial basis.

As a result of this investigation and with the experience gained in Foreign Mills, we established, at Newton Upper Falls, a thoroughly equipped Experimental Plant, embracing a full line of our Waste Machinery. We operate this for demonstration purposes, in connection

with customers visiting the Plant as well as for making sample yarns from waste of whatever quality may be sent to us from mills interested in the subject.

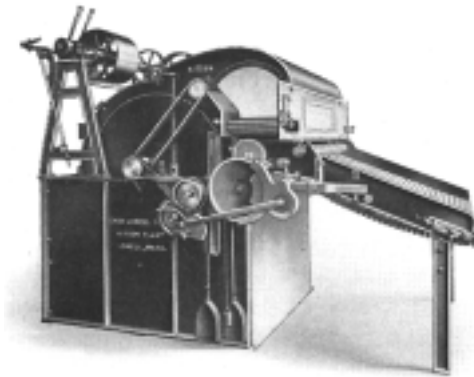
We have on file records of a large number of experiments showing what can be done with various mixtures and grades of stock and are in a position to furnish considerable, valuable, first-hand information on this subject.

This waste plant has now been in operation a number of years and we find that as its facilities become better known more and more mills are taking advantage of them each year. It is our custom, whenever a concern inquires about machines to reclaim a certain kind of waste for some specific purpose of which we have no special record, to request a substantial sample of the stock be shipped to our waste plant and have it worked up into the desired form by various methods until the best procedure is determined. Complete detailed reports are made of

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each test and are sent to the company together with samples of the results. In this way the company is assured of the correct equipment for their purpose and can see for themselves exactly what results to expect. This service is rendered, of course, entirely without obligation and we invite correspondence from anyone using waste or low grade cotton. We are pleased at any time to give the benefit of our experience as well as to run through our machines small lots of stock, thereby demonstrating just what can be done with regard to reclaiming any particular kind or grade of waste.

The main features of our "Waste System" for spinning waste yarn are Double Carding, eliminating the processes of Drawing, and using only one process of



The Kitson Large-Capacity Willow

Roving between the Cards and the Spinning Frames.

In our experiments with mixtures of waste such as strips, picker motes, card fly, card room sweeps, etc., it was demonstrated beyond question that it is impos-

sible to draw waste stock evenly by the regular cotton processes of Drawing, on account of the widely varying lengths of staple contained in waste mixes. The more we attempt to draw the more imperfect is the sliver and roving produced.

Our first object, therefore, in the development of our new method, was to produce even slivers from the card of the same weight or hank as Slubber Roving. This is accomplished by dividing the web on the doffer into four equal parts on the Finisher Card, using four coilers.

By Double Carding we get even slivers by reason of the many doublings (160 ends or slivers from the Breaker Card) fed into the Finisher Card. By the same means we also get a perfect blending of the various lengths of staple, which blending is not destroyed in the one process of roving used between the Card and the Spinning Frame.

The following gives a short description of our line of waste machinery and a brief outline of successful methods of handling the more common varieties of waste.

Cotton Mill Waste may be divided into two classes as follows,—

#### I. Soft Waste

1. picker motes
2. card fly
3. strips
4. card sweeps
5. comber noils
6. napping waste
7. some spinning sweeps

#### II. Hard Waste

1. cop waste
2. twisted yarns of all kinds
3. rags
4. slasher waste

Spinning and weave room sweeps are generally mixed, having both hard and soft waste.

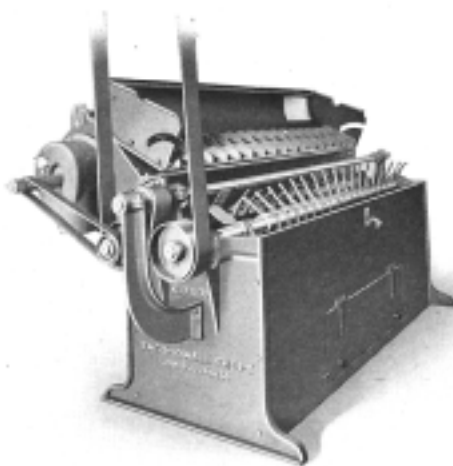
The Kitson Large-Capacity Willow is designed for cleaning soft cotton waste such as Card Strips, Picker Motes, etc. It is of very heavy and rigid construction, to withstand the shock of heavy intermittent feed and discharge of large masses of waste stock.

The feed apron is of the regular lattice type to which may be attached, if so desired, our regular Automatic Feeder.

The percentage of waste rejected may be controlled through widely varying limits. This is accomplished by means of an adjustable regulating mechanism connected with the feed rolls and discharge (which, being intermittent in their action, are varying) so as to regulate the length of time that each mass of stock fed in shall be subjected to the cleaning action of the large cylinder.

The main cylinder is of the "Porcupine" type, 49 in. diameter, with extra-heavy blunt pins or spikes.

Motes have the most dirt and lose from 60 to 80% in cleaning. The Willow with the regulator set at No. 6 gives the best results. The speed of the Willow must be kept above 350 R.P.M. of the cylinder or it will curl the stock. Overloading the Willow will also curl the stock. In order to make a smooth yarn the motes should be run through two sections of a Hard Waste Machine after willowing. This takes all the fibre from the seed and removes some of the seed, and leaves fibre in condition for pickers and cards to take out the rest. The fibre from the motes is good because it has not



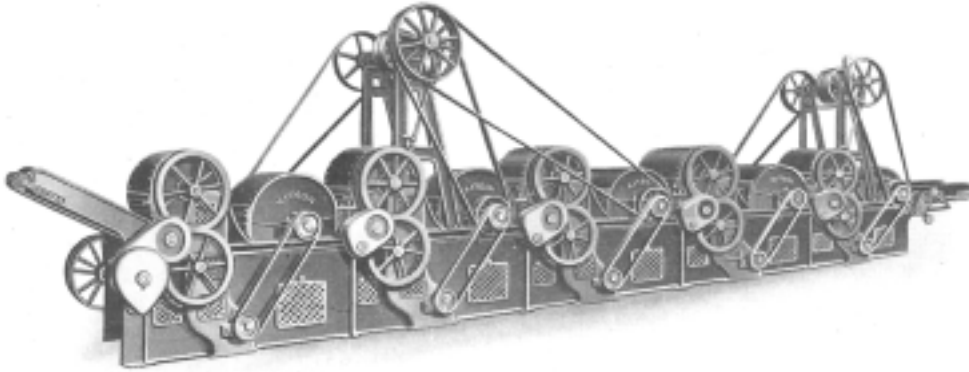
Saco-Lowell Card and Picker Waste Cleaner

lost any of its convolutions which give strength to the yarn.

Card fly with the Willow regulator set at No. 5 will, on the average, give the best cleaning without curling. The loss will be from 5 to 20%, depending upon the cleanliness of the stock. The production will be from 2000 to 5000 pounds for picker seed and card fly, and from 2000 to 3000 for card strips. The average production is about 2500 pounds of cleaned stock.

When an automatic feeder is attached to the Willow it receives the stock in a more open condition and thus allows it to do better work. There is less chance of it curling. One man is able to attend a number of machines, while with hand feed it requires a man to a machine. The perforated screen will stand more abuse and give a larger production but does not clean the stock as well as the bar screen.

The Card and Picker Waste Cleaner is



Saco-Lowell Five-Section Hard Waste Machine

also extensively used in mills cleaning their soft wastes. Two parallel beaters provided with steel fingers are run at a high speed, one beater running slightly faster than the other. This gives a very thorough opening without damaging the stock. Grids are either of the steel bar type or perforated metal, depending on the amount of cleaning desired. With the automatic feeder attached, the machine requires very little attention. A small condensing head is attached, delivering the stock in a loose sheet.

This above machine will clean picker motes, fly, and strips in smaller quantities than the Willow, and it will do as good work. Perhaps the Willow leaves the stock in better condition for spinning but it is hardly noticeable in the subsequent processes. The percent of loss is less in the Card and Picker Waste Cleaner than the Willow on the same stock. It is most useful for cleaning sweeps of all kinds. By the use of a thread shaft a large percentage of thread and string is removed. The beaters run about 1200 R.P.M.

An excellent way to remove hard, foreign substances is to deliver the stock from this machine to a pipe which has one or more pockets which may be easily cleaned out, the stock to be drawn to a condenser cage by air over these pockets. Card room sweeps, with a production of 2400 pounds, will lose 28%, while spinning sweeps, with a production of 2800 pounds, will lose 18%.

Below is an approximate production and loss for the following stocks:

Strips 2200 pounds, with loss of 8%

Card fly 1728 pounds, with loss of 42%

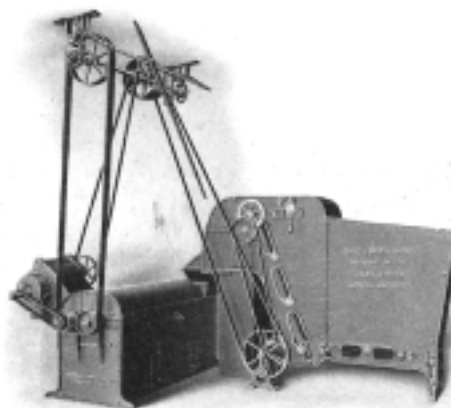
Picker seed 2300 pounds, with loss of 59%

For soft stock the bar screen does the best cleaning, but for rough use and cleaning the perforated screen is more suitable.

Our Hard Waste Machine is designed in accordance with the same heavy construction as our Picker but of narrower width. The beater sections are made up of cylinders with heavy steel pins, the size and number of pins depending on the class of stock run. This machine is ideal

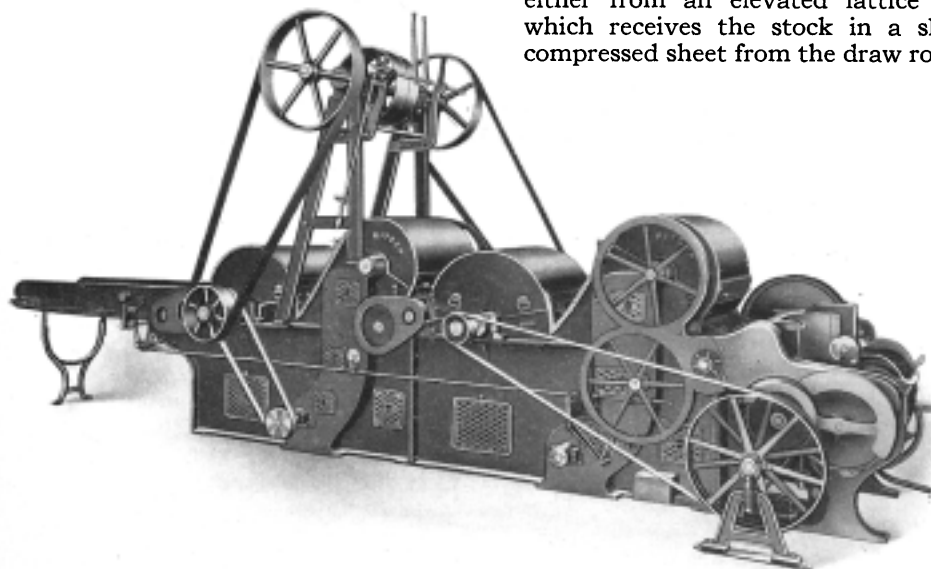
for breaking up all classes of hard waste. It will reduce practically anything to fibre. It is made up of any number of sections required. Usually our Five-Section Machine is used for such waste as cop waste, hosiery clips, etc. while the two-section is excellent for all kinds of roving waste up to the finest counts.

One of the principal difficulties in reworking hard-spun waste has been the trouble experienced in holding the stock firmly in the feed rolls. This difficulty has been overcome by the use of a set of double rolls placed close together and positively geared. The front set of rolls holds the stock firmly and prevents any pulling through under the action of the cylinder. These rolls are also fitted with a reverse motion, operated by sliding clutch and bevel gears. By throwing a lever the operator reverses the rotation of the rolls and throws back any foreign matter or hard lumps which may pass into the first set before same reaches the second set of rolls or the cylinder. These

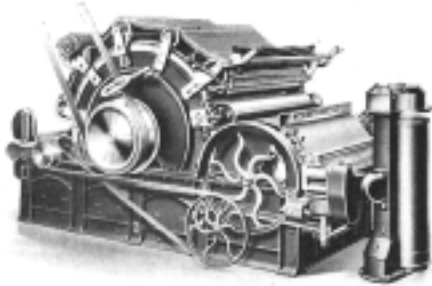


Saco-Lowell Card and Picker  
Waste Cleaner

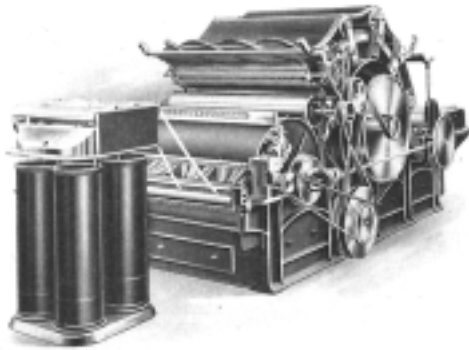
double rolls are furnished as standard equipment on machines of three sections or more. For handling soft roving wastes on one- and two-section machines, single rolls are provided. The stock is delivered either from an elevated lattice apron which receives the stock in a slightly compressed sheet from the draw rolls, or,



Saco-Lowell Two-Section Hard Waste Machine



Saco-Lowell Breaker Card



Saco-Lowell Waste Finisher Card



Saco-Lowell Tandem Lap Attachment

if desired, a calender head may be attached and the stock formed into a lap.

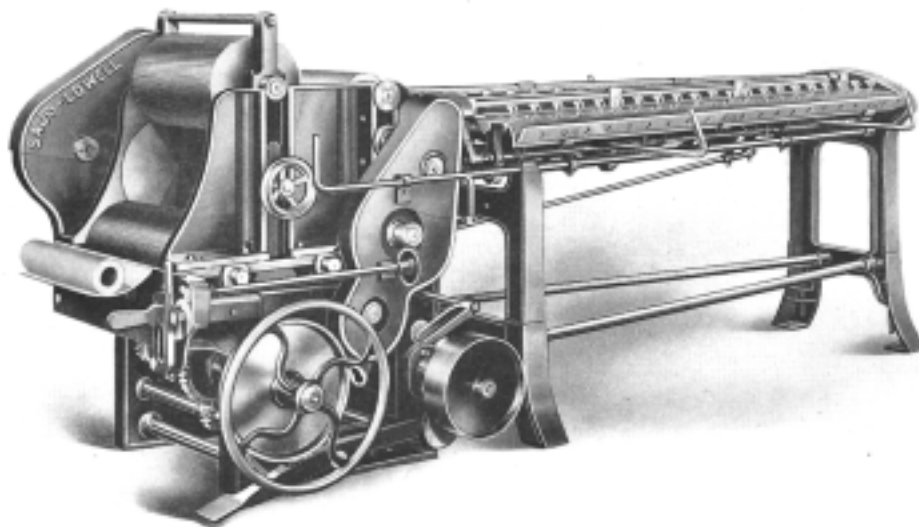
This Hard Waste Machine is indeed one of the most flexible waste machines obtainable. By varying the number of sections and the type and number of pins on the cylinders, practically any form of hard waste can be successfully reduced to fibre.

The picking of cotton waste, after it has been cleaned and reduced to fibre form by the above machines, is done the same as for regular cotton, with minor adjustments of the pickers to take care of the particular stocks run. The picking process is the best and easiest place to procure a good mix with the various grades of waste used.

For carding waste there are a number of changes from cards on straight cotton, depending on grade of stock, production, cleanliness, amount of loss allowed, etc. With a low grade of stock a fancy roll and conveyor apron are necessary. The fancy roll keeps the cylinder from loading up. Care must be taken that it does not cause streaks across the doffer. This is usually caused by stock accumulating on the bottom plate and then letting off in bunches. The remedy is to move the plate up so that either the fancy roll or cylinder will remove it at all times. The fancy roll should actually over-run the cylinder 25%. When carding low-grade stock the selvedge of the web tends to sag and often falls on the floor, when a regular front is used. This causes the sliver to be light. Then, when it picks it up again, it will be heavy. To keep the sliver even and stop breaking down, the conveyor apron is used. This apron allows a larger production to be run on the card as it does not break down so often and the speed of the doffer may be increased. To take out the short unspinnable stock, an extra knife and mote knife roll is used.

To meet the requirements of Double Carding on Revolving Flat Cards we have designed a new Improved Lap Winder. Forty cans from the Breaker





Saco-Lowell Improved Lap Winder

Card are arranged 20 on each side of the machine, forming laps  $19\frac{1}{2}$ " wide, 40 slivers to a lap. Four of these sliver laps are arranged two abreast and two tandem at the Feed of the Finisher Card.

Like the Breaker Card, our Waste Finisher Card is our standard Revolving Flat Card, with adaptations suitable for the second Carding of waste. The main features of this Card are the Tandem Lap attachment, continuous Calender Rolls, and Trumpet plate to take four slivers, and the four Coiler Front.

The Web on the Doffer is divided into four equal parts which are coiled in  $9'' \times 30''$  cans. Each individual end may be pieced up without disturbance to any other, and each can may be doffed separately without disturbance to any other can. The group of four coilers and four can tables form one unit arranged around and supported by one central vertical column. Coiler gears and can tables are connected by one central shaft passing through the supporting column.

As mentioned in the first part of this article, this method of double carding waste eliminates the drawing. The sliver

from the card is placed immediately behind the slubber. We usually recommend a  $10'' \times 5''$  or a  $9'' \times 4\frac{1}{2}''$  frame, similar to our regular cotton frame, but adapted to the use of waste stock by using small rolls. The cans from Finisher Card are arranged at back of the Slubber in the usual way, one can to a Spindle. The cans are  $9'' \times 30''$ , as large as it is practical to use for the average grade of waste.

A  $9'' \times 30''$  can contains a considerably greater length of small sliver of, say, 18 grains than the regular  $12'' \times 36''$  can, which is usually placed in back of the large  $12'' \times 6''$  Slubber, contains, of 60 grains sliver.

But One Process of Roving is generally used and the Spinning Frame is our regular frame equipped with smaller rolls. It has roll stands and cap bars especially designed for close settings. It is, of course, necessary, when spinning waste yarns, to reduce the draft. Double roving is always advisable.

On the following page we give a few examples of successful waste mixes we have worked out for various mills:

## SACO-LOWELL WASTE SYSTEM

*Examples of Waste Mixes & Yarns Produced*

Strips	Broken-up Hard Waste	Picker Seed	Short Comber	Oily Sweeps	Napping Waste	Card Fly	Low Grade Cotton	Yarn No.	Class of Yarn
50	35					16		6	Hosiery
50			50					10	Hosiery
25	40	20		10		5		6	Blanket
	20	14		24	12	10	20	Fill- ing # 5	Osnaburgs
	15	10		18	9	8	40	Warp #8	Osnaburgs
50		20		25		5		8	Carpet
*25		15		10		10		#2	Burlap
75		12½				12½		6 & 8	Twine
50	15	15		15		5		3 & 5	Rope Towels

\*Broken-up Gunny Bag—40.

## Superintendents Confirm Value of Ball Bearings on Spinning Frames

THE following letter was recently received from Mr. R. E. Lindsay, a service representative of the Saco-Lowell Shops at Charlotte, N. C.

"The writer attended the Spinners Division of the Southern Textile Association which met at Lake Lure, N. C., yesterday. The subject to be discussed by the Spinners was the maintenance of spinning frames to get the best results. During this discussion the question of ball bearings on spinning frames came up, at which time several of the different mill representatives brought out the question as to whether or not a ball bearing cylinder would heat quicker than the regular plain bearing. We are giving you

the statement from two of our customers during this discussion:

"Mr. White, Superintendent of the Ora Mill in Shelby, which as you know, has our complete equipment of spinning, stated that he had been running the ball bearings for four and one half years and that he had never had a hot bearing during this time.

"Mr. Hammond, Superintendent of the Balfour Mills, Hendersonville, N. C., who has our entire spinning equipment, also made the statement that he had been running ball bearings for the past four and one half or five years and had never had a hot bearing on any of his spinning frames."

# At The Textile Show

OUR exhibit at the Greenville Show last month was one of the most successful in many years. Never before have we displayed so many new improvements in textile machinery, and the interest with which these many important developments were received by those present was indeed gratifying.

Our One Process Picker with Synchronized Control aroused a great deal of favorable comment and was one of the outstanding features of the show. Although this machine has been on the market less than a year, mill men have been quick to realize its advantages. Counting those already in operation and those orders now on our books, we have sold over fifty of these One Process Pickers. Among the mills installing this machine are:—

THE ANNISTON MFG. COMPANY	ATHENS MFG. COMPANY
LANGLEY MILLS	EXETER MFG. COMPANY
PACIFIC MILLS	DANA WARP MILLS
BOOT MILLS	BRANDON MILLS
CHICOPEE MFG. COMPANY	BERKSHIRE COTTON MILLS
LANETT MILLS	NINETY-SIX COTTON MILLS
ALICE MFG. COMPANY	GREENWOOD COTTON MILLS
OCONEE MILLS	SAXON MILLS
ROXBORO COTTON MILLS	ARAGON-BALDWIN COTTON MILLS
ROANOKE MILLS COMPANY	

Our Large Package Spinning Frame also aroused much favorable interest. The accompanying illustration shows an installation of these frames in a large Northern mill, which recently sent us the following report, comparing these Large Package Frames with their regular spinning.

	<i>Saco-Lowell Large Package Frame 3" Ring—9" Traverse</i>	<i>Regular Frames 2¼" Ring—7" Traverse</i>
Spindle Speed . . . . .	6500 RPM	6500 RPM
Front Roll Speed . . . . .	173 RPM	165 RPM
Pounds per spindle—50 hours . . . . .	6.72 lbs.	5.76 lbs.
Doffs per day—9 hours . . . . .	2.	4.5
Pounds per week per H.P. . . . .	13.44 lbs.	23.04 lbs.
Oz. of Yarn on Bobbin . . . . .	11.00 oz.	2.88 oz.
Spindles per operative . . . . .	1600	1224
Production Efficiency . . . . .	90 %	78½ %
Floor Space per lb. of Yarn per hour . . . . .	1.45 ft.	1.26 ft.
Cost of Spooling per 100 lbs. . . . .	.207	.42

