

Imagine Waltham Boston Watch Company movements in 6000s

Learn the story behind Howard & Rice watch movements and the 1st Appleton Tracy & Co watch movements.

[\(PDF format\)](#)

Narrated by Ron Price (SC)

I started studying Waltham Model 57 pocket watches and the predecessor company, the Boston Watch Company (BWCo), in the early 1990s.

Considering the literature available at that time, I had a mistaken impression of the company that it was mismanaged and produced maybe only a few thousand watches over 6 years. In fact, we now know this 1850s high-tech start-up company produced and sold nearly 5,000 watches and had over another thousand in the works when it went broke. Indeed, with a little luck and extra capital, it would have produced watches in the six thousands by 1857.

This presentation is the outgrowth of tracking information about Model 57 watches for 20-some years, and the study of court documents when the BWCo went bankrupt in 1857. All of this information is in my online monograph, [Origins of the Waltham Model 57](#), but the revelation of Waltham BWCo movements with serial numbers in the 6000s is new.

Initially, the new company just renamed the BWCo movements and gave them a new number - just cosmetics. They looked just like the one shown here except with an actual number versus the edited No. 52mn (click image for larger view).



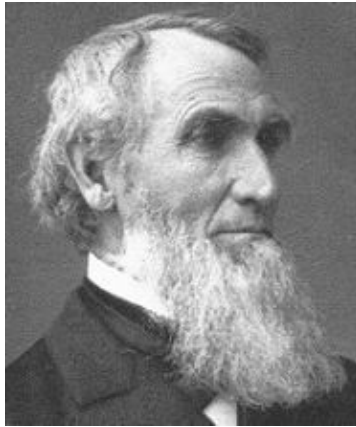
And what did happen to the 1,000 plus movements in the factory when the BWCo went bankrupt? Answer: an intriguing story of discovery; who, what and where. Main characters: Robbins, Tracy, Baker, Dennison, Howard, Rice.

Preface

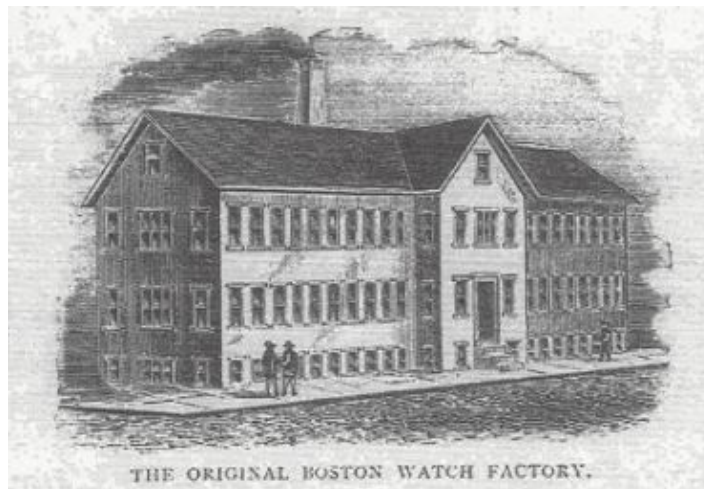
A quick and brief background of the BWCo will facilitate the presentation, but those who are familiar with BWCo can jump ahead ([click here](#)).

The use of automated machinery turning out interchangeable parts for watches on a large scale was first achieved in America in 1850s by the Boston Watch Company located in Roxbury, Massachusetts. Although not the first people to employ the use of machines in making watches, through *Yankee Ingenuity*, founders Aaron L. Dennison, Edward Howard, David P. Davis and Samuel Curtis were the first to put it all together and to start a major watch enterprise.

Unfortunately, like those who preceded them, their initial efforts were not financially successful. Indeed, early historians portrayed the company negatively. In the 1850s, the idea of producing 6,000 pocket watches was unheard of. As I will show here, the Boston Watch Company was much more successful than most previous historians gave the Company credit.

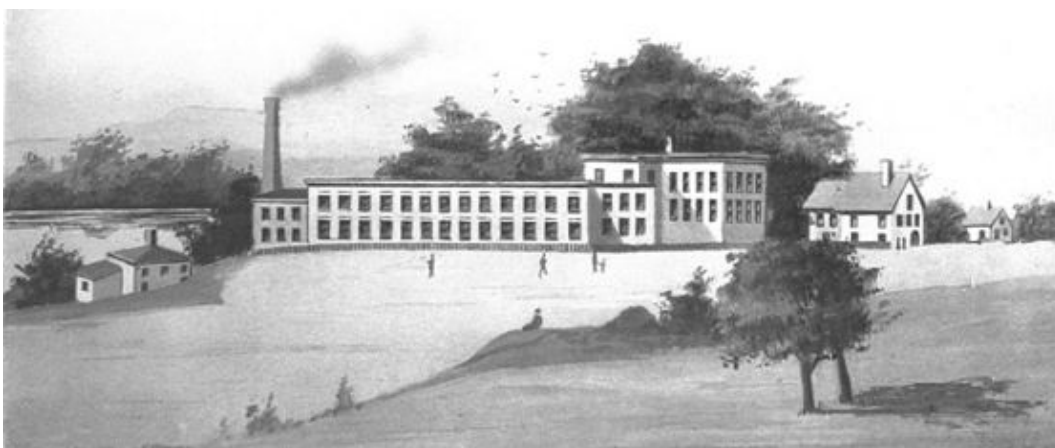


Aaron Dennison (left) convinced Edward Howard that they could manufacture vast numbers of pocket watches cheaply with interchangeable parts. After all, a watch is just a small clock. Here is a sketch of the factory in Roxbury, Massachusetts (sketch from Dawes' update of "The Complete History of Watch Making In America").



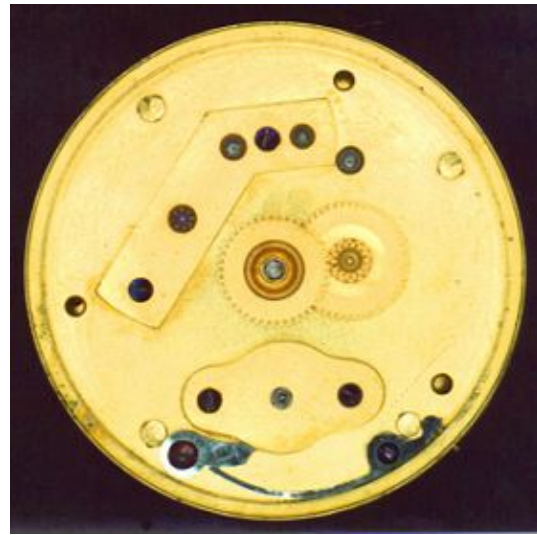
As most start-up companies find out, their initial thoughts are a little too ambitious. The company experimented with a few initial designs and finally settled on their signature movement called Dennison, Howard & Davis (DH&D), named after the founders (Davis was a partner with Howard, Samuel Curtis provided the initial funding).

The company moved to Waltham, Mass, in October of 1854 for wider spaces and a cleaner environment. Here is an anonymous artist rendition of the BWCo as it looked shortly after it opened in 1854.

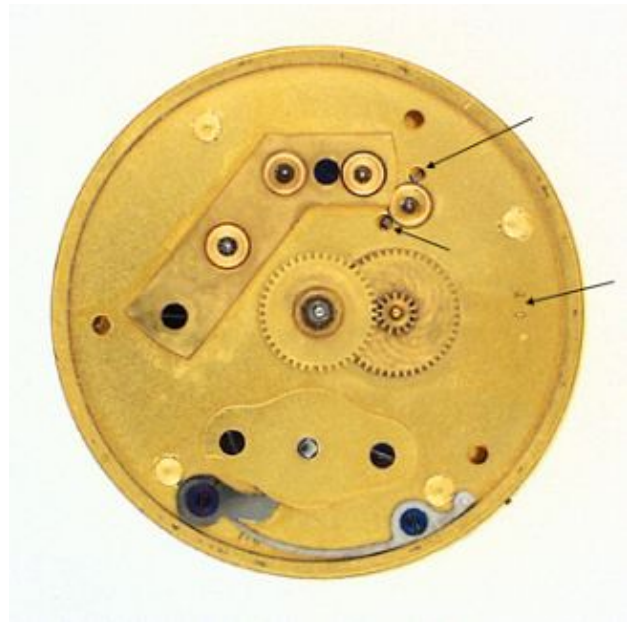


DH&D movements started at serial number 1001. The first 100 or so movements were probably made at the Roxbury factory while the Waltham plant was being built. Otherwise, all DH&D watches were made at Waltham.

Here are pictures of DH&D 1016, movement top plate and pillar plate under the dial.



The highest surviving serial number I have recorded is 4887. I happen to have pictures for 4546, a fairly high number.
Movement top plate view (left) and pillar plate view under the dial (click images for larger view)



There were minor differences in the movements as the production evolved over time. The differences are documented in my monograph. For example, there are 2 “peep holes” on the latter pillar plate in which to see the escapement in action that the early versions did not have. Also note sub-assembly number 46. The steel wind guard was added around S/N 1600.

The move to Waltham was assisted by the Waltham Improvement Company (WICo) which managed the property; again, see my monograph for details. The WICo cosigned BWCo mortgages. This got the company in real trouble when it encountered hard financial times. Because of overdue debts and taxes, the WICo had to force the BWCo into bankruptcy in 1857, called insolvency then.

Supposition:

The company had a large amount of watch material on hand when it went insolvent. Indeed, the stockpiling of so much material is perhaps an indication of mismanagement and one of the reasons the company failed financially. Royal Robbins, along with Eliashib Tracy and Theodore Baker, bought the company at the insolvency auction on May 9, 1857. My supposition is based on the belief that Robbins incorporated much of this leftover material consisting of plate assemblies and movement parts to make his first Appleton Tracy movements in the beginning days of his famed American Watch Company (AWCo), in fact 800 specific movements, a sizable number. Edward Howard also played a major part in this story.

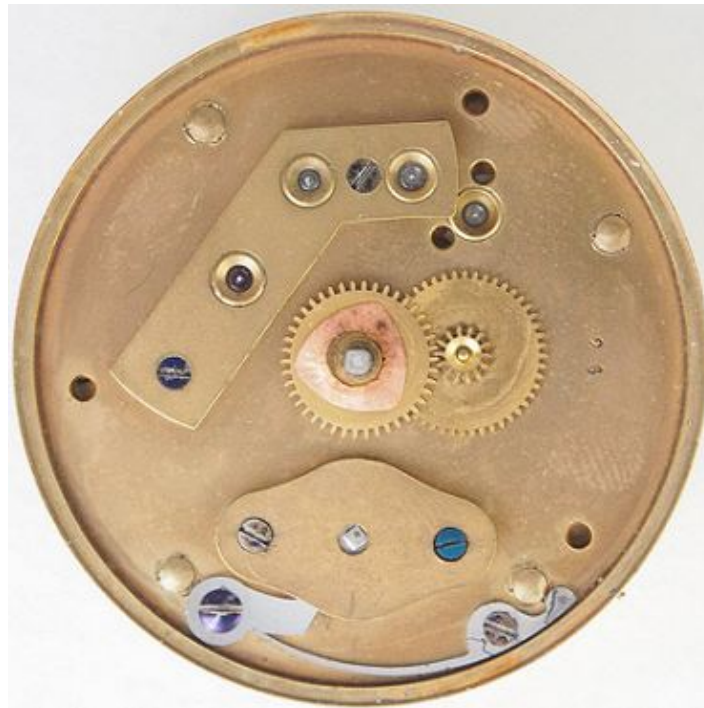
I will now present evidence from surviving movements and insolvency documents to show that Waltham BWCo serial numbers exist in the 6000s.

Take a look at the movement of Dennison, Howard & Davis (DH&D) 4546 (left). Note the markings on the barrel bridge and on the plate, the word “Waltham” and number on barrel bridge facing center, and signature on plate facing edge.



By observed surviving watches from the new company, it looks like the first 100 movements were exact DH&D copies except for the name AT&Co (AT). Robbins produced these movements starting in July of 1857. First number is 5001. View of AT #5026 movement is on the right. Markings on barrel bridge still the same, facing center; new signature facing center instead the edge. Everything inside still the same.

Here is pillar plate view of AT 5026, same as prior DH&D pillar plate. Same location of sub-assembly number (26), same click, peep-holes, etcetera.

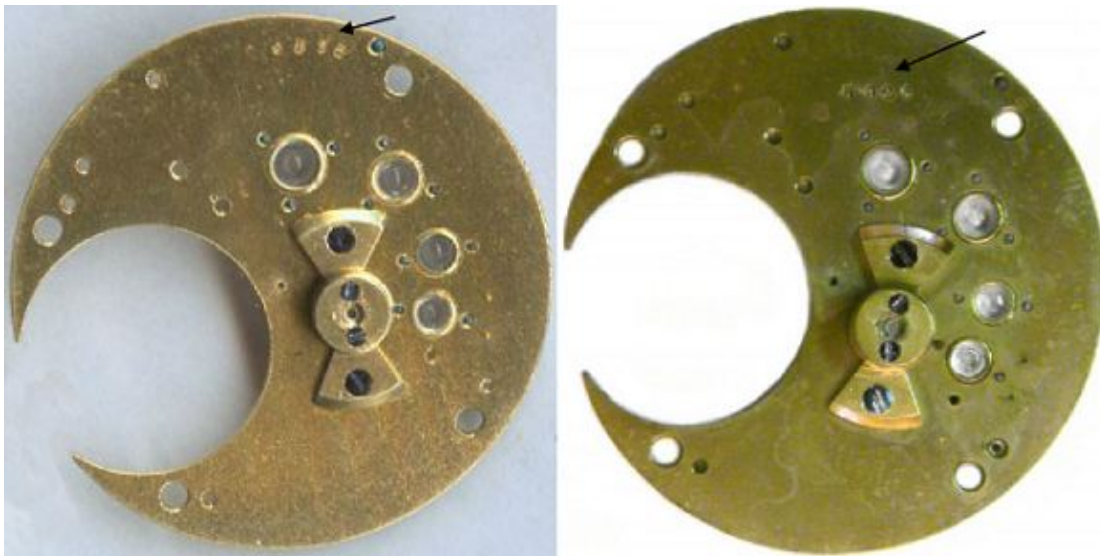


Markings on the barrel bridge of movements made in August and later have a new style which became the standard AT&Co appearance till the mid-1860s. See [AT data sheet](#). Here is movement view for AT #5190 (permission of owner).



Note Waltham (+ state Mass) lettering and number on barrel bridge facing edge instead of center.

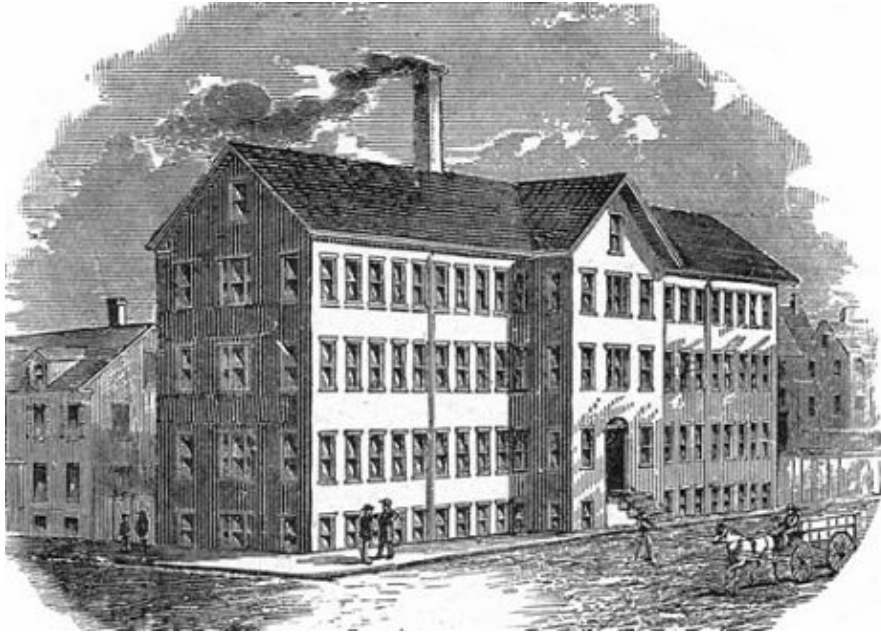
The movements, however, were still basically DH&D movements with the same internal parts, including, for example, the potance mounted under top plate and the stamping of the full four-digit serial number on the underside of the top plate at the same general location.



The potance supports the bottom balance arbor. DH&D on left, AT on right.

As documented in literature and in "Origins", Edward Howard had hoped to buy the failed company at a bargain price and continue manufacture under his control. Charles Rice would finance the operation; Rice held a mortgage on the contents of the factory and was a major creditor at the auction. As documented, Howard lost the auction and Rice raided material out of the factory claiming he had right to the material. Howard then made his famed Howard & Rice watches (H&R) back at the original Roxbury plant by incorporating the BWCo material, about 500 movements total according to my [H&R data sheet](#), including several signed E. Howard & Co.

Here is sketch of the Roxbury Factory, actually after 1857 (from Henry Abbott's "A Pioneer" History of the American Waltham Watch Company).



The fourth floor must have been added to the factory after 1857 because Howard didn't exactly own it in '57; it was under insolvency proceedings for two years. After the proceedings were settled, he purchased the adjacent back lot on Oct. 1, 1860, (left side of picture) which in this sketch shows a building on it. Interestingly, no one argued that Howard did not have the right to go back to the Roxbury building to continue manufacturing. Although Howard had to make amends for his insolvency, he (and Davis) had original deeded rights to the property; Dennison did not.

Howard's H&R watches looked a lot like DH&D watches; no surprise, but they, of course, had several enhancements. First number probably 6001. Here is photo of an early H&R movement #6011 (click image for larger view).



Note, for example, the two screw-adjustable banking pins which the DH&D movements did not have. Howard cannibalized seized DH&D movements and parts from the bankrupted company to make these movements.

[DH&D #5000](#) is a divided-plate movement like E.Howard & Co. Series I&II movements. It might have been a prototype for future production that Howard wanted if the BWCo had survived. I doubt Dennison had much interest in it because he had many DH&D plates already made and stamped with serial numbers far beyond 5000. It was probably commissioned by Howard, which is another indication of discordance among management of the company in 1857. I suspect Howard didn't want to be associated with the design of the DH&D movement because when he moved back to Roxbury from Waltham he added many features to convert a DH&D movement into a H&R movement. He signed them initially BWCo with consistent movement numbering starting at 6001.]Note the distinction between Roxbury BWCo and Waltham BWCo.]

Getting back to the insolvency. On February 2, 1857, an inventory was taken of the contents of the BWCo factory. I guess this inventory was requested by Rice because he used the inventory as collateral for the loan he gave the company. The total value of the inventory was \$7,510.49. Fortunately for us, this inventory was written in a detailed document which was submitted in an insolvency court case after the auction. The document survived in court archives. [\[refs-notes, case 116, sheet 153\]](#) Here is image of the first page.

(Paper Marked "A")					
Account of Stock in Workmen's Hands.					
Feb 2 ^d 1857					
Schedule "A"					
30	Movts	4 th pr	ready to gild	lacking	
			Dials say 7 th done	c 20 th	\$603.50
30	Do	Do	ask all materials selected		
			Except Dials 3 rd done	17 th	317.50
30	Do	Do	less balances sent to J		
			Dials say 3 th done	14 th 3 rd	423.50
10	Do	Pl	len Bal ^s & Dials		
			Say 1 st done	c 10.	100.00
					1644.50
			Less 20 per ct.		328.90
					1315.60
Schedule B. Frames.					
620	Frames	4 th	3 rd 3 rd	5 th c. 42.	260.40
150	"	Pl	Do	.42	63.00
1400.	"	4 th	3 rd done	.28	112.00
Pinions.					
880	3 rd Pinions		0	25	212.50
880	4 th 5 th			25	212.50
1000	bealer 5 th			25	250.00
1325	Pal About			25	331.25
1187	Center Pinions			37 th	445.12
606	Common 5 th	1 st done	c 12 th		70.00
					3277.37

I uncovered these insolvency documents in August of 2002. Back then I was not allowed to photo copy them; I could only take notes with pencil and paper which I put in my "Origins" monograph. Later in June of 2018, contributor Richard Watkins arranged to have the documents retrieved again. Interestingly, he did this from his home in Australia. So then, Bob Frishman (of [Bell Time Clocks](#)) and I went to the Mass Archives in Boston to photograph a number of the documents. This time we were able to do it digitally without additional lighting that would harm the papers.

It is not all that easy to read these original documents, especially from the photographs. Richard transcribed them, which made their study easier. Here is scan of the top part of first page of Richard's inventory document (click for full page). There are three pages in total. Richard Watkins transcriptions in [Cook Rice and Potatoes](#) (<http://www.watkinsr.id.au/CookRicePotatoes.html>); inventory is Appendix 1.

Appendix 1: BWC, Inventory of Stock in Workmen's hands February 2nd 1857

There are two copies of this inventory; one attached to document 116-153 and one attached to document 118-056.

The following tables are not transcripts of the inventory. Instead I have changed the layout and the wording to make the information more readable. Question marks indicate text for which the interpretation is dubious. The text in italics are my comments.

The per item values are dollars in the first and third tables and cents in the second table. There are some errors in amounts that have not been corrected.

No.	Type	State	Unit cost \$	Total cost \$
30	Movements	4 pairs ready to gild lacking dials say $\frac{7}{8}$ done	\$20 $\frac{1}{4}$	603.50
30	Movements	4 pairs with all materials selected except dials $\frac{3}{4}$ done	17 $\frac{1}{4}$	517.50
30	Movements	4 pairs less balance jewels & dials say $\frac{3}{4}$ done	14 $\frac{3}{4}$	423.50
10	Movements	Plain less balances & dials say $\frac{1}{2}$ done	10	100.00
				1644.50
		Less 20 per cent		328.90
				1315.60
620	Frames	4 pairs, job? 30, stock 8, ex 4	0.42	260.40
150	Frames	Plain, job? 30, stock 8, ex 4	0.42	63.00
400	Frames	4 pairs $\frac{3}{4}$ done	0.28	112.00

No.	Part and state	Unit cost ¢	Total cost \$
850	3rd pinions	\$0.25	212.50
850	4th pinions	25	212.50
1000	5th (escape) pinions	25	250.00
1325	Balance arbors	25	331.25
1187	2nd (center) pinions	37 $\frac{1}{2}$	445.12
600	Cannon pinions ($\frac{1}{2}$ done)	12 $\frac{1}{2}$	75.00
200	2nd (center) pinions with wheels staked on	50	100.00
1650	Barrels	10	165.00
275	Finished ratchets	4	11.00

The inventory consisted of a vast amount of watch parts (many tens of thousands of individual pieces), around 100 partial movements and 1,170 frames that could be completed into finished movements fairly quickly. Frames were partially finished pairs of plates apparently already stamped with serial numbers. The term "frames" must have included their attached parts like pillars, barrel bridge, balance bridge, potance and third-wheel bridge because these parts were not otherwise listed in the parts inventory. Also apparently, the parts were screwed together because plate screws were not listed in the inventory (screws for jewel settings were listed). In other words, a frame is the structural component of a movement.

Plates must have been pre-drilled for jewel settings for the "4 pair" listings (15J movements); the listing marked "plain" would be for plates without holes for jewels (although I suppose jewels could have been added later for 11J movements).

Although not relevant to my supposition, most (if not all) of the early AT and H&R movements had the center pillar arbor hole set with a jewel. (Data sheets in "Origins" list these movements as 16Js.) I think the BWCo was starting to jewel this arbor at the end of production, but we have not yet seen any DH&D examples probably because this jewel is hard to observe, or to even be aware of it, if you are not looking for it. [Only upper plate jewels are listed in the inventory because they go in settings; pillar plate jewels

(w/o settings) are not specifically listed by wheel.]

According to several examples seen with these early movements, the underside of the barrel bridges are not stamped with their sub-assembly number because the full serial number is applied to the top. For example, see DH&D 4915 and AT&Co 5042 entries in their respective "Origins" data sheets. I believe this number on top is engraved, not stamped. It looks engraved to me. Moreover, the style of the number looks different than the number stamped on the underside of the top plate. Indeed, the fonts are different as can be clearly seen in the example below for AT&Co #5341's top plate (click image for larger view).



The time period “fairly quickly” is relative because there were not enough parts other than frames like wheels, jewels and escapements that had to be made to complete 1,170 movements. Nevertheless, the large number of leftover frames is significant, especially because they consist of top and bottom plates with their attached parts.

We can expect various items would have been added to and taken from the inventory during the three-month period up to the auction of the company on May 9, but activity in the factory had to have been highly curtailed in this period, if not shut down, because officers of the company filed petitions for insolvency in court a month earlier on April 15. Moreover, the WICo foreclosed the mortgaged BWCo properties two months earlier on March 3.

Consequently, I believe this February 2 inventory is a valid estimate of the material that existed on May 9, not necessarily the same material, but the same amount.

It is important to note that the inventory document is titled “account of stock in workmen’s hands.” This inventory was just for works in progress, not completed products. Although balance springs and mainsprings, for example, are certainly key parts in movements, they are not listed in the inventory. Apparently, these parts were not made by “workmen in the factory” and were probably purchased and stored in a safe or locked office area that did not get documented in the insolvency papers. Ditto for dials. Completed movements to be sold were probably also stored in this secured area.

According to insolvency court documents, Charles Rice, undoubtedly with help, was accused of taking material and tools out of the factory illegally, perhaps even during the night before the sale. Surely the bidders would have been given access to thoroughly inspect the factory the day before the sale which was in the morning (10am). Actually, the accusation also included the possibility that the property was taken after the sale (apparently Robbins and company didn't secure the factory after the sale). Here is image of the accusation; it is question number 20 of case 116, sheet 153 (also see case 118, sheet 56, question number 18, involving Howard). There were a lot of papers to view. Even a so-called “sheet” could consist of multiple pieces of paper.

where them taken? where are they now? Has the Assignee made an

claim for them or any of them of you? Have you not bought the Assignee's interest in them or some of them? If so when & what did you give the Assignee for them - ?

18 Did you not give the Assignee three hundred dollars or some other & what sum for his interest in some property taken by you or your order, as mentioned in the last two interrogatories? What interest in what property did you purchase of said Assignee therefor

19 What relation to you are the Assignees Mr Jameson and William J. Cook Does not said Assignee have a desk and do business in the same office with you or in your office? What is said Cooks business? Where does said Jameson reside?

20 Did not you, or some one for you or under your orders, take property from said Watch Factory the night

You can see at the bottom it reads "Did not you, or someone for you or under your orders, take property from said Watch Factory the night". Unfortunately, this item goes across two pieces of paper. Here is next page.

before the Assignee's Sale of said, or within
 two or three days of said Sale, ^{as a matter of fact} if it is what
 property was so taken - by whom -
 to what place - & where is it now?
 State items & amount fully in a
 Schedule - ^{Was it not watch movements from}
^{no 4891 to 4910 inclusive or some other & what number?}

21 Why did you make the Contract or agree-
 ment mentioned in the 6th interrogatory
 - What was the reason that it was
 made? ^{Was it not watch movements from}
^{no 4891 to 4910 inclusive?}

22 When did you first suspect or be-
 lieve that said Curtis, Howard and
 Davison, respectively, were insolvent?
 State as to each respectively -

23 At or about the time of the Contract or
 Agreement mentioned in the 6th interrogatory
 viz: February 1857? Was there not an
 inventory or account taken of all the
 stock & materials in the Watch Factory
 at Waltham. & was it not taken at
 the time of said Contract? Please Examine
 Paper marked "A" hereto annexed, and
 your own books and answer whether
 that is not a copy of said inventory or
 account?
 Did not you or some one for you

Of particular note here is that Rice was specifically accused of taking 20 movements numbered 4891-4910. (in the fold of the paper near top) So, the company had manufactured just 90 short of 4,000 DH&D movements (maybe 83 movements short, see [#4915/7](#) below).

Rice claimed ownership of the inventory he took because it was collateral for the loan he had given the company. However, Rice could not have had rights to any inventory left in the factory because all mortgages and leases would have been resolved by the insolvency assignee before the sale. The assignee, Nathan Jameson, a merchant in Antrim, NH, was appointed on April 16, 1857, a day after the insolvency declaration. Indeed, Jameson later listed Rice a creditor and owed a lot of money, much more than even the value of the February 2 inventory; e.g., [\[ref. 106, case 116, sheets 175 \(\\$26,556.60\) and 176 \(\\$7,607.23\)\]](#).

There is some evidence, although not clearly documented in the literature, that Robbins bought back some of the material from Rice to save time instead of fighting Rice in court. In book *Timing a Century*, Charles Moore lists Tracy Baker & Co.'s May 1857, cashbook with an expense of \$2,359.82 for "material & work not finished". [\[ref. 51, p. 315\]](#) Although not stated, the seller was undoubtedly Rice. The amount of this "expense" was 1/3 of the February 2 inventory value (\$7,510.49) minus the silver, which could have included hundreds of frames listed at \$0.42 (e.g., 800). Where else was Robbins going to get a lot of useable watch parts in May of '57?

We can get an idea of what happened to the plates leftover from the insolvency by observing the BWCo serial number on the

underside of top plates. Here is a view of the underside of top plates for AT (left) and H&R (click for larger view).



When recording surviving early AT&Co movements and H&R movements, I also tracked the original BWCo serial numbers underneath the top plate, when I could get the data. The example here is for AT&Co 5026. Note the number is 5826, interesting. The right-side example is for H&R 6011. Note the number is 14983, interesting. For some treason Howard added the digit '1' in front of the original BWCo serial number, in this case 4983, a very high number for DH&D. [I believe Howard added the digit "1" to the BWCo number to distinguish his movements from BWCo movements but still kept the BWCo subassembly numbers.]

After getting a good number of examples, a consistent pattern became apparent. Here is [Table 4](#) in my monograph of BWCo #s.

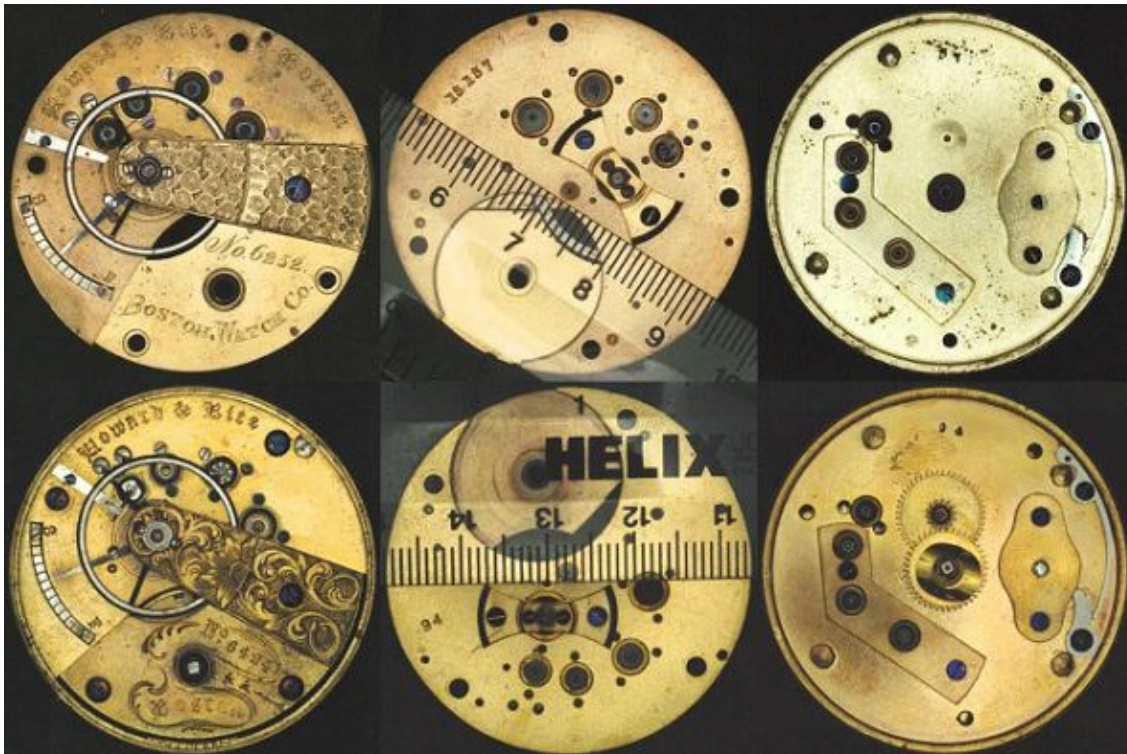
Table 4. Serial Number under Top Plate

name of movement	# on barrel bridge	# under top plate	name of movement	# on barrel bridge	# under top plate
Howard & Rice	6003	14930	TB&Co	5012	5812*
Howard & Rice	6006	14927	AT&Co	5026	5826
Howard & Rice	6011	14983	AT&Co	5042	5842
Howard & Rice	6019	14985	AT&Co	5084	5884
Howard & Rice	6037	15022	AT&Co	5158	5958
Howard & Rice	6047	16**	AT&Co	5190	5990
Howard & Rice	6060	15048	AT&Co	5221	5921
Howard & Rice	6065	15043	AT&Co	5332***	5332
Howard & Rice	6112	14865	AT&Co	5341	5341
Howard & Rice	6128	15217	AT&Co	5404	5404
Howard & Rice	6149	14948	AT&Co	5461	5461
Howard & Rice	6161	14977	AT&Co	5715	5715
Howard & Rice	6214	15115	AT&Co	5760	5760
Howard & Rice	6217	15116	AT&Co	5823	5823
Howard & Rice	6238	15137	AT&Co	5826	5826****
Howard & Rice	6252	15157	AT&Co	5901	5901
Howard & Rice	6264	15163	AT&Co	6085	6085
Howard & Rice	6282	15182	AT&Co	6377	6377
Howard & Rice	6300	23*****	AT&Co	6534	34*****
Howard & Rice	6343	17	AT&Co	6590	90
Howard & Rice	6424	94	AT&Co	6669	69
E. Howard & Co	6447	27	AT&Co	16447	47
E. Howard & Co	6482	40	AT&Co	21792	92

Left side is Howard's H&R movements with movement number followed by number under the top plate; right side is same layout for Robbins' AT movements.

According to the BWCo serial numbers of Howard & Rice movements, it looks like Howard started using BWCo movements around high numbered 48hundred (e.g., 4865 from H&R 6112). This is supported by court interrogatories where Howard and Rice were accused of taking specific movements #4891 to 4910 out of the factory. Howard also incorporated BWCo frames with serial numbers in the 49hundred range (probably frames versus movements, e.g., 4985 from H&R 6019) and frames in the 52hundred range, perhaps as high as 5300 (e.g., 5217 from H&R 6128). Altogether, this was enough material to make around 400 H&R movements. Roughly 100+ DH&D movements and frames (e.g., 4865 - 4985) and 300 high frames (e.g., 5001 - 5300).

However, by observing the difference of the engraving on H&R plates and of the different two-digit sub-assembly number under H&R top plates around H&R #6300, it looks like Howard abandoned BWCo plates after the first 300 H&R movements and started making his own plates for the remaining 200 H&R movements. Next picture shows comparison of H&R plates before and after 6300 (click for larger view).



Sorry for the crowded picture, 6252 on top, 6424 on bottom. Note difference of the lettering on the movement top plates, especially just Boston instead of BWCo. The middle view is of the underside of the top plates, the right view is of the pillar plates. The 6252 plates have the standard DH&D numbering including the sub-assembly number 57 on the pillar plate. The lower set of 6424 plates have a sub-assembly number 94 on both under top and pillar plates; the location on the underside of the top plate is on the opposite side of the plate.

This design change signified a change in manufacturing. No BWCo movement had this numbering. This change would be near the end of year 1857. Even Robbins was manufacturing his own movements by then.

Richard Watkins got me to start thinking about this subject some time ago. He was drafting then an article on the production of the BWCo. When trying to reconcile Table 4's BWCo numbers with the inventory document, I struggled to get 500 H&R movements out of this inventory. Then it dawned on me that Howard used only enough BWCo plates (from movements and frames) to make 300 H&R moments. Robbins' situation also than began to fit, and my supposition was on.

The supposition that Howard took no more than 300 BWCo frames up to #5300, whether he used them or not, is critical to my thesis.

Considering Howard started with approximately 400 movements worth of plates, it looks like he abandoned a good number of plates, especially frames in the range of 52xx. He was interested in providing better features, and starting anew might have been easier than reworking old material. Many H&R movements have been reported in "Origins" with sub-assembly numbers stamped

on the underside of their barrel bridges which is not the case with BWCo bridges. He probably did this because there is no correlation between H&R serial numbers and BWCo serial numbers. He also had to rework BWCo plates in movements to remove old engraving; again necessitating the need for the sub-numbering. [I haven't had opportunity to measure thickness of plates, except for one example; plates on H&R 6149 (BWCo 4948) have the same thickness as the plates on AT&Co 5341, although not knowing the tolerance of plate thickness I might not be able to discern a difference. However, H&R 6149 (BWCo 4948) might have come from a frame versus a completed movement and might not have been engraved as explained later.]

Interestingly, BWCo movement #4915 survived (in part, i.e., the barrel and balance bridges; see DH&D data sheet in "Origins"). It must *not* have been a completed movement Howard took out of the factory before the auction because it was not listed in the insolvency papers (#s 4891-4910 were), so it must have been a nearly completed movement that was engraved and gilded after the Feb. 2, 1857, inventory (the inventory lists movements *to be* gilded). Howard did not use 4915 (bridges) because it is signed "Waltham" (see [picture](#)). Ditto #4917 top and pillar plates only, and signed DH&D.

Changing subjects for a moment, it looks like Howard and Rice kept all BWCo cases. There were, for example, 138 partially completed hunter cases in the February inventory. This makes sense because Howard kept the name. He used these cases to house H&R movements, as shown in my monograph. There is no evidence yet that I have seen of any BWCo case originally housing any AT&Co movement, but maybe we have not yet seen enough examples.

Getting back to the table of serial numbers under top plate:

Table 4. Serial Number under Top Plate

name of movement	# on barrel bridge	# under top plate	name of movement	# on barrel bridge	# under top plate
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Howard & Rice	6011	14983	AT&Co	5042	5842
Howard & Rice	6019	14985	AT&Co	5084	5884
Howard & Rice	6037	15022	AT&Co	5158	5958
Howard & Rice	6047	16**	AT&Co	5190	5990
Howard & Rice	6060	15048	AT&Co	5221	5921
Howard & Rice	6065	15043	AT&Co	5332***	5332
Howard & Rice	6112	14865	AT&Co	5341	5341
Howard & Rice	6128	15217	AT&Co	5404	5404
Howard & Rice	6149	14948	AT&Co	5461	5461
Howard & Rice	6161	14977	AT&Co	5715	5715
Howard & Rice	6214	15115	AT&Co	5760	5760
Howard & Rice	6217	15116	AT&Co	5823	5823
Howard & Rice	6238	15137	AT&Co	5826	5826****
Howard & Rice	6252	15157	AT&Co	5901	5901
Howard & Rice	6264	15163	AT&Co	6085	6085
Howard & Rice	6282	15182	AT&Co	6377	6377
Howard & Rice	6300	23*****	AT&Co	6534	34*****
Howard & Rice	6343	17	AT&Co	6590	90
Howard & Rice	6424	94	AT&Co	6669	69
E. Howard & Co	6447	27	AT&Co	16447	47
E. Howard & Co	6482	40	AT&Co	21792	92

According to Table 4, it looks like Rice kept the low numbered frames and leftover movements, and sold Robbins BWCo frames starting around S/N 5300; specifically, it would have been 5301. By extrapolating the data, I believe Robbins used BWCo frames up to as high as S/N 6100, enough for 800 movements. This is consistent with the inventory document, including Howard keeping 300 frames.

Again, from the above table 4, Howard used BWCo frames (probably in movements) as low as 4865 and as high as 5217. These frames are not in sequence as Robbins used them, but apparently Howard was more concerned about adding features than about maintaining sub-assembly numbers in sequence.

There are a couple of problems in Table 4 that need to be corrected. In particular the BWCo number 5921 for AT 5221 is

incorrect, I hope. It should be 6021 to be consistent. Note the Pattern: 58hundred BWCo frames for 50hundred AT movements, 59hundred BWCo frames for 51hundred AT movements, so then we could expect 60hundred BWCo frames for 52hundred AT movements.

I guess I should expect some outliers, but I've really got my neck stuck out here. I'll have to rethink my thesis if I don't get favorable 52hundred examples. I suppose #5221 could be a mixed parts movement, but this does not seem likely.

Long time ago in 1995 the owner of AT 5221 told me the number on the underside of its top plate was 5921. This was in response of hearing my theory that these underside plate numbers on early AT and H&R movements were the original BWCo serial numbers. At that time in 1995, examples existed for underside plate numbers 5884 and 5958, and no one ever heard of a Waltham BWCo #6000. Perhaps the owner, thinking of 58hundred and 59hundred numbers, misread the actual number #6021. The underside plate number can be seen simply by looking between the plates with a loupe and good lighting, but it can be difficult and some numbers might have been reported in error.

Another problem with Table 4 is the AT 5332 entry. Note the abrupt change with the BWCo serial number under the top plate. When I built Table 4, I hadn't yet thought through the analysis I'm presenting today and extrapolated the data. I thought at that time, that Robbins ran out of BWCo plates at 5300. No, I'm saying now he started with 5301!

This said, this is how I believe Robbins used BWCo frames to make his first 800 movements.

Robbins used BWCo frames this way:

TB/AT 5001-5100 ← BWCo 5801-5900

AT 5101-5200 ← BWCo 5901-6000

AT 5201-5300 ← BWCo 6001-6100

AT 5301-5800 ← BWCo 5301-5800

AT 5801 made new w/o BWCo parts

Note the first 300 movements used different 300 BWCo series. To be consistent in batch order, Robbins used BWCo frame #5301 for AT movement #5301, and used frame #6100 for AT #5300. This is a little complicated, but note that Robbins having available 800 frames, if Robbins had started using BWCo frame #5301 for his first movement, 5001, all 800 movements would have been out of sync between AT and BWCo numbers. This way, as shown, only the first 300 movements are out of sync, and the last 500 numbers are identical and continue on through 5800 when Robbins made his own movements. This is supported by Table 4. Note also the BWCo sub-numbers on the first 300 movements are identical to the AT&Co numbers.

In support of this proposal we need to visit the gilding process. The common belief as I understand, is that movements were engraved after being gilded versus the other way around. The fact that the "57" Inventory report lists movements not yet gilded but no such mention is made for frames, supports this belief. This process would facilitate making private label movements, and would make Robbins' job easier converting BWCo frames (not yet engraved DH&D) into AT&Co frames (same as making private labels).

However, I have seen a lot of DH&D and AT&Co plates and I cannot say for certain which way was done, although my eyes very much favor engraving just before gilding. Also, considering that the barrel bridge has to be engraved with the serial number on top, how could it be safely gilded separate from the top plate without its serial number on top or underneath. Therefore please note, Robbins was using frames, not "completed movements". I suggest frames were engraved, then gilded during the process of making completed movements. Therefore, if the BWCo frames were not engraved, this proposed order of how frames were used did not require any additional work.

Robbins could have conceivably gotten frames higher than #6100 which he discarded or cannibalized, but over 70 would be inconsistent with the Feb 2 inventory if taking its total (1,170) literally; besides AT&Co movement #5800 (the 800th BWCo leftover movement) was finished at the end of 1857 when Robbins was already making new movements (Parkers and Bartletts). If he did have some extra frames and used them as is, then for example AT&Co #5332 would have BWCo serial number 6132 and not 5332 as reported; ditto similarly 5341.

So, there you have it, 101 AT&Co movements with BWCo serial numbers in the 6,000s. Assuming the AT&Co survival rate is comparable to the DH&D rate, there could be 10 or so happy owners.

Okay, I bet someone wants to ask, what about the DH&D movements Robbins sold as documented in sales records [ref102]. [Table 3](#) in my monograph.

Table 3. Dennison Howard & Davis movements from Sales Ledger* [ref. 62]

<u>1282-15</u>	2329-15	4081-07	<u>4082-07</u>	4083H07	4084-07	4085H07	4086H07	4087-07	4088H07
4089-07	<u>4090-07</u>	4091-15	<u>4092-15</u>	4093-15	4094-15	4095-15	4096-15	4097-15	<u>4098-15</u>
4099-15	4100-15	4101-07	4102-07	4103-07	4104-07	4105-07	4106-07	4107H07	<u>4108-07</u>
4109-07	4110-07	4111H07	4112H07	4113H07	4114H07	4115H07	4116H07	-----	<u>4118H07</u>
4119H07	4120H15	4121-15	4122H15	4123H15	4124H15	4125H15	4126H15	4127H15	4128H15
4129H15	4130H07	4131H07	4132H07	-----	4134007	4135H07	4136H07	4137007	4138H07
4139H07	4140H07	4141-15	4142H15	4143H15	4144H15	4145H15	4146H15	4147H15	4148H15
4149H15	4150H15	4151H15	4152H15	-----	4154H15	4155H15	4156H??	4157H15	4158H15
4159-16	4160H15	4161H16	4162H16	4163H16	-----	4165-16	<u>4166-16</u>	4167-16	4168-16
4169-16	4170-16	4171H07	4172H07	4173007	4174H07	4175H07	4176H07	4177007	4178H07
4179007	4180H07	4181H07	4182H07	4183H07	4184007	4185H07	4186H07	-----	-----
4189H07	<u>4190H07</u>	4191H07	4192H07	4193H07	4194H16	4195H07	4196H07	4197H07	<u>4198H07</u>
4199H07	-----	4223H16	-						

Hawkins in [r55 page 117] also lists 7J DH&D #4037 and 15J DH&D #1954 in a 12/31/1858 inventory report.

a. H = Silver Hunting case O = Silver Open Face case - = w/o case; underlined movements have been reported and are in data table
Jewel count follows case type using [ref. 55] data; however, author believes jewel count entries of 16 are suspect because DH&D movements are typically listed in the actual records with group of AT&Co. movements which were 16J ("4 1/2 pairs"), but the 4 1/2 pairs designation probably didn't apply to the DH&D movements.

Starting in June 1857, Royal Robbins sold approximately 120 DH&D movements through September 1857 (plus a few later). These movements were numbered on a low side (e.g., 4081) compared to surviving high numbered DH&D movements. The factory started manufacturing new movements in July, and sold, which I contend came from the insolvency inventory material. That is, Robbins did not cannibalize DH&D movements because his new watches had 16 jewels and high numbered internal BWCo serial numbers.

Again, although speculative, there is evidence that Howard and Rice did not take everything loose in the factory. There is the matter of machinery, tools and fixtures which have been written about elsewhere; not a subject here except to say there had to be a limit of how many items they could physically remove and time in which to do it (and to do it quietly). I hardly believe they could haul out on the sly heavy tools, work benches, connected lathes and other factory infrastructure. This was not a trivial event. The watch material alone would weigh upwards of a hundred pounds and require a lot of boxes (for the 10s of 1,000s individual parts). The removal would require a large wagon or wagons; wheelbarrows seem doubtful for such delicate material. More importantly, I believe there was a secure area, maybe "sales", containing completed movements, dials and purchased parts to which Howard and Rice did not have access; it would have been under lock and key by Jameson the assignee.

This idea of a secured area, maybe a safe, is consistent with my thesis. How about locking up gold watch cases in this area. Eliashib Tracy and Theodore Baker started a partnership in 1853 and sold watch cases until 1857 out of Philadelphi, PA ["History of the American Watch Case", Warren H. Niebling, 1971 – page 58]. The Tracy & Baker Company was involved with the insolvency and sale of the BWCo [ref. 6, p. 274]. Tracy made an off-the-cuff estimate in this reference that the BWCo owed them "some 8,000 or more dollars" for cases ("mostly 18K fine") that BWCo had pledged to a bank in Boston.

Following up, the insolvency court treated Samuel Curtis as the "Proprietor" of the company and owed all the debits for the company. In the Curtis Schedule of Creditors paper, [ref. 106, case 116, sheet 3, p2], T&BCo is claimed owed \$6,907.17. The top part of the page is [shown here](#) (TB is the 14th entry down in list; a sizable number of employees requesting back wages is also listed). The eventual payout was for a "proved" debt of only \$4,350.75 at 20 cents on the dollar (\$870.15). I am not sure how the proved debt got to be lower. There are eight pages containing proved debts in Curtis' case 116, but T&B is not in them except in Dennison's case [119 sheet 22](#) for \$1,850.36. We did not photograph all sheets of proved debts in Howard's case 118. The payouts are in [ref. 106, case 116, sheets 164, 183 & 203].

I might be over emphasizing the meaning of the word "pledge", but I believe these pledged T&BCo cases were stored in a secure location and not at the bank. Since Tracy and Baker were part owners of the new company, I believe it is reasonable to expect them to take possession of their cases from the secured area after the sale. Interestingly, after supplying \$15,000 to buy the

business [ref. 51, p. 314], they received back \$870.15 from the payout (plus the sizable collateral).

{Maybe of interest to note, at least one, and probably more, of the T&BCo cases were ordered to be signed BWCo instead of the simple T&B signature. For example, see DH&D watch 3330 in the [DHD data table](#).}

Similar to the T&BCo situation, a Waltham Bank debt of \$4,724.76 was proved in the Curtis case 116 sheet 29 and same in the Dennison case [119 sheet 10](#). Considering Dennison's involvement and that the dollar amount of the loan was appropriate for 120 watch movements, I am of a mind to believe that the Waltham Bank was pledged the DH&D movements mentioned above that Robbins sold in 1857 ([Table 3](#) in my "'Origins" monograph) and the movements were stored in the secured area that Howard and Rice did not access before the sale. Waltham's payout at 20 cents was \$944.95, and if my thesis is correct, Waltham Bank lost out on its collateral. Three Boston banks received payout distributions at 20 cents (Bank No.America \$16635.43/3327.09, Blackstone Bank \$1351.84/270.36 and Merchant Bank \$254.52/50.90), but no involvement with watch movements and cases as collateral was given. Even if the Waltham Bank loan was for something else, the company was mortgaging just about everything including machinery and watch material in the factory, so why not use completed watches not yet sold in the factory as collateral. Seems reasonable to me.

Many DH&D movements survived with serial numbers between Robbins' cache and those cannibalized by Howard. By serial number, the BWCo could have produced around 600 movements in this range. In fact, more than 10% have survived. According to my DH&D data sheet quite a few high numbered movements have survived (e.g., 4887, 4883, 4876, 4855, 4849, 4841, 4814 4810); 8% of the 48hundred range. Who sold them? I claim the BWCo sold them. Heck, the Company was advertising weekly in local newspapers the sale of their watches as late as April 14, 1857. Here is an example ad in the Boston Post.

SUCH CONVICTIONS shall be obtained - provided said counterfeiters are on the Banks in New England. Suitable rewards will also be paid for the conviction and sentence of the makers of counterfeit coins, or of dies for the same, and for the uttering of such coin. The above are additional to any rewards authorized by state laws. Per order of Executive Committee.

Boston, Aug. 17, 1854. **CHARLES B. HALL, Sec'y.** is truly just

THE American Watch

Is now on sale by the principal dealers throughout the country, and the public are invited to examine and test the quality in comparison with the **REPORTER** series.

They are constructed on the **PATENT LEVER PRINCIPLE**, so long tried and approved, with such alterations in the arrangement of the parts as long experience has demonstrated to be the best to insure

Reliability, Accuracy and Durability.

The Manufacturers warrant the

AMERICAN WATCH

in every particular of its workmanship and performance.

N.B. - None are genuine unless the name of the Manufacturers

DENNISON, HOWARD & DAVIS,

Waltham.

is engraved on the movement.

LINEN GOODS!

KILGOUR & COFFIN,

161 BROADWAY,

Between Courtlandt and Liberty sts.

FANCY
FIS
HAT
W
NOS.
JAMES
SARUS
FIS
SATIN
DENIM
BLUE
WICK
BATTIE
KNIT
Dut
A?
COT
Gro

Of course, we do not know when the ad was placed, but it is a good indication that the Company at least had the capability to sell watches in the early days of 1857. This is an explanation for some sales still going on while the earlier "120 Table 3 movements" were stockpiled for collateral.

I suppose Robbins could have sold these movements in addition to those in Table 3 privately and hidden from Company records, but that would be a very big stretch. Of the 20 movements Howard had as reported in the insolvency documents (4891-4910), none have yet been known to survive. I assume they were cannibalized to make H&R movements. I seriously doubt Howard sold them. Considering the vast research done on Howard & company, there has yet been any evidence that Howard sold DH&D movements, especially in significant numbers. Maybe a few movements he had but did not cannibalized, but not 600 movements. And I note Charles Rice was not in the business of selling watches; according to E. Tracy, he was a shoe merchant [ref. 6 - page 274].

I admit my story is highly circumstantial and speculative. But it is what

it is. It might even be true.

I have to get my digs in here. The Boston Watch Company was much more successful than most previous historians gave the Company credit. It is fascinating to think that if the company had acquired additional capital in 1857, there would have been a DH&D pocket watch with serial number 6000. Even so, the rift between the founders, Edward Howard and Aaron Dennison, was so large, I believe the company would have eventually broken up anyway. In which case maybe Royal Robbins never would have gotten involved. Maybe the American Watch Company never would have come to be. And maybe one of the greatest industrial enterprise the world would see in the 19th century would not have happened. Although ugly at the time, the financial failure of the BWCo in 1857 turned out to be a very fortuitous event.