HE STORY OF EDWARD HOWARD AND THE FIRST AMERICAN WATCH

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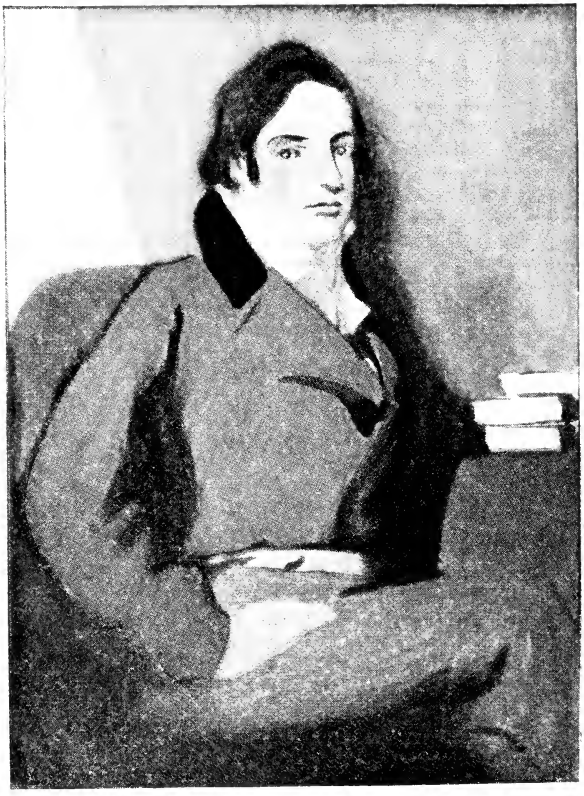
E. Howard Watch Works
Boston, Massachusetts



The Story of Edward Howard *and the* First American Watch

THE American Watch, like practically every other great achievement of American inventors, was wrought out under discouragements that would have appalled ordinary men.

While Morse was struggling against the sickening disappointments of the telegraph, and Goodyear was undergoing privation in his search for the secret of curing India rubber, Edward Howard, with the assistance of capital furnished by friends, was struggling with the creation of the watch industry.

Edward Howard was apprenticed in 1829 to Aaron Willard, Jr., son of Aaron Willard, who was the youngest of three brothers, born in Grafton, Mass.

The Willards were noted for their fine clock work. Simon, the oldest, settled in

Roxbury in 1771 at the "Sign of the Clock." He made his first clock at the age of 13, and was the most ingenious of all the Willards. He made turret clocks for Boston, Philadelphia, New York and the University of Virginia. While in Virginia he became acquainted with Jefferson and Madison, with whom he corresponded for years. He made and set up the clocks in United States Senate and House. "He never considered profit, the quality of work being everything. His clocks, great and small, are just as good, after the lapse of a century, as when they left his hands."

Aaron Willard, Jr., learned the trade from his father, and to him Edward Howard was apprenticed in 1829. Young Howard was a mechanical genius. Clockmaking was play for him. Some of the clocks that he made as a boy are as good to-day as when they were first put up. He made all kinds of clocks —for halls and churches, tower clocks, etc.

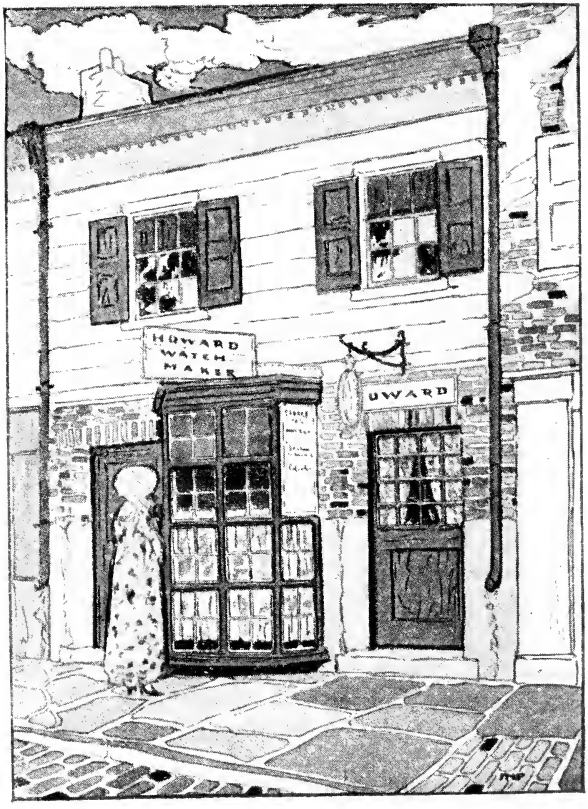
He was one of the finest workmen that ever lived. His "bent," as he says, was all for finer and more delicate mechanism. It was natural that he should consort with the best watch-

makers he could find. Watchmaking fascinated him. He studied it; saw its weaknesses and dreamed of overcoming them and of revolutionizing the watch industry of the world.

Think of the immortal nerve of that raw American boy who had never been outside of a little Massachusetts town, yet who dared aspire to better the work of the master craftsmen of Europe with ten generations of watchmaking behind them. Watchmaking ranked with the fine arts. It had its history, its traditions, its guilds and its court subsidies.

Howard, writing in later life of his early struggles, remarks: "One difficulty I found was that watchmaking did not exist in the United States as an industry. There were watchmakers, so called, at that time, and there are great numbers of the same kind now, but they never made a watch; their business being only to clean and repair."

He further says: "I knew from experience that there was no proper system employed in making watches. The work was all done by hand. Now handwork is superior


HOWARD
WATCH
MAKER
HOWARD

in many of the arts because it allows variation according to the individuality of the worker.

"But in the exquisitely fine wheels and screws and pinions that make up the parts of a watch, the less variation the better. Understand that some of these parts are so fine as to be almost invisible to the naked eye. A variation of one five-thousandth of an inch would throw the watch out altogether or make it useless as a timepiece. As I say, all of these minute parts were laboriously cut and filed out by hand, so it will readily be understood that in watches purporting to be of the same size and of the same makers there were no two alike, and there was no interchangeability of parts. Consequently it was 'cut and try.' A great deal of time was wasted and many imperfections resulted."

It was Howard's dream to overcome the imperfections by inventing automatic machines that would produce each part with absolute precision.

There's a childlike simplicity in the notes he has left about himself and his work.

This idea of automatic machines was daring and revolutionary enough in all conscience. Yet he says of it simply: "The development of the plan was the result of long thinking;" and further: "I came in for much ridicule from those to whom I confided it. They laughingly said, and I thought with some reason, that one of my machines, if I ever got it running, would be a greater marvel than the finest watch that ever was made.

"There was almost a superstitious belief in the necessity for handwork in making a watch movement. To those who criticized me for trying to do away with handwork I replied that I expected to make by hand the machines that were to make my watch parts, so it was handwork but one step removed."

Howard went into business for himself in 1840, risking all that he possessed and all that he could command from the few friends who believed in him. He determined to establish systematic watchmaking and to invent labor-saving machinery for producing perfect and interchangeable parts.

His first step was to build a small factory

in Roxbury, Mass.—the first watch factory in the New World.

Writing of this period he says: "It is almost needless to say that we met with many obstacles. We were told by importers and dealers in watches that we would never be able to carry out our plans and that our project would be an utter failure. Some of our friends even told us we were crazy to attempt such an undertaking. But we were Americans and had a sufficient quantity of the proverbial grit, and at least believed in ourselves even if others did not have so much faith.

"We could not import and use foreign help unacquainted with our methods and tools, so we had to instruct our men from the beginning. There were many times when we felt that the predictions of the importers would prove true, but perseverance conquered.

"The financial problem was a hard matter to solve as the unbelief in our success was universal. Frequently it was difficult to raise the money needed to get materials or pay our workmen. We struggled along for six years before the tide turned.

"Without the financial assistance of good friends in Boston, watchmaking would probably not have existed at the present time as an organized industry in the United States. This may seem to be a sweeping statement but no one can conceive the trials we endured. We hear about going through Purgatory but that must be a pleasure compared with what we experienced at that time.

"We were trying to establish under one roof an industry embracing a dozen distinct trades. Such a thing had never been done before and we were still further handicapped in our undertaking by having inexperienced assistants. We had to teach ourselves first and then teach others. Our progress was slow and expensive; and there was much bad work that we had to throw away.

"Our first watch was made to run for eight days, but was discarded because the mainspring was too long and cumbersome.

"We did not know how to make a jewel, or a dial or to do proper watch gilding or to produce a mirror polish on steel. We had to study and work over these operations until

after many attempts one at last would be successful.

"We had to invent all the tools to make the different parts. After being designed or invented they had to be made in the factory by our own machinists in order to have them perfect and durable. Attempts were made to have them made outside but it was impossible to get them constructed carefully and of the exact and uniform sizes needed.

"It was nearly three years before the establishment had fairly and fully started in the business of making watches, and then we found that we would need ten times as much room, so we set about building a very much larger factory at Waltham, Mass."

The expenses of this new factory were greater than was anticipated. The constant experimenting, the cost of working models, the spoiled materials, rejected work, the building of new machines and the comparatively small marketable output, a thousand discouragements and the antagonism of the entire watch and jewelry trade finally brought matters to a crisis and Howard saw ruin staring

him in the face. Some of his associates complained that he was too scrupulous about the perfection of the watches that left his hands.

He says on this point: "Friends turned from me saying I was not practical. Workmen who left me or were discharged complained that I was exacting and expected the impossible because I would not tolerate a botch of any kind. I would rather break up a watch movement than have it go out imperfect. My standard for every watch that bore my name was that it be fit to present to the President of the United States. They had me quite humbled and ashamed with the thought that I was not fair to those interested, but I could not bring myself to do otherwise.

"Of course, men who were looking at the financial side could not feel as I did about my watch. They could not understand that the watch was the end I sought, that I would give everything I possessed, even life itself, to see all work out as I had planned."

This was the temper of the man as attested by all who knew him. It was currently believed at the time that Howard was the model

for the character of Owen Warland in Nathaniel Hawthorne's short story, "The Artist of the Beautiful."

Howard was a workman of astonishing dexterity and the highest ideals. His venture created a great deal of stir, because of its apparent impracticability, and Hawthorne, living in Concord at the time, could not have failed to hear a great deal of it. The story was published in June, 1844, only a year or so after the first Howard watch was completed.

The Howard factory failed in 1857.

The plant, tools and machinery were taken over by men in Waltham and became the nucleus of the great industry there and incidentally the parent of watch factories in other parts of the country.

Howard's characteristic comment on this state of affairs was this: "I had to begin at the bottom and make all tools anew. I returned to my old factory at Roxbury, founded a new company with the understanding that I was to have my way about the quality of watches that bore the name HOWARD."

How he succeeded is a matter of history.

The output was limited but a Howard watch was a prized possession. Men paid $500 for them in the early sixties.

A prominent citizen of Philadelphia (a retired business man) wrote the Howard factory recently that he had personally carried a Howard watch for fifty years and that its variation to-day is not more than one second in twenty-four hours, or one second in eighty-six thousand.

Howard had perfected his marvellous automatic machinery for the making of the delicate watch parts so that of a thousand pieces one would be exactly like the other.

Three thousand two hundred patents granted by the Patent Office at Washington in the field of watch and clock invention are directly or indirectly due to his initiative.

He had made the first practical application of the stem-winding mechanism designed in a crude form by a London watchmaker in 1750.

Now comes the most important work that Edward Howard accomplished in the direction of timekeeping accuracy.

We have noted his complaint of the varia-

tion of individual parts made by hand and learned how he overcame that difficulty.

Next, we find him making a curious discovery, viz.: "Every watch has its individuality. Pick out and put together two sets of absolutely perfect and identical parts made by machinery that does not vary one twenty-thousandth of an inch, run them under exactly the same conditions, and each watch will vary slightly from the other and from the standard."

He had gotten away from individuality in the parts only to meet it again in the assembled movement. And that discovery was the beginning of the Howard constructive adjustment that is obtained in no other watch factory to this day.

It takes months to adjust a Howard watch, notwithstanding the fact that it is a better timekeeper than the usual high-grade watch when it is first put together. The Howard requirements are higher.

It is run and timed for a period on its face, on its back, in different positions. Then in an oven with intense heat, then in a refrigerator

under extreme cold. Accurate record being kept of its performance from day to day.

When it varies it goes into the hands of an expert who overhauls it until he finds the cause of variation, corrects it—then the watch starts on its test performance all over again.

The result is that the Howard adjustment when completed is good for fifty years (barring accidents or violence). It will stand more jolt and jar than any other watch, being adjusted to vibration as well as change of temperature.

Howard thought more of his scientific adjustment than anything else he accomplished. He left minute instructions and provisions for its continuance along with certain data that he would never divulge during his lifetime nor trust even with the patent authorities, though it is likely the matters were not in their nature subject to patent right protection.

Previous to 1853 the American markets were controlled by Swiss and English makers and there was much prejudice against Howard's product.

Howard writes in 1850: "Americans

have never been free from a snobbishness that loves to display a foreign trade mark. Just as the footman is more lordly than his master, so the tradesman is more snobbish than his customer."

But in spite of the ban on Howard by importers and retail jewelers, he was instrumental in driving the Swiss watches from the country.

In 1866 American watches were extensively introduced into London. The English watch industry declined. English makers came here and bought American watch machinery but could do little with it. Howard forced the Swiss makers to buy American machinery and Swiss watches are made on American machines to-day.

There is a record for you! That half-baked Roxbury boy with his *idea*—the scoff and butt of his companions—a lad that couldn't have got a job at the bench with the Swiss makers—yet he broke the back of a world industry and brought the richest guilds in Europe to Massachusetts begging for his machinery that they might continue their

trade. And yet there are American jewelers who offer Swiss watches as a superior imported article.

Years later, the Howard factory was again removed to Waltham—the scene of its early failure—where it is now established as a splendid enterprise and a monument to a man who believed in himself; who countenanced no sham in his work and who lived to make the finest watches in the world.

In 1864, when the premium on gold put the price of watches so high, Secretary Stanton showed President Lincoln an expensive Swiss watch. Lincoln opened the back cap, examined the movement curiously and returned it to Stanton saying: "I reckon that's a Swiss watch, but it was made with American machines."

"It's a more elaborate watch than we make in this country, Mr. Lincoln," Stanton said.

"Yes," replied Lincoln, "it reminds me of the boy who wanted to teach his grandmother to suck eggs."

Lincoln carried a Howard.

Howard Watches in 18 and 14 K. Solid Gold and Gold Filled Cases

16 SIZE

Prices in Eighteen-Karat Extra Heavy Gold Cases

		Hunting	Open-Face
23 Jewels, adj. to Heat, Cold, 5 Positions and Isochronism, (RAILROAD / STANDARD)	# 12 P. P. / # 13 E.T.	$170.00	# 22 P. P. / # 23 E.T. — $155.00
21 " " " " " 5 " " " "	Open-Face only		# 122 P. P. / # 123 E.T. — 140.00
19 " " " " " 5 " " " "	# 512 P. P. / # 513 E.T.	145.00	# 522 P. P. / # 523 E.T. — 130.00
17 " " " " " 5 " " " "	# 212 P. P. / # 213 E.T.	130.00	# 222 P. P. / # 223 E.T. — 115.00
17 " " " " " 3 " " " Double Roller	# 912 P. P. / # 913 E.T.	120.00	# 922 P. P. / # 923 E.T. — 105.00
17 " " " " " 3 " " " Single Roller	# 312 P. P. / # 313 E.T.	115.00	

16 SIZE

Prices in Fourteen-Karat Extra Heavy Gold Cases

		Hunting	Open-Face
23 Jewels, adj. to Heat, Cold, 5 Positions and Isochronism, (RAILROAD / STANDARD)	# 10 P. P. / # 20 E.T.	$150.00	# 15 P. P. / # 25 E.T. — $140.00
21 " " " " " 5 " " " "	Open-Face only		# 115 P. P. / # 125 E.T. — 125.00
19 " " " " " 5 " " " "	# 510 P. P. / # 520 E.T.	125.00	# 515 P. P. / # 525 E.T. — 115.00
17 " " " " " 5 " " " "	# 210 P. P. / # 220 E.T.	110.00	# 215 P. P. / # 225 E.T. — 100.00
17 " " " " " 3 " " " Double Roller	# 910 P. P. / # 920 E.T.	100.00	# 915 P. P. / # 925 E.T. — 90.00
17 " " " " " 3 " " " Single Roller	# 310 P. P. / # 320 E.T.	95.00	

16 SIZE
Prices in Fourteen-Karat Heavy Gold Cases

											Hunting	Open-Face
23 Jewels, adj. to Heat, Cold, 5 Positions and Isochronism,										(RAILROAD / STANDARD)	# 30 P. P. / # 40 E. T. $135.00	# 35 P. P. / # 45 E. T. $125.00
21	"	"	"	"	"	5	"	"	"	"	Open-Face only	# 135 P. P. / # 145 E. T. 110.00
19	"	"	"	"	"	5	"	"	"	"	# 530 P. P. / # 540 E. T. 105.00	# 535 P. P. / # 545 E. T. 95.00
17	"	"	"	"	"	5	"	"	"	"	# 230 P. P. / # 240 E. T. 95.00	# 235 P. P. / # 245 E. T. 85.00
17	"	"	"	"	"	3	"	"	"	Double Roller	# 930 P. P. / # 940 E. T. 85.00	# 935 P. P. / # 945 E. T. 75.00
17	"	"	"	"	"	3	"	"	"	Single Roller	# 330 P. P. / # 340 E. T. 80.00	

16 SIZE
Prices of Fourteen-Karat "Carvel" Watch

Furnished in this Grade of Movement only

17 Jewels, adj. to Heat, Cold, 3 Positions and Isochronism, Double Roller, ... # 905 P. P. $ 55.00 — Open-Face

16 SIZE
Prices in Jas. Boss and Crescent Gold Filled Cases

											Hunting	Open-Face
23 Jewels, adj. to Heat, Cold, 5 Positions and Isochronism,										(RAILROAD / STANDARD)	# 50 P. P. / # 60 E. T. $ 92.50	# 55 P. P. / # 65 E. T. $ 90.00
21	"	"	"	"	"	5	"	"	"	"	Open-Face only	# 155 P. P. / # 165 E. T. 75.00
19	"	"	"	"	"	5	"	"	"	"	# 550 P. P. / # 560 E. T. 62.50	# 555 P. P. / # 565 E. T. 60.00
17	"	"	"	"	"	5	"	"	"	"	# 250 P. P. / # 260 E. T. 52.50	# 255 P. P. / # 265 E. T. 50.00
17	"	"	"	"	"	3	"	"	"	Double Roller	# 950 P. P. / # 960 E. T. 42.50	# 955 P. P. / # 965 E. T. 40.00
17	"	"	"	"	"	3	"	"	"	Single Roller	# 350 P. P. / # 360 E. T. 37.50	

16 SIZE

Prices in Jas. Boss and Crescent Gold Filled, Swing Ring, Dustproof Cases

											Open-Face
23 Jewels, adj. to Heat, Cold, 5 Positions and Isochronism,									(RAILROAD / STANDARD)	# 75 P. P. / # 85 E.T.	$ 90.00
21	"	"	"	"	"	5	"	"	"	"	# 175 P. P. / # 185 E.T.	75.00
19	"	"	"	"	"	5	"	"	"	"	# 575 P. P. / # 585 E.T.	60.00
17	"	"	"	"	"	5	"	"	"	"	# 275 P. P. / # 285 E.T.	50.00
17	"	"	"	"	"	3	"	"	"	Double Roller	# 975 P. P. / # 985 E.T.	40.00

Sixteen-size, Open Face Lever Setting Howard Watches—23, 21, 19 and 17 Jewels, Five Position Adjusted—are officially certified and adopted as Railroad Standard by the Time Inspectors of 180 of the leading railroads of America. The finest Railroad Watches in the world.

12 SIZE EXTRA THIN MODEL

Heavy Eighteen-Karat Gold Cases

									Hunting		Open-Face	
21 Jewels, adj. to Heat, Cold, 5 Positions and Isochronism,									# 812 P. P. / # 813 E.T.	$155.00	# 822 P. P. / # 823 E.T.	$140.00
19	"	"	"	"	"	5	"	"	"	# 612 P. P. / # 613 E.T.	125.00	# 622 P. P. / # 623 E.T.	110.00
17	"	"	"	"	"	3	"	"	"	# 712 P. P. / # 713 E.T.	105.00	# 722 P. P. / # 723 E.T.	90.00

12 SIZE

Fourteen-Karat Gold Cases

		Hunting	Open-Face
21 Jewels, adj. to Heat, Cold, 5 Positions and Isochronism,	#830 P. P. / #840 E.T.	$135.00	#835 P. P. / #845 E.T. $125.00
19 " " " " " 5 " " "	#630 P. P. / #640 E.T.	105.00	#635 P. P. / #645 E.T. 95.00
17 " " " " " 3 " " "	#730 P. P. / #740 E.T.	85.00	#735 P. P. / #745 E.T. 75.00

12 SIZE

Jas. Boss and Crescent Gold Filled Cases

		Hunting	Open-Face
21 Jewels, adj. to Heat, Cold, 5 Positions and Isochronism,	#850 P. P. / #860 E.T.	$ 92.50	#855 P. P. / #865 E.T. $ 90.00
19 " " " " " 5 " " "	#650 P. P. / #660 E.T.	62.50	#655 P. P. / #665 E.T. 60.00
17 " " " " " 3 " " "	#750 P. P. / #760 E.T.	42.50	#755 P. P. / #765 E.T. 40.00

12 SIZE

Crescent "Cavetto" Gold Filled Cases

		Hunting	Open-Face
21 Jewels, adj. to Heat, Cold, 5 Positions and Isochronism,	#850C P. P. / #860C E.T.	$ 92.50	#855C P. P. / #865C E.T. $ 90.00
19 " " " " " 5 " " "	#650C P. P. / #660C E.T.	62.50	#655C P. P. / #665C E.T. 60.00
17 " " " " " 3 " " "	#750C P. P. / #760C E.T.	42.50	#755C P. P. / #765C E.T. 40.00