FROM POP-CICLE STICKS TO COMPUTER CHIPS

A History of Timing-Scoring the Sport of Cross Country Running, Road Racing, Marathons, Triathlons.

By Robert Rush

Prior to 1978 the Minerva mechanical stop watch was the method of choice to time Cross Country, Marathons and Road Races.

The Cronus 3-S LED battery powered stop watch came in about this time. This was the first electronic stop watch with a LED display. This was a great watch for indoor events, but terribly hard to read outside in the sun. The overall method of timing remained the same.

The "tic sheet" was the method of recording all the many times of a cross country or road race. The "sheet" consisted of vertical columns listed from zero to sixty for each column. If the anticipated time of the winner was in say in the twenty minute range, then the first column started at twenty minutes and each column after that were listed in one minute intervals—thus 20, 21, 22, etc.

The timing crew consisted of a crew of three officials, one timer with the running stopwatch, one recorder with a clip board and "tic sheet" and one official "tapper".

As the runners approached the finish line, the official with the stop watch would start reading off the times as the runners approached the finish line thus twenty 01 twenty 02 , twenty 03 etc. If a runner crossed

the line at twenty 0 three, the tapper would tap the recorder on the shoulder that time and the recorder would place a check mark in that column at 20.03_x. This would indicate the winner's time was 20:03.

As each succeeding runner came in, the timer would continue to read off the times and the "tapper" would tap the shoulder of the recorder each time a runner cross the finish ling.

If a group of runners came in a same bunch, the taper would say the number of runners such as "four". The recorder would mark on the tic sheet that number in the column thus 20:04 4__. The place of these runners was determined on how they were lined up in the chute.

An official would call off the uniform color of the runners as they finish.. Red, yellow, blue etc and an official would line them up in the chute accordingly.

At the end of the chute each runner was given a stick with their place of finish printed on it. At first popsicle sticks were used.

The runners turned this stick into his coach. The coach tabulated a "quick score" on a envelope and then turned that into the score table. The final team scoring could not be officially announced until it was determined how many incomplete (under 5) teams there were and how many teams ran with more than seven runners. Some race directors only allowed a maximum of seven runners per team, eliminating this last scoring problem. You had to rely on coaches to notify race officials that they had an incomplete team. This all took time and results were often delayed for hours if not days.

The sticks were replaced with tongue depressors, but the same scoring problems occurred. In 1978 several important developments came into play. This author invented the Chronomix timer. This eliminated the "tic

sheet" timing. Now one operator could time thousands of runners with the push of a button. This changed cross country and road racing timing tremendously. Now one Chronomix operator could punch a button for each runner who crossed the finish line. There were still problems. The timing was accurate but matching the time with the runner was still a challenge. In road races, there was the "turkey". This was the runner who jumped into a race and didn't pay or have a chest number. The Chronomix timer did not always have the ability to identify these jerks. To make it worse, some of them would cross the finish line get timed and then duck out of the chute. This caused a domino effect on the match up of the times and runners.

About this time, cross country meet directors were experimenting with using name labels on the runners.

The runners would go in line through the chute as usual and then turn in their name tag at the end of the chute. The tags were placed on a big board and then the Chronomix tape times were matched to the runners place on the board.

In the early 1970's, a gentlemen named Alan Jones developed some software named "Runscore". This software could produce the overall individual scoring and automatically score teams scores accurately coring out the teams with less than five or more than seven runners. A little later Chronomix added a data output, sending the times directly to a computer. Chronomix also added a "Select timing" feature. A keyboard connected to the timer which also sent to the computer, a separate select timer would randomly pick out a chest number and punch that number into the keyboard, then when that runner crossed the finish line the operator would press the "enter" button. The select timer would enter as many random select times that he could do accurately. If the select timer chose say chest number 100, that runner on the computer screen there are two columns, one column has the numbers of all the finishers,

the second column has all the "select times" numbers. Chest number 100 in the runner's column should match that chest number in the select times column. If they match, all is good. If they don't match there could be several causes. The official timer could have missed a time or he could have hit the button an extra punch or a runner could have ducked out of the chute. The computer operator can then cause the times to match up by either adding a time or removing the extra time. This may happen several times during the race.

About this time, digital cameras came into being. They would be used as a backup to make sure the finish order was correct. If all these methods failed, the video was checked.

Another big break through came with the innovation of the tear off barcode on the bib number. This increased accuracy and quickly sped up the results process tremendously.

There was still the problem of getting the runners through the chute in the proper finish order. In some championship races more than 60 runners would come in one minute. Enter the FinishLynx camera. Hip numbers that match the chest big numbers were added. The FinishLynx operator could verify the order of finish and make sure the order was correct on the computer board. The addition of hip numbers for cross country was of tremendous value to the FinishLynx operator for determining order of finish.

The combination of the Chronomix timer, with select timer and the Finish Lynx side camera made and backup front camera made Cross Country timing, places and team scores <u>basically</u> full proof, almost.

Then enter the computer chip. The chip worn on either the shoe and some companies have the chip integrated into the bib number carried the same basic information of name, gender, affiliation, year in school and age if involved in a road race. A sensor rug is placed at the finish line that would send the chip data to the computer program. Sensor rugs can also be used to give unofficial times and team scores on various intervals out on the running course.

For road races, wearing one chip on either shoe seemed to work fine. For Cross Country Racing where place is more important than time, close finishes became a problem depending on which shoe the runner wore the chip and which foot crossed the sensor pad first. The attempt to solve this problem required a chip on both shoes. This caused a new look for the rules as to which part of the body was considered the finish, the shoe or the torso.

The chip's greatest advantage was the removal of the finish chute process. Once the runner's chip is recorded on the sensor, there is no need to keep the runners in order of finish. They proceed in what is now called the "finish corral" and when reusable chips are used, they have to be turned in before they can exit the corral.

The cost of using chips is obviously more expensive than the barcode bib method. In major championship competition, for Cross Country, place determination being vital, use of other backup equipment is important. The side FinishLynx camera with side hip numbers is used to determine place in which runners that are one tenth of a second or closer apart in time are checked for proper place. This method of chips, side FinishLynx camera and front digital cameras is extremely accurate.

These backup procedures are extremely important because there are still situations that can happen.

Lost chips, broken or damaged chips, can still cause problems. Bib numbers should be worn on both the back, front and side of the runners

so that officials on the course and at the finish area can easily identify any runners who violate the rules.

Timing and scoring the sport of Cross Country has come of age, but I am sure there are more things to come.

About the author-Bob Rush

Professor, Physical Education, College of San Mateo, emeritus

Inventor of the Chronomix Timer in 1978 and starting timing company:

Robert Rush Sports Consultant

Timer of National, State, Local Competition. Head Bay to Breakers timer for 20 years. Timer of California State Cross Country Championships for both community colleges and high schools and five national cross country championships.

Designed and still maintains Crystal Springs Cross Country Course which was built in 1971

Ran in his first Cross Country competition in 1951

Coach of high school and college Cross Country and Track in California for 40 years. Coached on a national level-Head coach for Western US Olympic Festival 1994. Coached on International Level- Assistant Coach For United States at World University Games in Kobe Japan.

Inducted into the California Community College Track and Cross Country Coaches Hall of Fame and the San Mateo High School Sports Hall of Fame three times. College of San Mateo Sports Hall of Fame. In 2015 was inducted into the Northern California Sports Hall of Fame. In 2016 inducted into the Peninsula Sports Hall of Fame and the Nevada Union High School (class of 1953) Hall of Fame

Still running at age 84 and skiing black diamond runs in the Sierra-Nevada Mts. Until age 80 –and still using Chronomix and Runscore!

Electronic Timer

Bob Rush, Inventor

By DICK DRAPER
Times Sports Writer

The runners flashed by, and a trio of young men huddled at the finish line, frantically scribbling down results, double-checking numbers.

They were harried. There was no time to tarry.

But near them was Bob Rush, unflustered, hardly bothered by the finishers at the recent Times Nine races on the Crystal Springs Cross Country course. A runner would come gasping to the line, and the College of San Mateo track coach would thumb a button.

Presto. A gadget, no larger than a normal-sized tape recorder, instantly gave Rush a print-out of the runner's order of finish plus his time.

No fumbling with stop watches, pencils, scraps of paper, clipboards.

"This is the first production model, and by the end of this week there will be 20 of them — and they're all sold," said Rush of the electronic timer, created out of the San Carlos resident's fertile, there-must-be-an-easier-way brain and hardwared by Chronomix of Sunnyvale.

Rush had dreamed of such track and field aid — it can be applied to nearly all sporting events — for about a year, and now owns manufacturing rights and is in charge of distribution.

"It has the latest in electronic wizardry," said Rush, "and it's an exciting development for me. It's going all over the world."

The portable Chronomix timer sells for $645 a copy, and can give splits on relays, times for intermediate hurdles and has outlets for nine buttons — all could be used simultaneously.

"It's portable and has a 10-hour battery life," said Rush, "and can be used in every kind of race — from a dash to the marathon."

Rush has been at CSM for nine years, and previously coached at San Mateo High.

Bob Rush