

Tektronix from MOS Integrated Circuits to the Hubble Space Telescope

By Jon Ferrara (aka Jon Morris, Tek engineer with MOS Group from 1978 until 1993)

MOS at Tek, the early years

There was a little known business at Tektronix about which many people were not aware. This was the MOS (metal oxide semiconductor) design and wafer fabrication business. This business originated in Tek Labs in building 50. There was a design engineering group in Tek Labs and a wafer fabrication group which built a laboratory in building 48. The wafer fabrication group was formed by Brian Corrie who managed the manufacturing and process engineering functions. This occurred in the mid 1970s. The original designs incorporated PMOS (p type metal oxide semiconductors and NMOS (n-type) designs which were used in some of the 7000 series scopes and communications equipment. In the early 1980s this group was transferred to the Integrated Circuit Division of Tektronix which was also located in building 48 at the time. The main business of the IC Division was to manufacture bipolar semiconductors. These were used in all the 5000 and 7000 series scopes as well as other equipment made by Tektronix. So, the MOS business was considered a minor business.

Move from building 48 to the Microelectronics building 59

Later when building 59 was built, the wafer fabrication, assembly and engineering functions of the bipolar part of the business were moved into the newly built building 59. The MOS group remained behind in building 48 until several years later when a MOS wafer fabrication lab was built in building 59. About this same time, the design function was transferred from Tek Labs to the MOS group.

Development of CCD business

There were several engineers led by a Chief Engineer named Dr. Morley Blouke. Morley had a number of patents related to CCDs (Charge Coupled Devices) and started designing some of these for the group. It was at this time now in the early 1990s that the group began selling these designs for electronic imaging. The first customers were major observatories around the world which used the CCDs as the digital image capture feature of cameras mounted on the telescopes. NASA became aware of the CCD group at Tektronix and issued a sub-contract through Ball Aerospace for a second generation STIS (Space Telescope Imaging Spectrograph) or camera system to be installed in the Hubble Space Telescope (HST). The original HST had a defective mirror which made the telescope near-sighted and the camera system was primitive compared to the capability of the Tektronix CCDs at the time. A mission was quickly designed by NASA to add a corrective lens to the HST This was done in 1993. Then an upgrade to the

camera system to be higher definition using the Tektronix CCDs was completed in February 1997. Another major customer group was medical imaging which used CCDs for digital mammography (breast cancer detection).

Spinoff of CCD business

In late 1993 as Tektronix was planning to divest the Microelectronics business in building 59, they sold the CCD business to a private equity company from Kentucky. The group renamed themselves SITE (Scientific Imaging Technologies). Most of the Tektronix employees about 50 people were hired by the new company. They continued to operate from building 59 by leasing their space from Tektronix. Later in 1996, after Maxim purchased building 59 from Tektronix, SITE moved off campus to continue their business.

About the author:

Prior to joining Tektronix I had 8 years experience as an MOS design engineer at a Silicon Valley company in Mt. View, CA. I was hired at Tektronix on January 2, 1978 as an MOS product engineer to assist with the recently formed MOS products group which were being manufactured for proprietary use by Tektronix. But I reported to the Product Engineering Manager of the bipolar group in building 48 and later moved into building 59 when the IC Division moved there and was renamed the Microelectronics Division. Throughout this time, I provided engineering services for the MOS group and eventually transferred to them as an Senior Engineer. I held various positions

in the group including Test and Assembly Manager and Quality Manager. A position I held when the group was spun off to SiTe. I was with the new company until September 1994. When I left to join Tek Labs in building 50 as a project manager for three of the scientists with government contracts.

My life after Tektronix

In 1996, I left Tektronix and became Procurement Quality Assurance Manager for an aerospace company in Redmond, Washington. In January 2000, I moved to Oceanside, California to consider retirement there. But by June 2000, I decided to go back to work for a few more years. I became Quality Manager for Ferro Electronic Materials in Vista, California. I retired in June 2003 and moved to Henderson, Nevada. My wife and I live in a nice guard gated community next to a golf course. We enjoy the entertainment and dining options here.

The Good Old Days at Tektronix

But I will always remember Tektronix where I spent most of my working years. Since my retirement, I have visited with some of the current employees at Tek booth during the Optical Society annual conventions in San Diego, Anaheim and Los Angeles. Most of these people are newer employees and have only heard stories about the good old days at Tektronix when we had free coffee and donuts, profit sharing, pensions, lucrative vacation time (5 weeks after 15 years), and a happy working environment. I can still remember Tek President and co founder Howard Vollum walking across the parking lot in the morning to his office in building 50 because he didn't believe in having reserved parking spaces for executives. Also, his "walking-around" tours to see what the engineers were inventing next. Oh, for the good old days!!!

A Career at Tek in Field Sales and Marketing

By John Simmons

I began my career at Tektronix in January of 1967 as a Field Engineer candidate in the Syracuse, NY Region. I retired in 2006 as an Application Engineer working in the Mid-Atlantic Region. My LOS was a little over 36 years. For those of you are working the math (i.e 2006 – 1967), I left Tek and spent several years working for other companies. For those of us who left and came back to Tek, we were often given the label Retread, but I think most of us became better employees because of the experience.

For many of my years at Tek, I spent majority of time selling and marketing fringe product lines including Semiconductor Test Systems, Signal Processing Systems, Microprocessor Development Systems, and yes, even Numerical Control. Besides the Oscilloscope, I spent time selling Logic Analyzers, Spectrum Analyzers, Television Products, TDRs/OTDRs and Graphic Terminals.

With that background, I'll jump back to my days as a Field Engineer (FE) trainee. The first couple of months were spent traveling the Region with experienced FEs. FE's that I traveled with were: Bill Eppick and Bob Johnson (Detroit); Bill Demerlee (Syracuse); Joe Gayer (Pittsburgh); Jim Fischer (Endicott). Bill Eppick, Bob Johnson and Jim Fischer eventually took jobs in Beaverton with Tek. My time with Jim Fischer was especially memorable. I came away thinking "How am I going to follow that act!". Jim is one of the wittiest persons I've worked with. I suspect those who interfaced with him in Semiconductor Test Systems would feel the same.

Lucky me, the Syracuse Region encompassed much of the Great Lakes

area. The region has its fair share of lake effect snow in January and February. On one occasion, flying back to Syracuse from Detroit late in the day, the Syracuse airport was closed because of heavy snow. The airplane turned around and landed in Buffalo which was a bit strange because Buffalo typically gets a lot more snow than Syracuse. The airline put us on a train from Buffalo to Syracuse. It was 4 or 5 AM before I got home. I'm sure those of us who travel a lot have had similar experiences but this one sticks with me.

The rest of FE training consisted of six months in Beaverton. Most FE trainees moved their families with them as I did. Many rented apartments directly across Jenkins Rd. from the Tek Campus. Being different, I rented a duplex SE of the city. Prior to moving to Oregon in March for training, I was told to expect a lot of rainy and overcast weather. Well, you could have fooled me; the Portland area went 70 plus days without rain that summer. It was also the first time I experienced temperatures above 100 degrees.

Most of our training occurred in Bldg. 74 on Millikan Way. The training in Bldg. 74 was mainly on oscilloscopes. A lot of class time was spent going over circuit diagrams on products such as the 540 series and the 647. The 453 was covered but since its circuitry was like the 647, we did not spend much time on it. Lab time was spent troubleshooting faults inserted by our instructors plus tweaking delay lines on the 545 non-B scopes for proper transient response. After spending a fair amount of time trying to tweak delay lines, I considered it more of an art form than science based. I was impressed how the manufacturing folks could do it in about a tenth of the time than I could do it.

We also spent a fair amount of time

getting trained on non-scope products by the folks in Product Technical Information (PTI) in Bldg. 50. Many of the people in PTI were Field Engineers on rotation from the field. As an aside, I joined PTI after several years in the field. Some product groups and support folks who trained us include:

Spectrum Analyzers (Danny Welch) – The 491 was just introduced as well as the 1L5 plug-in for the 540 series. In TV Products – I recall Jerry Eastman was the technician. Sandy Sanford trained us on Signal Sources and was a great resource as a Tek historian. Earl Williams for Cameras who provide great background in general camera technology. Sampling Scopes (John Mulvey) – Probably the most technically interesting product for me.

There were other trainers, but approaching 74, I'm not recalling the rest of them.

I should also note who's who (as best I can remember) relative to the structure of Field Training. Tom Long was the manager of Field Training and PTI. Dave Weathers, as Tom's assistant, oversaw FE training. In my opinion Dave set up a great training program. It was a shopping cart style program where we set up our own schedule relative to training on products other than oscilloscopes. It allowed me to complete my Beaverton training in five months instead of six. Our oscilloscope instructors were Chuck Miller and Bob Sadelek. And one person who all FEs will remember is Rose Avery. She helped facilitate our short term move and kind of mothered us through our stay in Beaverton.

Here are some of the other FE's who were in my training sessions: Emory Harry, Angelo Domina, Bob Mahony, Denny Chamberlin, Thor Hallen, Paul Berkebile, Robin Morphew, Dennis Bayne, Jim Quinn, Harry Sheppard,

to work. Thor Hallen did not spend much time in FE training. It was evident he was a technical talent above and beyond most trainees. Within a few months of starting FE training he transferred into engineering.

Endicott Field Office

Syracuse Region

Two Field Engineers

Each Field Engineer had a Field Secretary reporting to him

Main job was Order Entry and Sales Support

Service Center

Major customer was IBM which had a number of facilities in the area

Other were Link Simulators, GE, Corning Glass.

Field Engineer Job

Toolkit

Product Demonstrations

For a short time had to use personal

Volkswagen bug to carry demos

User and some Service Training

Trip to WESCON

T4002 Prototype

IBM in Owego NY Testing IBM 360 SLT modules

567/6R1 Repeatability issues

Was told they could not have produced the IBM 360 Model 90 without being able to do dynamic testing of the SLT modules with the 567/6R1

Death Notices

Allen, Faye J. –d12/31/2016 @Tek 6 years

Batchelder, Burton Milford – d6/4/2017 @Tek 17 years

Berrigan, Delores –d6/30/2017 @ tek 18 years

Bloom, James Robert –d5/31/2017

Brauner, Eleanor Reed-d4/27/17 @ Tek 5 years

Deaver, Frank L. –d3/29/2017 @Tek 28 years

Freed, Dorothy “Dolly” -d6/3/2017

Mitchell, Edward -d 3/2017 @24 years

Prier, Stanley Aubrey –d12/23/2016 @Tek 21 years

Vandecoevering, Agnes M – d12/23/2016

RETIREE BENEFIT INFORMATION & ADDRESS CHANGE PROCEEDURE

Retiree Medical and/or Life Insurance

Anyone who is a past employee with Retiree Medical and/or Life Insurance will need to request information or make changes in writing to A & I. You must include your signature and Social Security number.

Tektronix Post Employment Services
A & I Benefit Plan Administrators, Inc.

1220 SW Morrison St., Suite 300
Portland, OR 97205-2222
Toll Free: 1-800-778-7956
Fax: 503-228-0149

401k Benefit

Anyone who has a 401k benefit must contact Fidelity for information or to change their address directly with them at:

1-800-835-5092

Cash Balance Plan

The Cash Balance Plan has been transferred to Danaher Pension Plan Processing Center with Hewitt. Questions or changes should be directed to:

1-800-580-7526

Tektronix Retiree Volunteer Program

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Tek Retiree Newsletter is published quarterly by the Tektronix Retiree Volunteer Program. Send all correspondence to Tek Retiree News, M/S 22-037, PO Box 500, Beaverton, OR 97077

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www.tekretirees.org

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From the Editor

This issue brings more recollections about work experiences at Tektronix. John Simmons and Jon Ferrara had quite different jobs at Tektronix, and I hope their stories are reminders of the time you spent at Tektronix. I'm trying to keep a regular flow of stories in the queue, and I'd like to hear yours.

I'd like to acknowledge some of the "behind the scenes" work. Pete Nelson is on top of lots of details to keep addresses current, and to bring news of those who are no longer with us. Also, I'm delighted that Louis Sowa is continuing to do the page layouts for what become the printed and PDF versions of the newsletter.

Finally, I'd like to welcome John Stoops to our staff of volunteers. My vision for our newsletter is to attract the occasional new retiree. Its already been more than fifteen years since I left the company, and I look forward to the continuous refreshing of stories, not just about the "founders' company, but also about the recent accomplishment that keep the Tektronix name vital.

Bill Gellatly

CALENDAR

Previous Tek-Employees Luncheon

11:30 a.m. 2nd Monday monthly

Peppermill Restaurant

17455 SW Farmington Road #26B

(Corner of Farmington

& Kinnaman Rd)

Aloha, OR 97007

Details: Annetta Spickelmier

503-649-2491

Redmond Breakfasts

8:00 a.m. 1st Monday monthly

Shari's Restaurant; Redmond, OR

1565 SW Odem Medo Way

Spouses welcome

Details: Nick Hughes 541-548-1201

TERAC

6:00 p. m.

Round Table — Beaverton

Weekly on Friday

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