

Switchers' Quarterly



Audichron STM



D. Alderdice photo

Switchers' Quarterly

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Inside Information on the Audichron STM Time/Temp Announcer

by Alan David

Photos by the author

In a visit last year to Sharon Telephone Company I spotted a metal cabinet about four feet tall with two large drum type recorded announcement mechanisms on top. Having a strong interest in all things electro-mechanical, I asked about it and was told it was a time and temperature announcer. I was also told I could take it home if I wanted to play with it as it had been there for many years without ever being hooked up.

Thus began an interesting trip into the inner workings of the machine and the history of the company that built it. The machine itself travelled with me all across the eastern half of the country as I am a long haul truck driver. The first stop was Dyersburg, TN where I had been told the machine had come from.

Dyersburg, in the northwestern corner of Tennessee, is a city of about 17,000 people with a BellSouth CO located just north of downtown. I got a few weird looks driving my tractor (without the trailer) into their tight little parking lot, where I met one employee who had been there long enough to remember the machine that was visible though my windshield. I had taken out the passenger seat to get the cabinet into my truck and the Audichron machine was strapped in on the right side of the cab like some electronic co-driver. I was taken into a switch-room which had once been filled with crossbar equipment and was shown an empty section of wall where the machine had once sat. The machine had been removed by a salvage company in the '80s along with the Xbar switch. I had been hoping to find the temperature sensor forgotten on the roof but no luck. An electronic switch now occupied about one quarter of the room. This was a dead end as far as learning anything about how the machine worked, so after stopping for a look at the First Citizens National Bank, whose advertisements were still on the machine, I headed for Atlanta.

On some papers that came with the machine, but did not apply to the machine, there was an address for Audichron. This was also a dead end for Audichron was no longer listed in the local phone book and the phone number that I had was disconnected. (I wonder if that was Jane's voice?) Time for more modern search tools.

At home on the Internet, I looked up Audichron and found out they were now part of ETC Co. with a phone number in Waukesha, WI. Now I was going back where I started!

All this happened over about two months and while going from place to place I was also mapping out the guts of what I had. Besides the two drum drives on top there were two card files of circuits with indicator lights on some cards. ALM was pretty obvious, even to a non-telco man like me, but markings like SA, CA, CW, and AR needed some thought. Eventually though I had enough figured out to feel safe powering up the beast and was rewarded with none other than Jane Barbe, a voice from my childhood, telling me it was 7:23 and the tellers at the drive-up window were always ready to help! Now I knew what I had actually worked, but needed to figure out what was

missing. The temperature part obviously needed an external sensor, and deep inside the time drive was a cut off end of a wire that had gone to something, but what?

A call to ETC technical support let me know that I had a STM (small town machine) and not only were no documents available, they were very surprised that one still existed in working order. I was told that a similar machine was on display at their office and with their consent I paid a visit to see what I could find out through a visual inspection. Inside their machine, a larger, rack mounted version, I found a small circuit board that sensed a magnet which moved back and forth on the drive mechanism and sent a Beginning of Message control pulse to the circuits that answered the incoming phone calls. On expiration of the lease on my machine, rather than remove a very heavy, obsolete piece of equipment from the CO, the tech had simply removed this small part which rendered it inoperable. Modern electronic versions have a way to erase the memory via telephone when the lease expires, and they charge about \$200 to reprogram it. A trip to the local Radio Shack got me what I needed to cobble up a sensor that would work, but not quite the way it was designed to. I used a simple magnet switch to sense when the pickup was at the end of its track. The original apparently was located closer to the center and used a coil and transistor arrangement to send a pulse when the U shaped magnet passed in one direction but not the other.

The cabinet also included a 48 VDC to 120 AC inverter as a backup power source. As long as the drives were fed a proper 60 Hz diet they kept perfect time, but on the 88 Hz from my El Cheapo 300 watt truck inverter they ran rather fast, gaining about 15 minutes overnight. Apparently the phone company did not trust the local power company as the Audichron was wired to run off the inverter and cut to commercial power if the battery feed failed! Since the circuit boards ran off 48 VDC this would have kept the clock running but it could not answer calls.

My machine was set up to answer a maximum of 12 incoming calls at once with a circuit board for each incoming line. Option straps conditioned the cards to work with several different types of switch. As set up an incoming call trips a ring detector circuit, lighting the CW (call waiting) lamp. At the next pulse from the CP (control pulse) lead, the line is answered (CA light on) and the message begins, "Tricia Stanley is just one of our friendly tellers at First Citizens National Bank." At this point the play head lifts off of the ad drum and the time head drops on the time drum for the return to the beginning, "Time Six." The head continues onto a third drum for the minutes, "Twenty Four." A blank space allows the temp message to play: "Temperature Sixty Eight." By this point the ad head is back at the start and the control pulse disconnects the answered lines while connecting the next group of waiting calls. I have not yet found out how to keep an incoming call connected to allow more than one message cycle although some machines

would do so.

In the center of the time mechanism is a large metal drum. A pin follows a spiral groove back and forth across the drum, in turn moving the two play heads over their respective recording bands. Just visible inside one end of the metal drum is a planetary drive. I thought this advanced the minute drum faster than the hour drum but experiments proved that both bands move at the same speed. This means there are very wide tracks of each hour announcement but also keeps the wear on the bands even. The two bands are separate only so the time can be set easily, using a knob for the minutes and a pin for the hours. The advertisement band is direct driven and always plays the same ad unless changed manually with a pin on the other end of the drive.

I would like to thank Paul Wills for going through my roughed out drawings and discovering the circuit that the Temperature mechanism is based on. It is based on a Wheatstone Bridge, comparing the resistance from a temperature sensor that was placed in a small wooden housing on the roof of the CO with the resistance from a slide resistor tied to the the playback head on the temp drum. A 120 VAC servomotor would move the head back and forth across the drum until the two resistances matched. The recordings on this drum were parallel to each other around the drum and ranged from -20 to +120 degrees. Machines that went to very hot parts of the country had ranges from zero to +140 degrees. Not having a temp sensor I hooked mine up to a decade box so I could test the resistance range. Four hundred seventeen ohms got me a -40 reading, 627 ohms got me up to +120. This is about four degrees per five ohms of change. Also, if the resistances being compared got too far apart the SA (sensor alarm?) light would come on.

Having got this far it was time to get the beast out of my truck and put the passenger seat back in so my kids could ride to California for Thanksgiving at Grandpa's house. I set it up in my future switchroom tied to my second POTS line for testing. Between my calls and other switchers who caught my message on the TCI group list serve the machine registered 67 calls over the two weeks I had it connected. I was also contacted by a former employee of Audichron who gave me a fascinating look into the workings of the company around the time my machine was built. He also gave me a few names to contact but unfortunately time has taken its toll and I found none of them.

If you would like to hear a phone company time recording (without an advertisement), the number in Southern California is still +714-853-1212. In northern California dial 916 POP CORN. These sound like they could be the same machine at both numbers. The First Citizens National Bank in Danbury, TN still lists a time number at +731-286-1611 (with bank advertisement), and if you still trust the government, the US Bureau of Standards time check number listed on the top of my machine still works. It is +303-499-7111. Apparently a telco employee was supposed to make sure the time was corrected regularly. Also, if anyone has access to a small CO that once had one of these machines, I am still looking for a temperature sensor.

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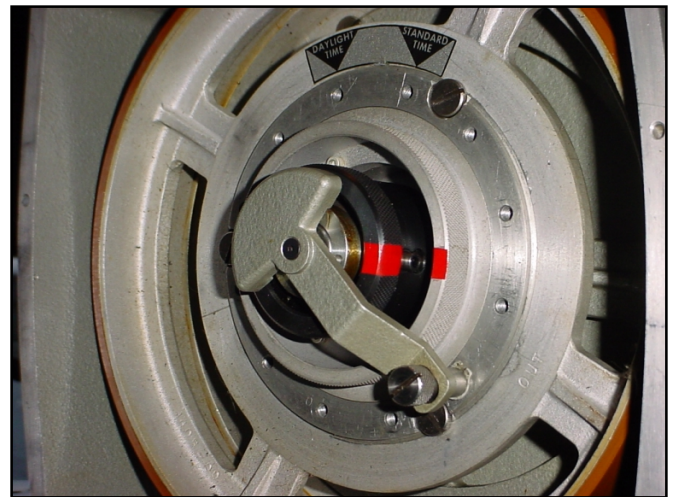


Fig. 1. Time set knob and pin

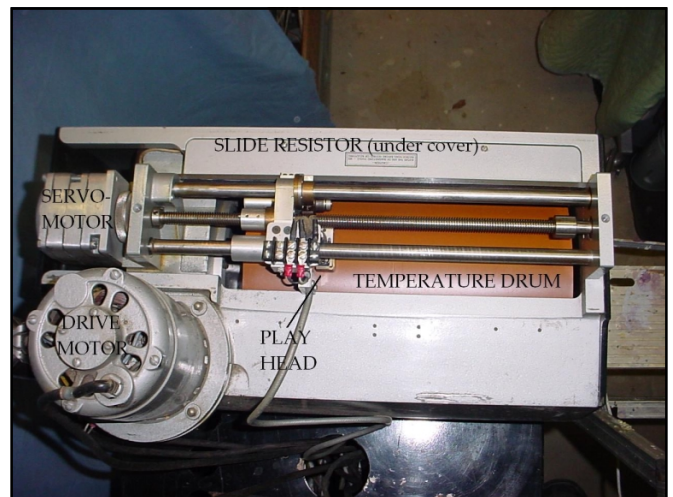


Fig. 2. Temperature drum, annotated.

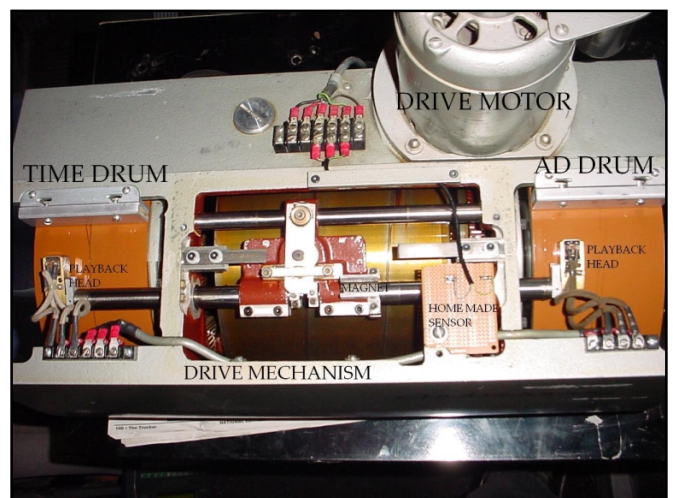


Fig. 3. Time and Ad drums, annotated.



Editor's Note: Alan's machine was on display and working at the recent TCI show in Pittsburgh, and one could call into it via Steve Flocke's portable step switch.

A Switchboard Adventure

by Herbert Schwartz

In the April, 2006 issue of *SQ* Chris requested those who own a working switch or switchboard to come forward with photographs and stories of the how, why and wherefore of their equipment so I decided that I would like to share the story of how a model CB 873 switchboard from the UK traveled many miles to become part of my collection in Vienna, Austria.

It all started with my visit to the National Vintage Communications Fair (NVCF) in the City of Birmingham, England, in the Spring of 2001. While browsing through the telephone, telegraph, radio and TV equipment for sale there I came across a stall that had a largish switchboard (10 CO lines and 50 extensions) which was sold to someone else right under my nose. I got into a conversation with the guy who was in charge of the stall and discovered that he was not a collector but rather a commercial retailer of old and new telephones and telephone related stuff of all sorts.

I asked him if he had a second switchboard for sale, perhaps something slightly less large. He said that he didn't, at the moment, but that he often had a switchboard or two come in and he would be more than happy to contact me if something suitable should turn up. I left him my e-mail address and hoped that he would, indeed, contact me.

It was less than two weeks later that I heard from him - he wrote that he had recently received a CB 873 switchboard in good condition, which he would be willing to sell me for GBP 150. I found some photographs of a CB 875 (physically the same size as the 873) on the Internet and by them judged the size to be suitable for my small apartment. The price didn't seem to be exceptionally high, but how was I going to get the board to Vienna and what was shipment going to cost me (besides an arm, leg and pint of blood)?

This was the one time that being an employee of a smallish airline with home base Vienna really paid off. At the time in question, we had outsourced the heavy maintenance of our Boeing 737 airplanes to a maintenance and repair operation (MRO) running out of Stansted Airport in England. A brief conversation with the airline engineering chief, in which I explained both my (by Austrian standards) outlandish hobby and my shipping dilemma, brought me the reassurance that he would arrange to get my switchboard freighted to Vienna free of charge if I could but get it delivered to Stansted.

I then explained the problem to the seller and, to my great delight, found that he would be willing to deliver the switchboard (wrapped in bubble wrap) to Stansted for a measly GBP 55 extra. I immediately sent the seller payment in full and contacted the folks in Stansted, telling them when to expect the board. It arrived at Stansted in due time but rather poorly wrapped -- the MRO guys were kind enough to rewrap the board prior to putting it into the aft cargo hold of the airplane (which was ferried back to Vienna without commercial passengers on board).

I was off duty the day the 737 was expected back from

Stansted but the engineering chief was kind enough to give me a brief call just before departure so I had plenty of time to drive out to the airport and organize some transportation between the airplane and my car (a three-door compact). I'm sure that the guys who designed my car never, ever expected it to have to transport something as big and heavy as that board but I made it back to near my apartment without a hitch.

I had arranged for a very good friend of mine to help me carry the board from the car over about 150 feet of sidewalk (there's just no legal way to park much closer to the apartment than that) and then up the stairs (I live on the third and last floor and the building does not have an elevator) -- it took us well over an hour (with liberal breaks for catching our breath) before we were inside my apartment and I could unpack my "treasure."

I specifically write "treasure" instead of treasure because I was actually quite dismayed by the condition the board was in. Far from being in "good condition" (the seller went so far as to claim that it was in better condition than the one I had seen at the NVCF), the board I had bought showed water (and other) damage to varying degrees. Oh, the board does work, electrically speaking, but even after my attempts at gentle restoration it doesn't really look all that good physically and it has now been collecting dust for almost five years, waiting for me to either hook some phones up or scrap it.

The obvious lesson is that one should never rely on someone merely describing the condition something is in but instead should at least demand close-up, detailed photographs if it isn't possible to look the article over in person. I now work for a much larger airline and the exceptional cooperation I found previously doesn't exist, and my health no longer allows me to carry something that heavy upstairs (even with help). Firewood, anyone?



Two views of Herb's switchboard (in bubble wrap) on its journey -- coming off the plane (left) and stuffed into his car (below)



Editor's Note

by Chris Mattingly

The weather is improving, but it still gets into the 50s at night. I ride a bicycle 5½ miles to work each night and I still need a jacket. Winter still has a slight grasp on us, and it's almost June as I write this (Update: it's almost July and I don't need a jacket any longer).

Being able to ride to work has its advantages. I no longer need to rely on the truck to get to work, which is a relief. If you have ever seen my truck, you would know why. It has 375,000 miles on it now. I told my supervisor at work I could make a tank of gas last a month, and he said "SHUT--UP! I have to fill up twice a week!" He lives in a rural area and has to drive a long way to the office.

I submitted plans for a storage building for my back yard last week. I have not heard back yet from the city, but hope to begin construction soon. I hope it will take a load off the house and garage and enable me to close out one of my storage lockers. I'm sure it will get just as full as these other places. I'm beginning to think it's already full before it's even built.

Do you remember the movie *Psycho*? That's the movie Alfred Hitchcock made in 1960. It was redone about ten years ago and Vince Vaughn played Norman Bates. The remake used the original music score and the script almost word for word. Now why they did that, I haven't a clue. They could not have improved on the original version. In the original they used all Western Electric phones. In the remake, they used all Automatic Electric phones, older ones that obviously had not been made in many years. In the original there is a scene where two characters, Lila and Sam, who are looking for Lila's sister, go to see the sheriff late one night. At one point, the sheriff's wife picks up the phone and dials a zero. She then says 'Florrie, the sheriff wants you to connect him with the Bates Motel.' Now back in 1960 in a rural town, it's possible that you could know who the operator is. They may have had one on nights at a small toll board for an independent company that covered several towns nearby, and that you would reach that operator when you dialed zero. But in the remake, they did and said exactly the same thing. At this time, operators could be located anywhere in the country and I doubt that you would know which one you were getting or who they were.

Other telephonic mistakes: Back in the 1970s and early 1980s, did you ever notice that when a character inserted a dime into a single slot pay phone, you still heard a 'ding-ding'? Or that when they dialed a number they always dialed short numbers such as ones, twos, or threes, and that the person on the other end answered on the first ring or the caller hung up? There were episodes of the *Rockford Files* where the Trimline phones sounded like 500 sets when they rang. Hollywood needs to have a telephonic consultant.

A postscript to the Electronet article I wrote previously: I use a Western Electric station coupler to connect the PBX to the outside line. These gizmos were used to connect

customer provided equipment to Bell lines (to protect the network) after it became legal to do so, but before Part 68 set standards for this equipment to make direct connection safe.

The coupler provides voice coupling, ring detect and dial pulse repeating. There are two ways to turn on the coupler to answer a call or originate a call, and they both use loop closures on separate leads, not on the internal tip and ring. The first is by closing a loop and keeping it closed. The coupler turns on when the loop is closed and turns off when the loop is opened. The other way uses two other loops. When one of these is momentarily closed, the coupler turns on and stays on. To turn it off, another loop is momentarily closed. This is what would be called an 'x-on/x-off' arrangement. In this mode, the coupler can also be turned off if the host central office momentarily opens the line, like when the person on the other end of a call hangs up and the CO returns supervision. I wanted to use this arrangement on my system to activate the end of call tone when the person on the other end hangs up. I was able to implement this only half way. On incoming calls, it works just fine. If the caller hangs up before I do, the CO opens my outside line, the station coupler detects that, turns off, the PBX drops the connection and gives me the end of call tone. But on outgoing calls I couldn't do this.

The CO here in town is a 1A ESS, which is a computer controlled analog switch. It is like other electro-mechanical switches in the regard that the subscriber's line gets battery and ground feed from whatever trunk circuit is serving the line at a given time, and when the call progresses to the next stage, the line is disconnected from one trunk circuit and connected to another. When using the 'x-on/x-off' mode on the station coupler, there were no problems on incoming calls or outgoing calls to other COs. But on outgoing calls within this CO, there was a glitch. In the 1A, when one local caller phones another, he is connected to an audible ring trunk and the person he is calling has his line connected to a ringing trunk. When the person answers, those connections are dropped and the subscribers are connected to opposite sides of a 'juncator circuit,' and the conversation takes place. It was at this point I had a problem. On other calls the shifting from one trunk circuit to another took place fast enough that the station coupler (when activated by the x-on loop closure) didn't notice that the line was momentarily open. But on outgoing local calls when the line went from the ringing trunk to the juncator circuit upon answer, the shift took too long, the coupler saw that, and dropped the connection. So whenever I called someone here in town, they answered, and then I was cut off. I therefore was not able to implement the end of call tone feature in its entirety, so on outgoing calls I have to use the continuous loop closure to turn on the coupler. The theoretical disadvantage of this is that on outgoing calls, if a PBX phone is left off hook, when the person being called outside somewhere hangs up, the connection to the outside line is not dropped by the coupler and the line can be tied up. On incoming calls, when the person outside hangs up, the coupler sees the supervision from the CO, drops the connection and the PBX will then lock out the station line, keeping the outside line from being tied up. But since I'm the only one who uses it, this quirk probably won't be a problem. *SO*

They're Dialing 'Em Now in Norfolk

New automatic telephone system successfully cut into service at midnight, Nov. 8th. [1919]
Subscribers tried it out immediately -- and it worked. New system serves 15,000 subscribers

From The Transmitter, a publication of the Chesapeake and Potomac Telephone Company, Vol. VII No. 12, published December 1919. Roger Conklin unearthed this and a number of other articles to be published in future issues of SQ relating to the installation and cutover of the first fully automatic exchange installed in the Bell System.

Just as the last second of the last minute of the last hour of Saturday, November 8, 1919, was ticked off by the watches of several telephone men the new automatic telephone system of Norfolk, Virginia, was cut into service.

All during the day switchmen and others were putting the final touches on the equipment. And all day subscribers were wondering if the thing would work or not and planning to stay up until midnight to give the dial a whirl or two.

Although the actual cut-over was not to take place until midnight, many visitors were in the building by 9 P. M. Indeed, they were in the building practically all day, for there was much to see. As midnight drew near, the switchroom acted as a magnet and to the switchroom they came, in twos and threes, until presently there was a large group down at the end of the room, near the test board.

A couple of minutes before midnight, General Superintendent of Plant Tower announced that a gong would ring when the cut-over was started and again when it was completed, and right away folks took out their watches. He said that the heat coils would first be pulled at the old office, and then the toothpicks which kept the current off the lines in the new office would be removed, which would put the new system in service.

The men in front of the line switches whose business it was to pull those toothpicks moved nervously, like athletes waiting for the starter's shot. The second hand of the watches went around and around and then the word was given.

Out came the toothpicks -- whole strings of 'em -- from the switches. Then the clicking began. Subscribers were dialing. The automatic telephone system was in action.

Practically everybody in the city must have telephoned to all his friends immediately after midnight. One of the test-men who had occasion to go in on a line at 2 A. M. heard one chap tell another that he had got out of bed to answer the telephone.

At the old office on Plume Street there were only about eight operators on duty to bid a last farewell to the old manual switchboard there. And there was only one connection on the board when the lights went out.

The manual board for handling public telephones and rural lines in connection with the new system was cut in at the same time, as was the information board, test board and desk. The complete cut-over took two minutes and ten seconds -- fifty seconds to pull the heat coils at the old office and one minute and twenty seconds to remove the toothpicks from the line switches at the new office.

Now, perhaps you may be curious to know how a call is handled. Well, this is how it happens. When Mr. A takes off his receiver the act of so doing operates the "primary line switch" associated with his line, pressing a plunger and extending the call to a similar piece of apparatus known as a "secondary line

switch." The secondary line switch plunger is automatically operated and the call extended to a "first selector," at which time the circuit is in readiness for the dialing operation, which is indicated by the dial tone in the receiver. This dial tone is like the soft buzzing of a bumble bee, or other large insect.

If the dial tone is not heard when the receiver is removed it indicates that the extension of the call has been interfered with at some point between the telephone and "first selector," and the receiver should be replaced for a couple of seconds.

The first digit dialed by Mr. A. is "3." The wipers on the "first selector" are raised to the third level of the multiple bank by the three impulses sent out by the dial. The wipers are then automatically cut in on the multiple banks and the call extended through the wipers and multiple bank contacts to a "second selector," which repeats the operation for the second digit (0) when that digit is dialed. The "second selector" extends the call to the "third selector" which takes care of the third digit (7).

With the dialing of the third digit, the call is extended from the "third selector" to the wiper contacts of a "connector" which has access to the multiple bank contacts of the line being called.

When Mr. A dials the fourth digit of Mr. B's number (5) the wipers of the connector are raised to the fifth level of the multiple bank and there wait for the impulses started by the dialing of the eight, the last digit of the number, which completes the connection by advancing the wipers to the eighth contact in the multiple bank.

With the completion of the call to this point Mr. B's bell is rung and continues ringing until Mr. B answers. While the bell is ringing Mr. A is notified of the fact by a burr-ring sound in his receiver.

When Mr. B answers the summons of the bell, the electrical operation of relays in the connector apparatus stops the ringing of the bell and changes the contacts at the connector in such a manner that the circuit is ready for conversation.

When Mr. A hangs up his receiver, the circuit which was built up by the impulses of the dialing is taken down automatically, and the connector, selector and line switch apparatus return to their normal or first position, in readiness for other calls.

There you have the whole thing; you know just how 'tis done. And the operation takes place in much less time than it has taken you to read about it. All the working of the apparatus -- and this apparatus is located in various parts of the room -- is completed in a few seconds. And all that happened in connection with Mr. A's call happens in connection with every call that is put through, and there are thousands of 'em every

day. In fact, a hundred or more are clicking their merry way through the apparatus at any particular minute of the day you care to mention.

THE MORNING AFTER

Practically all of those present on Saturday night came around on Sunday morning to see how everything was working. The equipment was very much in use -- you could hear the click, click, that told of calls on their way.

The information board was quite busy in the morning, as was also the repair desk, but it was not real trouble. You see, many of the subscribers had not yet become accustomed to the sound in the receiver that indicated a busy condition, and failing to get the party immediately, reported it to the repair desk. The same thing occurred with regard to don't answers. In many cases the difficulty was caused by improper dialing on the part of the subscriber.

All day Sunday men were stationed at the switches, armed with a telephone set by which they could go in on a line where a subscriber appeared to be experiencing difficulty. This helped greatly in keeping things moving smoothly.

The fact that Norfolk is now being served by an automatic central office does not mean that there are no more telephone operators in Norfolk.

A glance of the pictures that illustrate this article will tell you differently. For instance, there's a picture of what is known as the "manual board," located on the third floor of the new building.

This switchboard has 18 positions. The first is the official P. B. X., or rather, a position to take care of the overflow calls to the telephone offices. In other words, subscribers can dial the various departments, and the P. B. X. operator is called into service only when the subscriber is not sure which department he wants.

In the telephone directory, under the listing of Chesapeake and Potomac Telephone Company, are found the following designations: Business office, Repair department, Information, District Manager, District Plant Supervisor, District Traffic Chief, Other Offices.

The "other offices" are those reached through the P. B. X. operator who answers when the number Norfolk 21341 is dialed. As the telephones of all employees are equipped with dials, and each employee can dial the numbers he wants, whether he is calling a subscriber or another employee, it can readily be seen that the Company P. B. X. operator handles no outgoing calls.

The Business office receives and distributes its own calls. That is, the number Norfolk 21311, listed in the directory as Business office, represents ten trunks, which terminate at an order table. It is expected that those who preside at this order table will be able to dispose of most of the calls that come in.

Should it be necessary, however, for another person in the office to handle the call, the clerk receiving it simply pushes a button, which connects him with the person wanted and asks him to take up the call, giving him the trunk number, the name of the person calling, and the nature of his business. The second person takes up the call by pressing a button corresponding to the trunk number.

WHAT ABOUT RURAL LINES?

On the manual board (which we started out to describe) are three positions for the handling of rural lines. If a rural line subscriber wants to call a city subscriber his drop falls in the regular way and the operator completes the connection by dialing for the number wanted. To call a rural number a city subscriber dials "15" which connects him with an operator, who completes the connection manually.

There are several positions for the handling of two-number toll business, which means, of course, toll business to nearby points. The subscriber dials the operator at the other office in the regular way, and an operator at the other office completes the connection in the regular way.

There are five positions for handling calls from coin-box public telephones, those being largely used by strangers who might not be thoroughly familiar with the automatic system.

On the other side of the room there is an eight position information board, which will take care of all information calls from Norfolk, Portsmouth and Berkley.

The intercepting trunks also come in on this board. These are the trunks for handling calls for changed and disconnected numbers.

In addition to the girls who will operate the manual and the information boards, girls will still be required to handle the long distance business, the office for which will remain, for the moment at least, at the East Plume Street address. About 60 girls will be required for this work. And, of course, girls will still be required as traffic clerks. So it certainly cannot be called a "girl-less" system.

A few days before the cut-over we stopped at the old office in Plume Street to look things over a bit. In the terminal room we found a couple of men with automatic equipment rigged up at a desk and every little while they would get a call from somebody at the other end of the line. Acting Plant Wire Chief Jack Kerr told us the calls were made by the installers who were putting in the new telephones all over the city. As each new telephone was installed, it was tested out.

Some of the other work done by the wire chief's force included the handling of an order for every station in the city and the making up of a list of all cable pairs, showing the working lines, cable and pair, and terminals.

A bunch of work was necessary on the old frame, as the lines before the cut-over appeared on both the old frame at Plume Street and the new frame at Bute Street. Some of the cables that wire the new frame are tapped off while other lines reach the new frame by coming in on the old frame from one cable and going through to Bute Street on another. For this reason, the old frame will remain in service for a while. About 6,000 new jumpers were required in connection with the job.

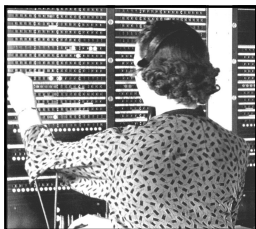
In going through the new building a week or so before the cut-over we came upon a test board, at which temporary equipment was connected up, but which is now the permanent test-board. Men were engaged in calling subscribers and asking them to dial numbers.

The caller would consult a card, dial the subscriber and say: "Do you understand how to work the dial on your new telephone?" Of course, most of them did, having been told, in leaflets and newspaper advertising, just how 'tis done. Then the testman would ask the subscriber to dial the number "9."

To be continued in the next issue of SQ.

The Switch List

Have something to sell, swap or give away? Is there something you're looking for? Although email and eBay have made the Switch List and newsletter classified ads less important, don't forget that not everyone who reads *SQ* has a computer and internet access. In fact, more switchers seem NOT to have Internet than do!



Documents on CD For Sale

Available from John Novack

CD containing scans, in PDF format, of AT&T "Specifications" from the 1920s and 1930s, covering:

- Adjustment of Station Apparatus
- Station Wiring Plans
- Maintenance of A.E. Company Dials at Stations
- Subset and P.B.X. Protector Installation
- Public Telephone Signs
- Dial and Manual Common Battery Stations
- Machine Switching Stations
- And Much more.

CDs of Scans of Bell System Practices from the 20s / 30s in PDF Format.

1 & 2 Titles include:

- Building Entrances
- Wire and Cable Placement
- Common Battery Sidetone Stations
- Common Battery Anti-Sidetone Stations
- 2 and 4 Type Dials
- Jacks and Plugs.
- Station Number Cards
- Dial and Manual Stations
- Magneto Stations
- Desk Stands and Handset Mountings A through E
- And Much more.

3 & 4- BSPs from the 40s and 50s Covering 302, 354, early 500 sets and many more items

CD scans in PDF format of AT&T early drawings from 1905, 1913 and 1920. Lots of early phones and PBX drawings

2-CDs on Coin collectors and paystations from the 30s to the 50s and phone booths.

GTE Station manual CH-120 - Scan of original 2 volume set

Scan of ITT TIMM-2 covers stations from 68-late 70s

Collectors CD Volume one still available. Scans in PDF format of:

- 1925 Stromberg Carlson Catalog
- 1930s Western Electric Railway Catalog
- Samson Catalog
- Panel switching training book
- Edwards Intercom Catalog 1927
- Bell Canada Switchboard instruction manual
- Bell System 507B Cordless switchboard User Guide
- Stromberg Carlson Catalog Bulletins from the 20s

All CDs \$10 each, postpaid, US and Canada. See contact info with SC XY drawings in next column.

Stromberg-Carlson XY drawings

I have a large collection of XY drawings for you XY fans. Many originals available for the asking, copying at cost if no extras. Plus postage, naturally. Some AE drawings also, no duplicates, copy at cost.

For CDs, Linegroup and S/C Drawing information call:

John Novack

304-274-9079

301-728-6231 Free call for Vonage users

666-9900 on the Collectors network

or E-mail jnovack@stromberg-carlson.org

WANTED -- any information, drawings, circuit description, on the Stromberg-Carlson Dialmaster switch. Dialmaster and Dial-X were Private systems that used the TD-4500 series phones. Copy charges and shipping paid of course. John Novack, contact info above.

WANTED -

WE SD-32133 line circuit strips - need up to 4.
WE SD-32194 group and alarm circuit strip - need 1.
WE Peg Counter strip.
WE switch test stand.
Please contact - Jim Burnham, +770-886-0384
jtburnham@bellsouth.net

Place your ads for switchgear wanted or for sale
by contacting
Doug Alderdice
ka2wft@arri.net
(716) 834-2664 evenings
CNET 366-3212

SQ Back Issues

New to *SQ*? Need an old issue to complete your collection? A limited number of printed copies of many previous issues of *SQ* are available. At the moment there's no list of what's in the 'box', so you ask and I dig. Price is \$2.50 per issue plus postage, with all proceeds going to the TCI treasury. See page 1 for contact information. -CM

Volumes 1 through 11 of *Switcher's Quarterly* are also available in Adobe PDF format on CD-ROM from John Novack. The cost is only \$10.00 for all, and includes postage for U.S. and Canadian Checks, money orders accepted. Contact John directly at the addresses above.