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About the New Editor and Publisher

by David Massey



Greetings from your new Singing Wires editor, David Massey. I will be assisted in this new challenge by my oldest daughter, Danette Renee Durham (she prefers being called by her middle name, Renee). Renee is married to a Marine who served time in the front lines of battle in Iraq when the war started. Unlike the rest of us, Renee does not have the incurable disease which causes us to collect old telephones and switchgear. But that's not going to stop her from using her computer graphics and publishing skills to help me with the newsletter layout and preparing it for the printer and online publishing. She hand-skipped the telephone poles graphic at the top of this page from photos we took of abandoned telephone lines along an old railroad track near where we live. I would also like to mention that I'll be getting some proofreading help from Gary Goff and others just to make sure we don't make any mistakes or omit anything important.

Now for a little personal background. I was born in Miami, Florida, four years after the transistor was invented at Bell Labs. This makes me a "baby boomer" which means I've been around long enough to remember rotary dial phones, party lines and exchange names but not old enough to remember turning a crank on a phone to get the operator's attention.

Grandfather's Garage

My interest in telephones can be traced back to my interest in electronics as a child. My grandfather was my first inspiration when he made a battery powered toy traffic light for a Christmas present when I was very young. Through the years he let me tinker with all sorts of interesting electrical items he had collected in his garage. I remember making a solar cell from a selenium rectifier he had salvaged from an old power supply. He said if you carefully

sand off the paint to expose the selenium layer underneath it would produce a voltage when exposed to sunlight – and it did! That got me hooked on photovoltaics – the conversion of light to electricity. I'll have more on that topic in a future newsletter.

My grandfather got me interested in telephones when he gave me two "sound powered" telephone handsets and a Western Electric 5-bar generator. I do not remember who made the telephone handsets but I thought it was interesting that no power was needed to make them operate as an intercom between my sister's bedroom and mine. The generator came in handy for all sorts of experiments other than what it was designed for! "Here sister, hold these two wires while I turn the crank!"

Teacher Inspiration

My teachers also played an important part in my developing interest in science, especially electronics. In sixth grade I was fortunate to have a great science-minded teacher. He had us all build crystal-diode radios but I went one step further and built a two-transistor radio from scratch using 2N107 germanium transistors (similar to the famous Raytheon CK722).

College Years

I left Miami upon graduation from Miami Coral Park Senior High school and attended Florida Technological University in Orlando, Florida. Today it is known as the "University of Central Florida". I brought my limited phone collection with me to the dormitories and boxes of electronic "junk".

It was during my college days when I really became addicted to telephones! Living in the dorms was an experience I will never forget and will always treasure. I met others who were afflicted with telephone

and electronics technology addiction – a dangerous mix for a time when Ma Bell would not allow anything but Western Electric phones to be installed on their network and only by a genuine employee of Ma Bell! That didn't frighten me – after all, I wasn't blue-boxing or doing other activities that were depriving them of revenue. I was being creative with my electronics knowledge and applied that creativity toward making useful things like a wireless telephone from junk telephone parts and Radio Shack parts. I made an auto-dialer using IBM punch cards (remember those?) from my computer class to store the phone numbers. I made a pirate FM radio station with a phone-patch for taking song requests live on the air.

Phone Prank

The funniest thing I ever did with a telephone was when I played a phone prank on my drunken roommate one night to see if I could break him of his drinking habit. You see, he was the president of a fraternity and that fraternity had a reputation for having heavy drinking parties every Friday night. Well, if you are the president of such an organization I guess you are expected to set the example—even if it is a bad example. After returning to our shared dorm room from his parties every Friday night, still heavily intoxicated I might add, he had a routine of calling his girl friends on our shared telephone and brag about how drunk he was. I'm not sure how that impressed his girl

friends but apparently it didn't take much to impress his choice of girls. One thing for sure, I was not impressed and I was tired of him tying up the phone line for what seemed hours while he was drunk. I had to figure out a way to break him of this routine, and I did.

The prank was rather easy to accomplish. Our dorms had Western



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Electric 554 wall telephones – in black of course. As any Western Electric phone collector knows, the rotary dial was mounted with two screws spaced 180 degrees apart. With that in mind, I figured it should be possible to rotate the whole dial assembly 180 degrees and put the phone back together before he got home from his drinking binge one Friday night.

It worked! I lay in my bed pretending to be sleeping when he staggered in that night. With his little black book of phone numbers in one hand and the receiver resting on his shoulder against his ear, he reached out with his other hand to begin dialing the phone. He stops about an inch from the dial, stares for a few seconds at the dial, turns his head almost upside down and then mutters under his breath, “Man, I’ve never gotten this drunk before. The dial looks like it is upside down!” It was all I could do to keep from laughing!

I waited till he went to bed and was in deep sleep before I got up to return the dial to its normal operating position so that when he woke up in the morning he would see that the phone was normal and reinforce the idea that he was extremely drunk that night. Sure enough, that morning he told me how the phone dial looked like it was upside down and he had never been that drunk before! As a side note, I don’t drink and he was an inspiration to never start.

Married Life

It was during the Christmas break of the first year in college when I met a girl named Diana. I gave her my red Princess phone to use in her dorm room while we were in college. Four and a half years later we got married. We’ve been married now for 29 years and have six living children (our first child died in infancy of a heart defect). Two are boys (ages 19 and 21) and four are girls (ages 5, 9, 17 and Renee, my newsletter partner, who is 25).

My Websites

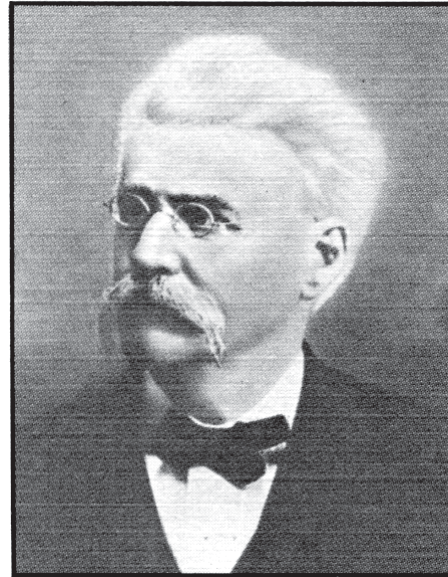
Many of you who surf the Internet are aware of the two websites I started back in 1997. One covered telephone history in general and is called “Telephone Tribute” (www.TelephoneTribute.com). The other focuses almost exclusively on the Bell System and is called the Bell System Memorial (www.BellSystemMemorial.com). I no longer operate the Telephone Tribute website; it is now in the hands of Bob and Sheri Stritof. The Bell System Memorial (www.BellSystemMemorial.com) is an extension of my telephone collecting hobby. It represents seven years of my efforts to obtain and share the technical and corporate history of the Bell System that you won’t find on AT&T or Lucent or any Baby Bell website. Sadly, I never worked for the Bell System or any other telecommunications company so I don’t have any “war stories” to share with others. However, I plan on publishing many of the documents I have on the website plus other documents I’ve scanned.

I hope I didn’t ramble on too much about my life and put you all to sleep; I wanted to give you some idea of my life history and how I got started in telephone collecting and what some of my plans are for this publication. Until next month, keep those phones ringing and those switches switching!

The Wisconsin Telephone Company

*Source: Wisconsin Telephone Pamphlet Celebrating 100 Years
1882-1992, Pg. 8*

Charles H. Haskins brought the first telephone to Milwaukee in the spring of 1877, just one year after the instrument’s invention by Alexander Graham Bell. Haskins was the author of a



book on electrical principles, and he was quick to realize the telephone’s commercial potential.

Later in 1877, Haskins began construction of the first Milwaukee telephone exchange at 411 Broadway, across the street from the Wisconsin Telephone Company’s present headquarters building. Haskins started out with 15 customers. His first venture was

eventually named the Milwaukee Telephone Exchange Company. By 1879, Haskins was appointed an agent of National Bell to operate in Wisconsin, Minnesota and the northern half of the Dakotas.

On a warm summer afternoon on July 7, 1882, Haskins, his son Harry C. Haskins and Atty. Benjamin K. Miller met in Milwaukee to sign the Articles of Association creating the Wisconsin Telephone Company. Haskins was appointed the company’s first president. It was his vision and pioneering spirit that prepared the foundation for what was to come.

Send ads, articles and photos to:

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Photos should be submitted in high resolution JPG format.

Article and Ad deadline is the end of the month prior to publication month.

Please send corrections or suggestions to:

editor@telephonecollectors.org



This newsletter is published by David Massey & Renee Durham for Telephone Collectors International. The opinions expressed in this newsletter are those of the members of TCI and do not necessarily reflect those of the publishers or Telephone Collectors International.

10th Annual TCI Labor Day Show

September 4-5, 2004

Friday September 3, 2004:

Reception 6:30pm - 9:00pm

Saturday September 4, 2004:

7:30am setup show opens to registrants only

9:00am show opens to public

4:00pm TCI board meeting

5:00pm Show closes for dinner

7:00pm Phone auction

Sunday September 5, 2004:

8:00am - 12 noon show open

Registration: TCI Members \$25 - Non-members \$28

Tables:

Regular tables \$20 - Display tables \$15 - Special Requests \$25

Location of Show:

Holiday Inn Airport & Conference Center

1717 Airport Exchange Blvd.

Erlanger, Ky. 41018

Room Rates \$81.00

Call the direct number to the Holiday Inn - Erlanger, KY at:

859-371-2233 for reservations or visit:

<http://www.sixcontinentshotels.com/h/d/holi/hd/cvgap>

The registration code for the special rate is TCI.

Contact Ray Kotke for more info:

katke@voyager.net or 517-641-4953

North of the Border Show

Kingston, Ontario, Canada

Saturday, September 25th 2004 - 8:00 AM to 2:00 PM

The show will be held at the:

Military Communications and Electronics Museum

95 Craftsman Blvd, Highway #2

Kingston, Ontario.

Display and Sale Tables:

\$20 Canadian for initial table; \$10 Canadian for each additional table.

Setup time begins at 7:00 AM.

Awards will be presented for best displays.

Contact: don@technosave.com

work - 613-548-7712 ext. 104

home - 613-549-0127

Collinsville ATCA Show Photos



Wood is NOT dead! This beautiful fiddleback display proves it! If you are new to the club, this should give you a glimpse of what you will see at a telephone collectors show.



Red, White & Blue exhibit of AE 47s by Colored deskset Meister, Jon Kolger. The b&w print newsletter doesn't do justice to the beautiful colors of these phones. Color photos is another advantage of the electronic newsletter.

Thanks to Ray Kotke for these sample photos from the show. There will be lots of color photos from the upcoming TCI show in the next electronic newsletter. Now lets show the ATCA we can top this!

Telecommunications Time Travel 35 Years Ago . . . Machines at your Fingertips

Bell Laboratories Record magazine - July 1969

J. H. Soderberg

COMPUTER: *This is Smith & Sons. Please send your identification number.*

MR. BLISS: *Beep . Beep ... Beep .. Beep ...
... Beep . Beep*

COMPUTER: *Thank you, Mr. Bliss. I am ready to receive your order. Please send the item number followed by quantity and star.*

MR. BLISS: *Beep ... Beep . Beep . Beep
Beep ... Beep ... Beep Beep*

COMPUTER: *You ordered twelve of item number six-five-eight-three-three-six. Please proceed.*

MR. BLISS: *Beep . Beep ... Beep ... Beep .
Beep . Beep ... Beep ... Beep*

No, this isn't the scenario from the latest underground play, but a true-life dialogue as a human "talks" to a machine in a language understood by the machine, and the machine replies in a language understood by the human. How did it all come about?

With the invention of the transistor and the development of a multi-frequency oscillator adaptable to the low and variable power from a telephone central office, pushbutton tone signaling became a reality in the telephone plant. Although tone signaling was initially used for dialing (see *Central-Office Receiver for TOUCH-TONE® Calling*, BELL LABORATORIES RECORD, June 1961), telephone engineers immediately set to work designing equipment that would allow machines at the other end to "hear" the tones, translate them, and take appropriate action. To these engineers, the possibility of "end-to-end" signaling (i.e., telephone-to-telephone as opposed to the common practice of office-to-office signaling) meant a whole new world of exciting and commercially attractive services. For example, they could see the day when you could "talk" across the country to machines such as computers from a pushbutton telephone.

But that day couldn't come about as long as the rotary telephone dial continued to be predominantly used. With the rotary dial, signaling consists of periodic

interruptions of a direct current supplied from the telephone central office. The number of interruptions per rotation of the finger wheel tells the central office which number you are dialing. The dc interruptions, however, cannot travel easily beyond the central office.

With TOUCH-TONE® signaling, the procedure is different. The Touch-Tone telephone produces musical tones instead of the familiar clicks of the rotary dial. Since the tones are in the range of frequencies of the human voice, they can travel over any established connection used for voice transmission—even beyond the central office.

Pressing a button on a Touch-Tone telephone generates two voice-frequency tones. Each digit is represented by a different combination of two out of seven distinct tones. The frequency of each tone was very carefully chosen to minimize interference from harmonics of these tones or from combinations of frequencies found in speech, music, and noise.

Touch-Tone dialing requires a receiver at the central office to translate the incoming digit frequencies into signals that can be used by the switching equipment. The receiver must be sensitive enough to detect tone signals that may have been attenuated over long telephone loops between the customer and the central office, and it must discriminate between valid dial signals and speech or noise on the line.

To use the Touch-Tone telephone for data applications, a similar but more complex receiver is needed at the end of the long-distance telephone call. One reason the receiver is more complex is that more sensitivity is needed due to the greater length of the circuit (it could be transcontinental). Another reason is that data messages are usually longer than central office signals and hence the end-to-end receiver is exposed to longer periods of room noise and voice energy entering the transmitter of the telephone handset, thus increasing the likelihood of noise

simulating the digital information. (The electronic equipment necessary to discriminate between valid signals and unwanted room noise is known in telephone industry jargon as *digit*. Thus, the new receiver was designed with added sensitivity, greater bandwidths, echo protection, digit simulation protection, answerback channels, line control functions, and terminating facilities to connect to a large variety of business machines. This new receiver has become a member of the Bell System's family of DATA-PHONE® data sets and is known as the 403 data set.

With the addition of the 403 data set, the Touch-Tone telephone does more than permit easier, faster dialing—its ability to signal with tones through the switched network equips the telephone customer with an excellent low-speed data transmitter, and at a lower cost than earlier data sets.

The ability to transmit and receive tone signals over any established connection with a Touch-Tone telephone has led to many interesting applications. Now the Touch-Tone telephone can be used not only to dial a computer, but once the connection is established it can be used to feed in data. One such application, where the Touch-Tone telephone first made its impact, is in the area of data collection systems. As the name implies, data collection systems use a large number of outlying stations, each sending data to a central collection point for subsequent processing. These systems handle such diverse operations as commercial and hospital billing and bookkeeping, sales ordering and purchasing, production and inventory control, and time and attendance reporting.

Initially, data collection systems used the 401 Data-Phone data sets, which operate, in part, with the same frequencies as the tones from a Touch-Tone telephone. Thus, the Touch-Tone telephone and the 403 data set could replace the 401 system in many applications which can be satisfied by a simpler format. The savings brought about

by this substitution, when multiplied by the large number of input stations, reduced the cost of the overall data collection system significantly and opened markets that were not economical with the 401 system.

Since the human input to a data collection system is slow, systems using Touch-Tone calling are found largely in local dial areas where there are no toll charges. For national data collection, local collection centers are used as a first step. The local centers are polled periodically by a regional center, and the data stored by each local center is, in turn, transmitted at high speed to the regional center. This avoids long holding times on toll circuits.

Touch-Tone data signaling has had an even greater impact in an information retrieval system known as DIVA (for Digital Inquiry-Voice Answer). About 67 percent of the Touch-Tone data systems in use today, primarily in banks, use the DIVA system. In a typical DIVA system, a call is placed from a Touch-Tone telephone to a central computer location, which serves many lines. Each line usually terminates at a 403 data set, which is controlled by the computer. When the computer tells it to, the data set answers the call and sends an answer tone to the originating party to confirm that the call has been answered. By tapping the appropriate buttons on the Touch-Tone telephone, the caller then sends an "inquiry code" to the computer. The computer, which immediately finds the necessary information by searching its memory, replies to the query in the language of humans. It performs this feat of translation by going to words and phrases prerecorded in an audio response unit, arranging them in proper sequence, and returning them to the caller.

In banking applications, the computer might be asked to retrieve information concerning several types of accounts such as demand deposits, savings, or mortgage and loan accounts. In a typical DIVA banking system, a teller keys from 25 to 31 digits for any given query.

Here's how. The teller dials:

1. The computer location (and awaits answer tone from the computer) (3 or 4 digits)
2. An authorization code (4 digits)
3. A transaction code (2 digits)
4. The customer's account number (8 to 10 digits)
5. The query or other variable information (8 to 11 digits)

The average time to connect and enter information is approximately 25 seconds. The average number of words in any response to a query is about 20 words, which takes about 10 seconds. The audio response unit has a small vocabulary of from about 30 to 50 words. Although the vocabulary is limited, it is adequate to make such responses as

-BALANCE TO CLOSE LOAN ONE SIX EIGHT DOLLARS EIGHT NINE CENTS

A system of telephones and computers will probably never completely eliminate the need for written records. And it should be noted that the computer in the DIVA system described here is not the "official" record but only a working tool to speed services and make them more convenient to use. In fact, the computer memory in this system is updated periodically from the written master records of the bank or credit agency, and processed checks or deposit and withdrawal slips are still used to update the master records.

Eventually, an information retrieval system such as DIVA might be used in any number of similar applications including retail stores, libraries, or doctors' offices. And many people envision a "checkless society" of the future, where goods may be purchased or bills paid from the telephone. It is not obvious that it will be to the customer's economic or operational advantage to pay his bills faster than he does today. This coupled with the need to positively and irrefutably identify the calling party and the requirements for written records are difficult problems which have to be solved to make this dream a reality.

There are many other areas in which a Touch-Tone telephone/computer system can be used to help make life more efficient and comfortable. One such use enables the human and the computer to carry on a conversation, as illustrated in the opening paragraph of this article. Although this use requires more sophisticated computer programming, it has a distinct advantage—the computer can help the inquirer in his own language. Real estate multiple listing services are currently using such a system. In this case, a potential customer goes to a member realtor, who checks his real estate listings using the Touch-Tone telephone. To assure that nothing is left to chance, the computer can ask questions regarding the type of house wanted (ranch, split level, colonial, for example), the number of rooms, acreage, price range, and all other pertinent data. Once the computer has digested this information, it suggests a list of houses which hopefully includes the customer's "dream house."

Still another application using the Touch-Tone telephone for end-to-end signaling is recorded dictation service. For many years the Bell System has offered a dial dictation service which uses the rotary dial to control the dictate mode, playback, end of message, and other functions. This system was restricted to use within a PBX because of the difficulty in passing the do interruptions of the rotary dial over the switched network. When Touch-Tone signaling was introduced, a new circuit was added so that the Touch-Tone phone could be used to send control signals. Although at the present time this service can only be

Final Profit and Loss Statement for FYE 06/30/04

On the last day of fiscal year ending 06/30/04 we had 5,528.84 total cash in the bank. This figure agrees with the \$4,036.15 that was given me by the last treasurer, and the 1.492.69 Gain we had this year... Also keep in mind that we paid off debt of \$3,591.44 that was incurred in FYE 2003.

Thank you for your support.

—
Sam Corcione
Treasurer
Telephone Collectors International Inc.



used within a PBX system, a new dictation service, under development, will accept calls from any Touch-Tone telephone on the switched network. Soon doctors, businessmen, and others will be able to dictate from their homes, coin stations, or motel rooms as well as their offices.

The possibilities for using the Touch-Tone telephone for control purposes are virtually unlimited. Not only can the Touch-Tone telephone bring the computer revolution into every living room or office across the nation, but it can perform many other simpler control functions. It is even conceivable that future systems will permit you to turn on your home air conditioner so that your home will be comfortable when you return from a trip, or let you "shop by phone"—merely by pushing a few buttons on your telephone. The result could be a dramatic simplification of everyday tasks.

As Touch-Tone dialing becomes more widely available, the use of data systems using Touch-Tone calling is increasing. Today, 30 percent of all local central offices are equipped to handle Touch-Tone service. By the end of 1972 that number is expected to increase to 60 percent, and to 90 percent by 1976. And since their introduction, data systems using Touch-Tone calling have doubled each year. But the need for improved service continues as customers make greater use of the increasingly complex communication machine. Thus, studies are now underway to determine the human factors involved in such data systems. The results will be used to improve future service and make it available to those who need it.

TCI Web-Site

<http://www.telephonecollectors.org/>

TCI Group Web Page ...

Open to the public, not just TCI members.

To subscribe, go to:

<http://groups.yahoo.com/group/singingwires> then follow the sign-up directions and soon you'll be part of 500+ online subscribers to the TCI Group.

SONG OF THE OPERATOR

Author: E. Mary Crooker - Alexandria [VA] Central Office.

Contributed by Albert LaFrance



From the November-December 1951 issue of the C&P Telephone employee magazine, "The Transmitter" (p. 56):

You take one part of "number, please,"
Add interest to the sound,
Lace liberally with patience and
Good humor that you've found;

Mix well and blend a helpful note
In each call you record,
And just before you close that key
You'll reap a great reward:

"I got here safely, mother dear,"
Or "You've a grandson, dad,"
Or "Happy birthday to you, son,
"The best you ever had."

You help bring news to brighten up
A shut-in's empty day.
And help that soldier say good-bye
Before he sails away.

You can't say that it's just a job,
It's more than that, you know:
It's life that's passing through your hands
Like players in a show.

So pass that plug and let me aid
A customer in need.
I'll send his call upon its way
With courtesy and speed.

Bell Telephone Magazine

p. 27 - May/June 1969

Coin Service Gets New Feature

"Dial Tone First," part of a long-range Bell System program of coin telephone service improvement, is being introduced in various parts of the nation following successful trials in Connecticut, Illinois, and New York.

Already available in sections of New York City and Washington, D.C., it will be added generally across the country during the next several years at a cost in excess of \$100 million.

The new service enables a coin phone user to determine immediately if the phone is in working order, and it allows him to place credit card, third number, collect, and operator assistance or emergency calls without having to deposit a coin first.

More New Offerings Announced

A new aid for the hard of hearing and a six-button wall telephone set are among the new or upcoming service and equipment offerings of Bell System companies.

Since impaired hearing is more common at higher frequencies, a plastic gong has been developed to provide a low-frequency ringer tone for customers who have difficulty hearing present metal gongs.

The new six-button key wall set is designed primarily for businesses that need wall-mounted, multibutton phones. It combines functions now available only through the use of a general purpose wall set and a separately mounted multibutton key unit, and is available in rotary dial or Touch-Tone® models.

Overseas Network Activity Swells

Rapidly growing demands on the overseas network are being met by Bell System expansion and improvement of its message capability.

Some 720 voice channels to Europe will be added next year when the new transatlantic cable to Spain is cut into service. By the end of next year the number of ground stations serving the satellite network is expected to increase by more than 100 percent, from 22 to 45 stations.

AT&T has requested authorization from the Federal Communications Commission to increase the use of satellite circuits by more than a third - 468 circuits to 643 - by the end of this year. The new circuits would be allocated to Europe, the Mid-East, Africa, South and Central America, the Caribbean area, Hawaii, and the Pacific area. Through the use of improved control units at sending and receiving stations, AT&T also plans to upgrade the quality of more than 100 high-frequency radio circuits this year. These circuits link the United States with 25\ countries in South America, Europe, Africa, and the Pacific.

Last year more than 15 million calls were placed to overseas points - a 25 percent increase over 1967. Overseas television service has nearly tripled each year for the past three years.

Paul and Bev McFadden named Editor's Emeritus

Dear Paul and Bev,

As secretary of Telephone Collectors International, and on behalf of President Gerry Neal and the entire board of directors of this organization, it is both my honor and sincere privilege to transmit to you the text of Resolution Number 339 which passed by unanimous vote at a conference call meeting of the board of directors on August 8, 2004. The text of this resolution is as follows:

"RESOLUTION NUMBER 339

WHEREAS, by Resolution 336 Mr. David Massey was appointed Editor and Publisher of Singing Wires, the monthly newsletter of Telephone Collectors International, Inc., and

WHEREAS, Paul McFadden, assisted by his wife Bev McFadden has, through July of 2004 faithfully served for many years as Editor of Singing Wires, the Primer of Monthly Newsletters for collectors of Antique Telephones,

NOW LET IT THEREFORE be it resolved that, in honor and out of deep respect for these many years of faithful, loyal and excellent service that the board of directors appoint both Mr. Paul McFadden and his wife Bev as Editors Emeritus of Singing Wires, and,

NOW LET IT THEREFORE BE FURTHER RESOLVED, that Mr. Paul McFadden and Mrs. Bev. McFadden, as Editors Emeritus, shall be included in the list of TCI leadership as published each month in Singing Wires, and

NOW LET IT THEREFORE BE FURTHER RESOLVED, that a complimentary Electronic Life Membership in Telephone Collectors International, Inc. shall be provided to Mr. Paul McFadden and Mrs. Bev. McFadden in appreciation for their dedicated and service for faithful service over these many years, and that both of their names shall appear in the TCI membership directory."

We love you both, and hope you will continue as an active contributor of both articles from past issues of Singing Wires, and new articles as well, along with your most professional quality phone show photos, and that we will continue to enjoy your company and presence at all of the future shows that you can possibly attend

Sincerely,
Roger Conklin, Secretary
Telephone Collectors International, Inc.

NORTH ELECTRIC COMPANY - THE FIRST INDEPENDENT TELEPHONE MANUFACTURER

By Roger Conklin

When you hear “North Electric,” what comes to mind? For most it’s the Galion desk phone from the ‘40s and ‘50s. It was a contemporary of the Western Electric 302, but oriented differently - a longer width and shallower depth; the reverse of the 302. For switchers it is the NORTH ALL-RELAY automatic switching system, several thousand of which were sold to Independent phone companies for small towns in the ‘30s, before the 1941 outbreak of World War II, after the war ended in 1945 and into the ‘50s and ‘60s. Over 1000 of these small systems, from 30 to a few hundred lines, were also purchased by Bell companies. (Several TCI switchers have working North Electric CX [Community Exchange] systems today). Connections were made by relays; components that required less maintenance than Automatic Electric’s Strowger step-by-step switches; later licensed by AE to Western Electric. North’s CX All Relay system was a low-maintenance product ideal for small exchanges out in the boondocks. North’s unofficial slogan was, “Install a North CX System, lock the door and throw away the key.” But it was not totally maintenance free. North’s competitors used to whisper that those who threw away the key could be observed scouring the grass around the exchange building trying to find that key in order to open the door again and fix the trouble.

I first knew of North Electric during my childhood formative years in rural southern Michigan. The Citizens Telephone Company of Banfield, a farmer-owned company, used 1905-vintage wood cathedral-style magneto phones with the nametag “North Electric Company, Cleveland U.S.A.” They had a round carbon lightning arrester where the line and ground terminals were located at the top of the phone and were equipped with grounding pushbuttons to press when the crank was turned to “ring central.” You didn’t push the button to ring someone on your own party

line. We didn’t have our own phone in those days, but when we would go visit my uncles or aunts, they all did. They had these same identical North Electric phones on their living room walls. Uncle David’s ring was 2 shorts and a long, Uncle Ben’s was 3 shorts and a long, Uncle George’s ring was a long and 2 shorts, Aunt Avis’s was 2 longs and 2 shorts and Aunt Hannah’s was one long, 1 short and 1 long.

North Electric Company traced its origins to September 5, 1884, only 8 years after Alexander Graham Bell invented the telephone. George Drumheller and Charles H. North, both linemen working for Cleveland Telephone Company, a predecessor to Ohio Bell, formed a partnership, Drumheller & North, and set up a shop in one corner of the telephone company’s main switchboard room to repair magneto telephones. Charles North was a graduate of Oberlin College. They worked mainly evenings and Sundays, their time-off from Cleveland Telephone Company, subcontracting the repair of telephones. Shortly thereafter they moved into their own building at St. Clair Avenue and Academy Street, and started working full time repairing telephones and switchboards, and making telephones for the Cleveland, Erie Telephone and Telegraph Co. and other Bell licensees. (Bell’s patents had not yet expired, so the receivers and transmitters were rented by these companies from their Bell parent.). With the expiration of the Bell patents in 1892 and 1893, Drumheller & North started making its own telephones for the new Independent telephone companies that started competing with Bell in Ohio and nearby states. North Electric was the first manufacturer of telephones and switchboards for Independent telephone companies. It was also the first phone manufacturer that I ever knew about.

Drumheller retired in 1889 and Mr. North took over operation of the company, taking in George Steele as a partner and changing the name to North Electric

Company. It began making non-crank common battery telephones and switchboards in 1901.

For several years after Almon B. Strowger’s automatic system was invented and went into service in LaPorte, Indiana in 1892, Automatic Electric Company was alone in making automatic telephone equipment. North Electric developed its own Automanual system, based on patents of inventor Edward Clements who became a major North stockholder. The Automanual system used non-dial telephones. When the subscriber lifted the receiver the call was automatically routed to an operator who ask for the called number and completed the call through automatic switches by depressing buttons on a keyset with 10 buttons in a row (digits 0 through 9), and as many rows as there were digits in the telephone number, and then a Start key that also released her to answer the next call. The first Automanual system was installed in Ashtabula Ohio in 1908. The switchboards were greatly simplified, like an old-fashioned school desk but with keys, lamps and pushbuttons. There were no cords, plugs or jacks. Early Automanual installations were in Tampa, Florida Painsville, Bellfontaine, Conneaut, Lima, Marysville and Wauseon Ohio and Oswego, New York. The last Automanual system was made and installed in 1920. One of the last remaining Automanual systems was serving some 10,000 phones in Fort Dodge, Iowa up into the early 1950s when it was replaced by a new automatic dial system.

North Electric moved from Cleveland to a new and larger plant in Galion, Ohio in 1912. It went through some severe financial difficulties. In 1918, its name was changed to North Electric Manufacturing Company. President Charles North was replaced by Frank McBerty in 1921.

McBerty was one of the most interesting persons in the history of Telephony. He was responsible for automatic development at Western Electric, and completed a working Prototype in 1910 of the Rotary system that was later to become very successful in Europe. There was a dispute involving McBerty, AT&T’s chief engineer J. J. Carty and McBerty’s peer Dr. Frank B. Jewett. McBerty, lost the battle with Dr. Jewett, who favored his own

concept of a Panel system and, backed by Carty, Panel was selected over Rotary for the Bell System.

In 1913 McBerty was “exiled” to International Western Electric’s Bell Telephone Manufacturing Co. plant in Antwerp, Belgium where he continued Rotary development for the European market. The first fully-automatic Rotary system was cutover in Darlington, England in 1914. Panel development took longer; but eventually became the Bell System standard for very large cities. The first fully-automatic Panel system went into service in Omaha, Nebraska December 10, 1921, 7 years after McBerty’s Rotary system in Darlington.

With the Rotary development completed, the outbreak of World War I and the German occupation of Belgium that shut down the Antwerp factory for the duration, Frank McBerty returned to the U. S. We can only speculate why he did not return to Western Electric, but it is thought that having beaten Jewett’s Panel system to market with his Rotary system, McBerty’s return would have embarrassed both Jewett and Carty. McBerty was hired by Charles North in 1918 as North’s chief engineer which that same year changed its name to North Electric Manufacturing Co. In 1921 McBerty was named president, replacing Charles North who retired. Back at Western Electric, in 1924 Jewett was promoted to become the first president of Bell Telephone Laboratories, a new company that took over product development formerly done by Western Electric.

At North, McBerty began a dynamic program of developing an all-relay automatic switching system, the first of which, a PABX, went into service in 1920 in the Galion High School. In 1929 North introduced its ALL RELAY – CX system for public exchanges. Two systems were installed that year in Copely and River Styx, Ohio. Even though the U. S. was in a depression, by the mid-’30s hundreds of

Independent companies were installing CX systems to replace manual service in small towns. By the 1960s there were several thousand CX exchanges in service. Some 1000 had been purchased by the Bell System alone for its small towns. Relays were much simpler and cost less than Strowger



**Ivory North Electric Galion Telephone, with Matte Gold-Plated Fingerwheel, Transmitter and Receiver Rings.
(Courtesy of Gary Goff)**

switches. The CX system was more economical than Automatic Electric’s Strowger Step-by-Step for small systems. The largest CX system ever deployed, initially with 5,000 lines and later expanded to its maximum 10,000-line capacity was installed in 1938 in Johnstown, PA by the Independent company that acquired the physical properties of competing Bell Telephone Company of Pennsylvania in that city and consolidated what had been two separate manual systems into a unified single automatic system.

In 1922 North introduced its No. 1 dial, similar in size to Automatic Electric’s Mercedes dial, for use on North Electric, Kellogg, Automatic Electric and Stromberg Carlson candlestick and wall phones.

In 1939 North introduced its “Galion” telephone with a cast aluminum housing, employing the Western Electric F-1 transmitter, HA-1 receiver and 101-A induction coil. Bakelite replaced cast aluminum in 1950. This phone was available with North, Automatic Electric or Western

Electric dials; whichever the customer specified.

In 1951 the Swedish company L. M. Ericsson purchased a 60% controlling interest in North Electric to strengthen its position in the Western hemisphere, and North developed Americanized versions of Ericsson’s Crossbar system for the North American market; the NX-1 (first installed in 1957 in Seymour, Indiana) for large exchanges and the NX-2 for small exchanges. Simultaneously the word “Manufacturing” was dropped, and the company once again became North Electric Company. North introduced its N-541 equivalent to the Western Electric 500 telephone in 1954. In 1958 North Electric began manufacturing Ericsson’s 1-piece Ericofon. Those were difficult years for North Electric until 1965, when large crossbar orders were placed by United Utilities (today known as Sprint), at that time the 3rd largest U.S. telephone

company after AT&T and General Telephone. In 1966, United Utilities joined the ranks of the major U.S. telephone companies with its own manufacturing company by purchasing L. M. Ericsson’s stock in North Electric. AT&T owned Western Electric, General Telephone owned Leitch Electric and Automatic Electric, and now United Utilities owned North Electric.

In 1966, North began the development of the NX-1E, an electronic stored program control version of the NX-1. It was plagued with problems and systems installed in Guatemala, Honduras and Trinidad & Tobago were removed without ever being placed in service. With the dawn of digital switching, North Electric launched its own development efforts in hope of competing with GTE Automatic Electric, Stromberg Carlson and Northern Telecom with this new technology. It soon became apparent that vast sums of money, far in excess of what United Utilities was prepared to commit, would be required for this development. ITT, which had delayed its

entry into the digital switching market because of its mistaken belief that digital switching would never be economically viable for the local exchange market, woke up to the fact that it had erred. ITT purchased United Utilities' interest in North Electric for \$28 million, hoping to capitalize on North's head start in digital development to jump-start its position with this new technology. The company then became ITT North, a division of ITT and then merged into its ITT Telecommunications, formerly known as Kellogg Switchboard and Supply Co. The North system became known as the ITT 1210 digital system. In 1977 alone, ITT invested \$608 million in digital switching development, in a vain attempt to catch up with Northern Telecom which, at that time was leading the pack. ITT North 1210 systems were supplied to various ITT customers in the US, as well as to its own Virgin Islands Telephone Corporation. One system was supplied at no-charge to Trinidad & Tobago Telephone Company, in the southern Caribbean, as an out-of-court settlement for the NX-1E system that it had purchased from North some years earlier, but because of technical deficiencies was never placed in service.

In 1986 ITT sold its telecommunications manufacturing operations to Alcatel, a French company in which it held a minority interest for a few years, and another chapter in telecommunications history came to an end.

Sources:

1. The History of North Electric Co., Bicentennial Year Issue, not dated.
2. The Flight of Speech 1897-1947, 50th Anniversary Publication, Pennsylvania Telephone Corporation, Erie, PA Wm. E. Rutledge's Sons, New York
3. History of Engineering & Science in the Bell System – The Early Years (1875-1925) Bell Telephone Laboratories, Inc. 1975
4. The Spirit of Independent Telephony, Charles A. Pleasance, Independent Telephone Books, Johnson City, TN, 1989
5. The Ericsson Chronicle, L. M. Ericsson, Stockholm 2000
6. ITT The Management of Opportunity, Robert Sobel, Truman Tally Books, New York, 1982
7. The ITT Wars, Rand V. Araskog, Henry Holt & Company, New York, 1989



Singing Wires

New York Times, 1945

"The song of the wires is steady but it is not monotonous. There are over-tones of lyrical runs, long sustained notes in alto and contralto key, deeper intermittent over-tones of resonant bass. Occasionally one gets a faint hint of a clean, haunting pure tenor. There are times when the tempo mounts in crescendo fortissimo; one almost expects the crash of the percussion instruments and the stirring lifting power of the brasses. Then, again, the wires sing softly of day's loveliness, humming a theme of unexplored possibilities, sustaining the music to accompany the rollicking optimism of robins.

There are men and women in city offices who will look out of their windows these hope-stirring days and think of country roads far away where the telephone wires run from weathered pole to pole, above the lichened stone walls or split rail fences. Years ago they listened to the singing wires. Boys and girls coming home from schoolhouses with lunch boxes in hand still stop to listen. In the song of wires... youth has heard the call to paths of adventure."

And now the rest of the story.

Quite a piece of romance that the Times reporter wrote isn't it?

I was a country boy in 1945 walking one mile each way to one room Wilton school in rural Dubuque, Iowa. I must say that I don't remember the "tempo mounting in crescendo fortissimo" or the "lifting power of the brasses." What I really remember is that when the wires sang the loudest, it was cold as 7734. In one place along the road the snow would drift almost up to the wires. It would form a crust and a nine year old boy could almost touch the "singing wires." I never did though as my teacher had instructed us that we would surely be electrocuted if we touched one of those 12 or so wires. How's that for romance!

I always had my doubts about this though as I had several times heard young men talking about a favorite Halloween prank of the time. They would sneak into a farmer's milk house and steal away with a couple of his milk cans. Then they would somehow get the cans tied to a telephone wire and launch them out over a gully where the farmer would have a hard time retrieving them. All of this effort and I never heard of anyone being electrocuted.

There really was a romance or fascination with these "singing wires" though that I'll never forget. This same fascination has been shared by people, I suppose, since the first telegraph line was erected in the 19th century.

There was a turn of the century painting of a plains Indian entitled "Singing Wires." Then came this "romantic" article from the "Times" in post war 1945 followed in 1972 by Tony Cashman's "Singing Wires," "The Telephone in Alberta." Now in 1989 "Singing Wires" is born again as the name for your TCI newsletter.

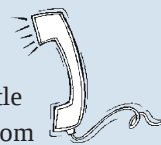
Paul McFadden
Editor Emeritus

Editor's Note: The above article is a reprint from the first TCI newsletter. Paul and Bev McFadden began this publication 15 years ago and I hope that Renee and I can continue to provide the kind of newsletter you have come to expect.

David Massey and Renee Durham

Telephone Trivia

Month after month, the little Bell Company lived from hand to mouth. No salaries were paid in full. Often, for weeks, they were not paid at all. In Watson's note-book there are such entries during this period as "Lent Bell fifty cents," "Lent Hubbard twenty cents," "Bought one bottle beer—too bad can't have beer every day."
- from *The History of the Telephone* by **Herbert N. Casson.**





FOR SALE

Colored and Clear AE40s. These are meticulously crafted utilizing precision molds from the originals. All original components utilized. Original colors as well as custom. Matching dial blanks are now available as well. Also casting many replacement parts to replace your broken bakelite. Pictures can be seen on my website:

<http://my.voyager.net/katke>

I also have a color brochure available.

Ray Kotke
East Lansing, Michigan
(517)641-4953
ATCA #4061
katke@voyager.net

Contact Wally Tubbs
E-mail: dt44829@alltel.net
Phone : 402.423.4716

WANT TO PURCHASE

(1) Western Electric beveled edge transmitter, either a 7 digit or an *ABT* marked, nickel in good shape

(2) WE Long Pole receiver

(3) Western Electric type 22 Candlestick in Nickel (this is the one with the Hershey's kiss perch and the external screw in the lower side of the shaft to hold the internal contact board)

Gary Goff
3805 Spurr Cir
Brea, CA 92823
Ggoff@telis.org

FOR SALE

Bell System circular porcelain/steel "refrigerator magnet," 1.75" diameter. They have a magnet or the magnet can be removed and they can be glued to other surfaces. They look just like the original hubcap design. \$5 to your door.

W.E. 40AL Bauer Barff finish stick, leather covered bottom plate, base, and tube ONLY. Very nice condition. \$40 plus shipping.

A.E. Type 32 subset, small black bakelite box designed for any AE or WE set that needs a subset. These units were made without ringers. Very scarce piece. \$35 plus postage.

W.E. #6 dial on switchboard pedestal, NOS, \$40 plus postage.

Rubber bottom cover gaskets for AE 1A, 34 and 40 models. Cost is \$10 for one, \$19 for two, to your door.

WANTED

Candlestick attachments, especially key operated or coin operated locking devices. Also collect unusual original W.E. rotary dial phone number cards for center of dial. Always buying mint condition W.E. pony receivers and early cloth pin to pin cords for them, especially green ones. Also paying premium for timing devices that attach to the phone or sit along side. Unusual candlestick notepad attachments, the type that fit under the stick or attach to the upright.

- HANDSET CORDS
- DESK STAND CORDS
- LINE CORDS
- ACCESSORIES
- TRANSMITTER CORDS
- COILED HANDSET CORDS
- CORDAGE - Cloth-Covered Tinsel
- RECEIVER CORDS - Two Conductor



NOTE: All cords may be custom made to any length.

DISCOUNT SCHEDULE (for cords and cordage only)	
Orders \$100.00 - 199.99	10% off
Orders \$200.00 - 299.99	15% off
Orders over \$300.00	20% off

**FOR DETAILED PRICING, PRODUCT AND ORDERING INFORMATION
CALL US OR VISIT OUR WEBSITE.**

House of Telephones
2677 E. Valley Drive
San Angelo, TX 76905-8303
www.houseoftelephones.com

Odis LeVrier: olevrier@aol.com
Aaron Hess: blessedbyhim@aol.com
(325) 482-0101 (Voice)
(325) 655-5681 (Fax)

What we saw it at the Collinsville ATCA Show!

By Paul McFadden

Right: The SHOW STOPPER! Roy Basci brought this 1893 Western Electric "Wisconsin" model candlestick. The phone has no identification on it but Roy has a photo that proves it to be a Wisconsin W/E. I don't know of there being another one of these in anyone else's collection.



Top: Richard Rose collection ... WOW!! If I had asked Richard, I could tell you how many there are in the display. Since I didn't, start counting ... 1, 2, 3, 4, 5

.....



Jon Kolger's display!



Telephone company cup?????



Right: Barry could dish up your dinner or oatmeal on his Bell System china. This stuff is really rare. A few months ago we saw a Bell System 9" pitcher sell for around \$900 on Ebay.





*Pete Blanchard brought this 1899 American-
Electric. I've got a spot for
it at my house Pete!*



A portion of Dennis Weber's insulator display.

*Below: Mrs Bob Ifland always has a
dial phone with her*



*Left: If Stomberg could make
phones this why were they
making 5 or 6 ft tall "grave
tandems during the same time
frame.*



*Right: An early mine or
hazardous atmosphere
phone. Sorry I don't
remember the name of
the owner.*



Left: Ekkehart Willms sales table.



Left: You couldn't miss this Baird on Jeff Brown's table.



Larry Garnatz display!

Right: This unusual insulator is marked "SPECIAL MINE INSULATOR, JEFFREY MFG CO on the top half and COLUMBUS OH, PAT APPLIED FOR on the bottom. The insulator is open on both ends and threaded all the way through. What's that all about?



Front and back view of a Swedish American presentation medal.

Below: This "End O Day" or marbled Princess was on Jerry Gapa's table awaiting "offers."



Left: Found on Ekkehart's table ... one of about 50 great signs that he had



Barry Erlandson's 1894 Stromberg Carlson "Coffee Grinder" or "Milk Carton" candlestick telephone sans switch-hook. Barry says there is bright nickle plating in protected areas ... thats hard to believe isn't it with the patina the outside has. Did you know that in addition to the ringer, the phone also has an enclosed magneto.

Below: During the early evening hours, Dick Marsh's collection was auctioned off. Seems like there were some nice pieces in there didn't it.



Right: With so many phones missing the number rings, you just got to know that there is a "black hole" somewhere in the universe just sucking all of them up. Well Barry Huckaby had 2 boxes of them sitting on his table ... mystery solved we think.



Left: That Barry Erlandson guy again ... have you ever seen one of these "switch in handset" models with a 7 digit tag on it.



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Frank Ruffino's fiddleback and candlestick display.

LABOR DAY SHOW 2004

Location of show:

Holiday Inn

Cincinnati Airport Conference Center
1717 Airport Exchange Blvd.
Erlanger, KY 14018
(859) 371-2233
All Rooms \$81.00

"save by booking in advance on-line".

Call **Holiday Inn** before **August 2, 2004** to make reservations. Mention the TCI show for special Show prices. *This is a Holidome type Inn with an enclosed swimming pool for the kids*

Friday, September 3, 2004

6:00 PM Get together in Central lobby for socializing and a cash bar in the lounge

Saturday, September 4, 2004

7:30 AM Set Up — Show open to **registrants only**
9:00 AM Show opens to the public
4:00 PM TCI Board of Directors meeting
5:00 PM Showroom closes
7:00 PM Auction begins

Sunday, September 5, 2004

8:00 AM Show open to public
12:00 PM Show closes

If you have any questions about the show, please call:
Ray Kotke (517) 641-4953 katke@voyager.net



I-275 at Mineola Pike, Exit 2
(859) 371-2233

----- (Cut Here and Mail) -----

CINCINNATI 2004 REGISTRATION FORM

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____ - _____

Telephone Number: (____) - _____ - _____

Registration Fee:

TCI MEMBER \$25.00 ----- \$ _____

(spouse & children free)

Non-member \$28.00 ----- \$ _____

Table Fees:

\$20.00 per (sales) table: \$20.00 x _____ ----- \$ _____

\$15.00 Exhibit table (**No Sales**) \$15.00 x _____ ----- \$ _____

TOTAL ----- \$ _____

☐ Check here if you need table/space for Saturday (Daytime) only.

We might need space for the Saturday night auction.

MAIL THIS REGISTRATION AND CHECK TO:

TCI Fall Show
15566 Park Lake Road
East Lansing, MI 48823-9402

AUCTION ACTION

Saturday, September 4, 2004

7:00 PM Auction begins

Location: Show room

Auction tags "for sale" will be announced mid day, Saturday. They can be purchased at the registration table. Items can then be placed on display auction table.

An Auction tag fee is charged on "for sale" items.

Tags for "Donations" are free.

Your auction number is located in your packet.

All auction purchase fees are to be paid to cashier at the end of the auction.

The cashier will record all sales and distribute funds to sellers.



**Camaraderie
2002**

CINCINNATI USA
The Official Visitors Guide
To obtain our free copy of the Cincinnati
visitors guide call 1-800-Cincy-USA.

The Big Bang
The WEBN/Toyota Fireworks Spectacular
The most expensive fireworks display in the
country takes place on the Ohio Riverfront
Labor Day Weekend .. Sunday Evening!



**A composition
of camaraderie
from Cincy 2002**



Membership Enrollment/Renewal 2004

Telephone Collectors International

Member Information

New Member _____ Renewal _____ (Check One)

Date	
Name	
Spouse (if applicable)	
Street Address	
City ST ZIP Code	
Home Phone	
FAX	
E-Mail Address	

Memberships (July 1, 2004 - December 31, 2004)

Choose one (E-membership or Standard Membership):

 E-Membership: Global Dues - \$12.50; Newsletter sent in electronic form only--NO PRINTED VERSION (Must have valid Email) _____

Standard Membership: USA Dues - \$19; Canada Dues - \$20; Abroad - \$25; Printed newsletter sent via USPS Mail _____

.....
New! E-Membership!
Introducing our new "E-Membership."
Get your Singing Wires hot off the wires
electronically. Ready to join the
paperless revolution? Sign-up for your E-
membership today! (E-Switcher's
Quarterly also available)
.....

Choose one (Switcher's Quarterly or E-Switcher's Quarterly):

 Switcher's Quarterly (Print Version): Add \$7.50 _____

 E-Switcher's Quarterly (Electronic Version): Add \$4
(Must have valid Email) _____

Spousal Membership: Add \$5 _____

Contribution to the TCI Reserve Fund (Tax Deductible) _____

Total _____

PLEASE NOTE: Beginning January 1, 2005, TCI will be changing its membership year to the calendar year. Therefore the remainder of the 2004 calendar year will be considered a "Bridge Year" and all membership renewals or new enrollments will be for the six-month period beginning July 1, 2004 through December 31, 2004 only. We will resume full-year memberships and enrollments on January 1, 2005.

Payment Options

Option #1 Send Check or Money Order (U.S. Funds Only Please) made payable to *Telephone Collectors International* to:
Telephone Collectors International, Inc.
2859 Central Street PMB 152
Evanston, IL 60201-1234

Option #2 PayPal payment to **treasurer@telephonecollectors.org**
(When paying via PayPal, you must fax this completed application, along with the date of the PayPal transaction, to the Treasurer. FAX number: 1-801-849-6520)

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