

BROADCAST TECHNOLOGY

JANUARY 1985



New CHCH-TV Building in the Steel City

Conference Reports:

• **BEAC** • **RTNDA** • **Satellite User Conference** • **'Convergence'**

Facilities:

TSN—The Sports Network

Lighting:

Color Filters

Broadcasters and Radiation

Selecting an FM/TV Antenna

Austerity Strikes at the CBC...

The sad part of the CBC budget cuts is the lay-off which will put 750 employees out of work. (Another 400 positions are to be eliminated through attrition and voluntary retirement.) Most of the cuts are in administrative areas, and engineering is among those departments most affected.

The perception of the CBC by many Canadians is that of a bureaucracy somewhat removed from reality — 'arty' in its programming, leftist in its political opinion, wasteful in its handling of public funds. For fiscal 1984-85, the Corporation asked for \$896 million from taxpayers, and its total budget was \$1 billion, 38 million.

In fairness, it must be said that Canadians receive an impressive range of services for their money and that the failings found in the CBC also exist in the private sector. All in all, we can be proud of the CBC's accomplishments — and these are not only in programming. The standards of broadcast engineering in Canada are high, and the CBC's impressive array of technical talent has led the way; it would be unfortunate if this edge were to be lost.

It is to be hoped that a leaner, more efficient Corporation will emerge from the budget cuts — perhaps more open to new answers and approaches to reach the objectives set for it. For example: Could there not be more sharing of talent between those 'two solitudes'—the English and French divisions of CBC? Cannot privately-owned affiliates offer greater (any?) input to the networks? What further initiatives can be taken to market CBC services? It's a time for creative management, as well as creative programming.

An Offer to Those Out of Work...

To assist those seeking employment, we would like to offer a free listing in *Broadcast Technology*. Please send a letter, briefly giving your experience and qualifications, and the type of work and area sought. As we cannot undertake to forward replies, please indicate an address and/or telephone number where you can be contacted directly.

Listings to appear in our March/April issue should be in our hands by February 1st; for May/June, by April 1st. *Broadcast Technology's* circulation provides comprehensive coverage of audio and video production facilities and equipment suppliers, as well as broadcast and cable operations across Canada, and we hope that this free service will assist many in obtaining suitable new employment.

Broadcast News, EN Group to Co-operate...

'Twas the week before Christmas and conciliation was in the air... Broadcast News let it be known that it would co-operate with other delivery systems and offer reduced charges to its customers for any savings effected through the use of their own equipment or that of other systems. BN also has reached an agreement in principle with the EN Group, noting that it has written assurance from president Bill Ballentine that EN's sole function will be to serve as a carrier of services.

CCBE to 'Co-Site' with CAB...

The successful joint convention of CAB and WABE last October in Edmonton was undoubtedly a key factor in persuading CCBE to 'co-site' with CAB in the east. The two organizations will hold their conventions October 20-22 at Ottawa's Congress Centre. Exhibit space booked there by CAB will be turned over to CCBE to operate the trade show, and while each association will have its own agenda, there will also be events of 'mutual interest'. CCBE president Paul Firminger said that while CCBE was reluctant to leave Toronto, the move was 'in the interests of both organizations and of exhibitors'. CAB president Ernie Steele expressed delight that the two groups will come together 'to better serve the needs of the broadcasting industry in Canada'. Credit goes to both associations for working out a solution to their past differences.

Congratulations Dept...

- As Ernie Steele departs CAB, we join his many friends and associates in expressing appreciation for his outstanding service to the industry, and wish him continued health and happiness in his retirement—which will undoubtedly be an active one.

- And congratulations to SMPTE on the election of Harold Eady as president for 1985-86. The cheerful, energetic Harold was chairman of the Toronto section in '69-70 and governor of the Canadian Region in '73-74, then went off to the Big Apple as president of Novo Communications Inc.

Governor of the Canadian Region for 1985-86 is another good man, Howard Wilkinson of CBC Engineering in Toronto. Our best to both.

'Musical Frequencies'...

It's a new game broadcasters are playing now that North American agreements have opened up the use of frequencies which had been reserved as 'clear channels' on the AM band.

Among those on the move: CFGO Ottawa, from 1440 to 1200; CKQR Castlegar, BC, from 1230 to 760; CFOB Fort Frances, from 800 to 640; and CKDR Dryden, ON, from 900 to 800 kHz.

Applications in the wings include: CHUR North Bay, ON, from 1110 to 840; CFSX Stephenville, NF, from 910 to 870; CKLQ Brandon, from 1570 to 880; CKOK Penticton from 800 to 780.

(Reminds us of the saying, 'Old broadcasters don't fade away, they just lose their frequency...')

We trust all our readers, advertisers and broadcast friends—new frequencies and old—will have much success and happiness during 1985.



stations in the news

CKST ST. ALBERT SOLD

Subject to CRTC approval, the assets of CKST St. Albert, Alberta, will be sold by QCTV Ltd. to a company headed by Ron East of Prince George, BC.

Founded by a group of local residents in 1979 and later taken over by QCTV, CKST is said to have lost 'several million dollars' during its 5-year history. QCTV chairman Ed Polanski attributed the station's difficulties to the large number of radio stations competing in the Edmonton market (18, with 140 salesmen), coupled with slow economic recovery.

Seven bids were received for CKST, which QCTV will continue to operate on a reduced basis. A CRTC decision is by April, following a public hearing.

TELEMEDIA TO BUY TWO IN SOO

Subject to CRTC approval, Telemedia Inc. will purchase CFYN/CHAS-FM Sault Ste. Marie, ON, from Gilder Broadcasting. Telemedia operates 18 radio stations—10 in Québec and 8 in Ontario—and also publishes *TV Guide* in Canada. Gilder, headed by Russ Hilderley, has 18 full-time employees.

The announcement came only weeks after the sale of CKCY/ CJQM-FM, the Soo's other radio stations, was announced.

OWEN SOUND STATION SOLD

W.N. (Bill) Hawkins, president of Grey and Bruce Broadcasting Co. Ltd. and general manager of CFOS Owen Sound/CFPS Port Elgin, ON, has announced the sale of the stations. The purchaser is C. Douglas Caldwell, a management consultant (Caldwell Partners International), Toronto.

CFOS went on the air March 1, 1940, with Ralph Snelgrove as manager and Bill Hawkins among the seven employees. It was owned by the late Howard Fleming and his family. Today, there are 31 full-time staff members. Hawkins said that the new owner's objective is to maintain the stations' high level of community service.

- **CHGM Gaspé, PQ** was off the air after a \$100,000 fire destroyed its transmitter on the night of October 20. The station is owned by CHNC New Carlisle, whose employees have been on strike for two years.

- **CKOB Renfrew, ON** has applied for a rebroadcaster at Arnprior, ON, 250 watts on 1490 kHz. The new station would originate local programming from 9 am to noon, Monday through Friday.

BROADCAST TECHNOLOGY

ACCESS GOES SATELLITE, EXPANDS TV SCHEDULE

Access, the Alberta Educational Communications Corporation, is launching a new educational television service on January 13, 1985. Programming was previously limited to a morning time block on a number of TV stations in the province. The satellite service, uplinked from Edmonton, provides 84 hours weekly, 10 am to 10 pm daily, distributed via cable TV systems.



Access is leasing a full transponder on Anik C3 from Telesat Canada (transponder T9, half-Canada beam, visual carrier 11.961 GHz, audio subcarrier at 5.41 MHz). Satellite delivery of Access Radio, CKUA Stereo, is to begin in mid-1985, employing the Wegener 1620 system to add two low level audio subcarriers at 5.76 and 5.94 MHz.

CRTC WILL CONSIDER NEW FRENCH TV NET

January 31 is the deadline for proposals to establish a new French-language TV service in Montréal and Québec City. The call follows an application by Cogeco, licensee of CKTM-TV Trois-Rivieres and CKSH-TV Sherbrooke, for a new station in Montréal. Applicants were to address ten aspects of the proposed service, including:

- program development, role of independent production, availability of talent, co-operative arrangements with Canadian or foreign broadcasters;
- financial viability, potential advertising revenues, impact on existing services;
- distribution, e.g., by satellite—and 'how the new service could repatriate Francophones away from English-language viewing.'

CHUM SEEKS 5 MORE STATIONS

CHUM Ltd., which already operates 22 radio stations in six of Canada's provinces, hopes to add five more. The company has taken an option to buy four stations owned by Geoff Stirling—who says he plans

to concentrate on the Newfoundland media holdings: NTV, the OZ-FM radio network, and publishing. The stations covered by the option (which expires in March) are CKGM/CHOM-FM Montréal and CKWW/CJOM-FM Windsor, Ontario. Any purchase would be subject to approval by the CRTC, which has denied previous applications by CHUM to enter the Montréal market.

Meanwhile, a CRTC decision is forthcoming on CHUM's application for a 50 kw FM at Middleton, NS, which would rebroadcast C-100 Halifax. The proposal was opposed by the Annapolis Valley Radio group, based in Kentville, NS.

CFMX OWNER EYES 97.3

Martin Rosenthal, owner of Electro Sonic Inc., is among the applicants seeking 97.3, Toronto's only remaining FM channel.

In the summer of 1983, Rosenthal resurrected Canada's only commercial classical music station, CFMX-FM Cobourg, after it went into receivership. With new staff and equipment, CFMX now operates 24 hours a day, its 117 kw signal covering a large part of southern Ontario. However, it does not cover Toronto, and Rosenthal believes a similar format would succeed there. CFMX manager Ian Sutton notes that the 50 commercial classical music stations in the U.S. had a 30% growth in revenues last year, much higher than the industry average.

- Employees at CHUM Ltd. stations in Newfoundland have applied for union certification with NABET. The stations include CJYQ/CKIX-FM St. John's and 'Q' AM network affiliates in the province. NABET has about 6,000 members in Canada, employed at the CBC and 60 of the country's private stations.

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New Building and Facilities for CHCH-TV

by Jim Mercer

CHCH-TV first went on-air on June 7, 1954.

For almost 30 years, the station operated out of seven separate buildings. In the early years, the station did not own a large amount of equipment and space was adequate, although there was some inconvenience in operating out of so many different locations.

As the years went by, however, gradual expansion of our technical facilities eventually led to a very congested plant. Expansion space was used up, power plant was inadequate and air conditioning was

overloaded. We were eventually operating 1-inch and 2-inch videotape editing out of the same room, which meant that editing had to be carefully scheduled according to format. ENG editing facilities were spread between three buildings, which sometimes meant that while there was a backlog of work in one building there might be a suite sitting idle in another.

Technical areas could not be kept clean due to the constant traffic between buildings, and this had a detrimental effect on such things as VTR head life.

By 1979, these factors combined to bring the company to consider a major building project, and in the summer of 1980 a building committee was formed consisting of general manager Frank DeNardis, Selkirk property consultant Norm Cuthbert, operations manager Reg McGuire and director of engineering Jim Mercer. The job of the committee was first of all to determine what was required, where it should be located and how much it would cost. This was done by examining the facilities that we had at that time and identifying the good and bad features. We would try to retain as many of the good features as possible and, of course, try to find solutions to the problem areas. We would look into the crystal ball and try to predict where future expansion might be required and where operations might be expected to decline. During this early period we also visited a number of relatively new stations in Canada and the U.S., in order to reap the benefit of their experience.



Hallway linking new building to Southam House.

New Equipment at Channel 11

- Adcom Electronics: ADDA digital effects, Yamaha audio mixer
- Applied Electronics: Electrohome and Ikegami monitors, Vinten pedestals and heads, Q-TV camera prompter
- BCB Electronics: Phaser V's
- B&L: coaxial connectors
- Bosch: KCP-60 cameras, Schneider lenses; CHCH now has 20 Bosch cameras in use—three KCP-60s were installed with the new studios and another three (January/85) in the news centre.
- Broadcast Video Systems: Image Video routing switcher and machine control, EV waveform/vector monitors, delay lines
- Central Dynamics: master switcher, two production switchers
- Cabletel: Andrews 4.5m steerable dishes, Microdyne C-band receivers
- A.J. Fish: custom consoles
- Glentronix: Leitch Video SPGs, DAs and Proc Amps, Torpey clock system, Cooke Co-Terms, Farrtronix jackfields
- Hammond: equipment racks
- J-Mar Electronics: Otari 4-track recorder, JBL speakers, Shure mixers, Sonex
- MSC Electronics: Colorgraphics computer graphics system
- Maruno Electronics: ITC cart machines
- McCurdy Telecommunications: telephone hybrids and conference unit
- Nedco: Cableway fire stops
- Scientific-Atlanta: KU-band receivers
- Sony of Canada: BVH 1100A02 VTR, BVH 2000 VTR, color monitors
- Strand Century: 2 Mantrix studio lighting control systems
- Taycotronics: Autocad drafting system, Studer A810 2-track recorders
- Telcom Research: time code readers and generator
- Tevelec: wire and cable
- Ward-Beck Systems: Microcom intercom system, custom 48x48

In August of 1980, we had our first meeting with the Moffat Kinoshita Partnership who were chosen as architects for the project. Various rough plans were developed, some of which were rejected. Others were combined and refined until in May of 1982, we were finally ready to go to tender with a design that we felt was the optimum we could achieve within our financial and real estate budgets.

The selected design was for a building that would provide about 47,000 square feet of space in a 3-storey plus basement



Photo shows historic Southam House in Hamilton, contrasting with CHCH's new \$7 million facility adjoining. Opening marked Channel 11's 30th anniversary.

layout. The old 'Southam House', which had been our main operations centre, would be retained and fully restored, having been designated of historical value. It would be used as executive offices and would be physically linked to the new building. Architecturally, the ultra modern appearance of the new building reflects the 'high tech' image of the broadcasting industry, and the use of steel paneling for the outer fabric helped to achieve the desired impression—as well as being in keeping with Hamilton's reputation as the 'Steel City'.

The physical layout of the building evolved out of a number of basic concepts.

Our old Studio A stood on the site now occupied by the new building, and had to be demolished to clear the site. It was replaced by a new 50'x80' studio which is two stories high, allowing a height of 22' to the underside of the lighting grid. A room was set aside for future use as a studio control room. It has not been equipped at the outset, as we have always been concerned about the relatively low utilization of equipment permanently installed in studios. In the old studio operation, we had made use of one of our two mobile units as a control room and this practice will be continued in order to allow more efficient use of valuable equipment. An 1,800 sq.ft. garage, which will house both of our mobiles, is also included in the design. It is arranged in such a way as to allow direct access into the production area of one of the vehicles, from the hallway adjacent to the studio. As we are so heavily-involved with mobile production work at CHCH, we have a separate maintenance group who look after the mobiles, and they have been given a small maintenance shop conveniently located close to the garage. A storage area is also provided which will hold all of the peripheral equipment that comes and goes on remotes. Also on the

ground floor are the shipping and receiving departments, the set design department and a small amount of office space.

Below the studio there is approximately 6,000 sq.ft. of storage space for props, set storage, lighting equipment, etc. A freight elevator was installed in order to make the storage area more easily accessible. Also in the basement, and located close to the main elevator, are the dressing rooms, make up, green room and commissary. The commissary, although located in the basement, does in fact have an outside window which was made possible by excavation and terraced landscaping. Other facilities located in the basement are the tape storage vault, the powerhouse, telephone exchange, a 145 kw standby generator and some office space.

The second floor is given over entirely to the Newsroom and other related production groups, all of whom use ENG or EFP style shooting as their production format. Centralized within this area are 5 editing suites, 5 screening booths and 2 voice-over booths. This layout avoids the inefficient use of editing facilities that we had experienced in the old building. The newsroom itself also served as a studio from which the newscast is presented. This required some special design considerations due to insufficient headroom for lighting fixtures. A coffered ceiling arrangement was devised which allows sufficient space for light and at the same time prevents them from being seen on camera.

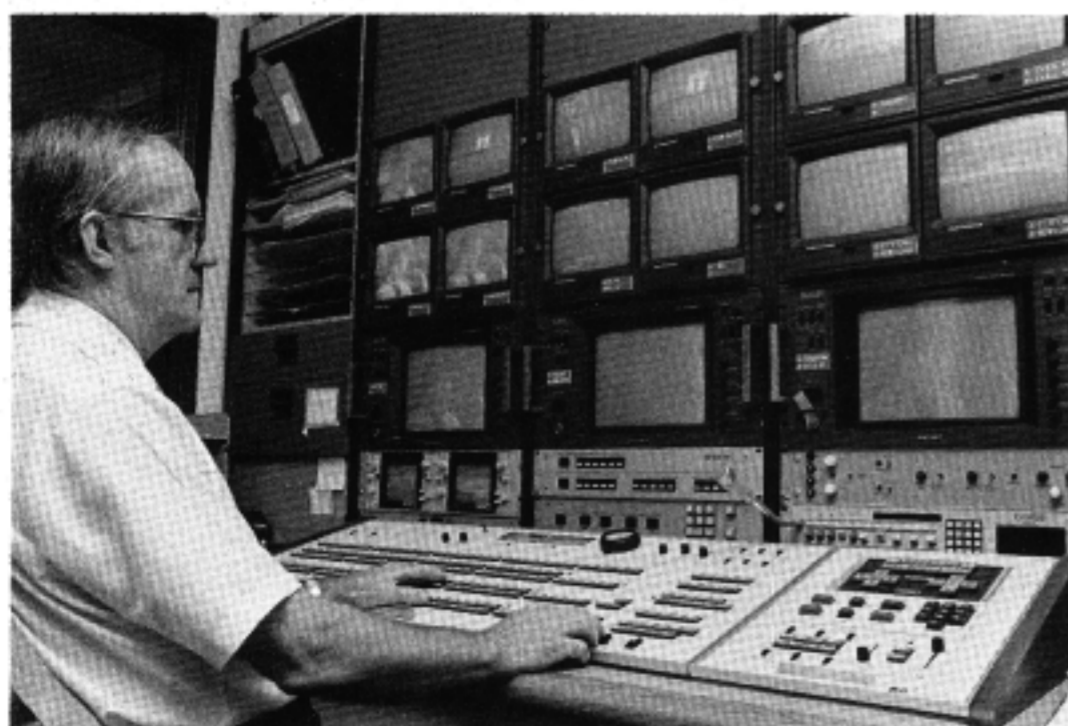
The mail room was also placed on the second floor, as it was determined that this was the most central location and that News and Current Affairs receive the largest volume of mail.

On either end of the second floor, there are Mechanical rooms which are acoustically isolated from the rest of the floor. One of these houses the heat pumps which supply heating and air condition-

ing to Studio A; the other is the main mechanical plant for building heating and air conditioning. The building has an energy-efficient heating and air conditioning system, based on the use of some 96 individual heat pumps which in winter recover heat from all of the technical equipment, studio lights, etc., and distribute it to parts of the building which require heat, while at the same time cooling the equipment and studios. During the past winter we always had sufficient heat available and never had to resort to using the small backup furnace. Calculations indicate a fuel saving of about 22% compared to a more conventional method.

The third floor of the building accommodates all of the Master Control operation and also a 30'x30' studio. This studio is the replacement for a very small but efficient studio which existed in the old building. It is located close to the Master Control room but has its own control room, called Production B. The utilization efficiency of the Production B equipment is optimized by using it also to handle the newscasts out of the Newsroom. The concept of using remote controlled cameras has been retained from the old operation, but in a somewhat modified form. The news uses 2 remotely controlled cameras and one manned camera, and Studio B uses 2 manned cameras and one remotely controlled. This arrangement has worked very well indeed.

The VTR and Teletape departments take up a large part of the third floor and as much equipment as possible has been housed in a Central Equipment room. This is all equipment requiring little or no operator attention. It is located next to a good-sized maintenance shop having bench space for about seven technicians. On the south end of this floor are three VTR editing rooms. One holds a pair of VR-1200s and one holds 3 BVH-1100s and a Sony BVE-3000 editor. The third is presently unequipped and is a future ex-



Master Control



Part of Engineering Lab at CHCH-TV.



Editing Suite #2



Electronic News Gathering Editing Suite

pansion area.

The VTR room is equipped with an AVR1, 2 AVR2s 2 BVH-1100s and a BVH-2000. Space is available for several more machines if required.

Teletape (previously known as Telecine) holds 2 ACR-25 cart machines, 2 TK-27 telecine chains (the oldest equipment that we own) and the 3 BVU-800 U-Matics, which are used to air news stories but can also be used for editing.

Also on this floor is an Audio Post Production room which has just been completed. It is equipped with an Ampex MM1200 16-track recorder, feeding a Yamaha mixing console. An EECO MOS synchronizer is interfaced to the MM-1200 and a BVH-2000 for layback or to a BVU-800 during mixdown. A voiceover booth is also provided.

The engineering and operations offices complete the third floor.

The only remaining elements are the two 4.5m steerable satellite dishes mounted on the roof. These are equipped with dual feed horns for the reception of both C-Band and Ku-Band signals.

As I mentioned before, it was in May of 1982 that the job went to tender and on June 3rd the contract was awarded to the Frid Construction Co. of Hamilton. Work



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Production 'B' Control Room



Part of Central Equipment Room

commenced almost immediately with the demolition of the old studio. This took about a week and was followed by excavation work. It was about this time that the Engineering Department began holding evening planning meetings at which the system design would gradually be refined and drawings and installation schedules would be produced. We had already decided that we would do our own design and installation, knowing full well that to do this and keep the station on the air would require a great deal of hard work and dedication. There could be no turning back once the decision was made. I am proud to be able to say that everyone agreed that this was an opportunity that would probably not happen again in our lives and that we should take up the challenge. It was this spirit that carried us through some very long days!

By the end of 1982, steel erection was virtually completed and the building was swathed in plastic sheeting in order to allow concrete work to proceed during the winter. Our planning meetings were generating a steady flow of drawings, wiring lists, equipment specs, etc., and by this time some of the major pieces of equipment were already on order so as to ensure delivery by May of 1983, at which time installation was scheduled to begin. In January, the first of the 4.5m dishes was delivered and installed on the roof of the still-uncompleted building. A cable harness was suspended between the buildings and the dish was put immediately into operation.

By the spring of '83, the building steadily took shape and it was a real thrill to all of us to see our drawings become a reality. I am quite sure that this gave us all a shot of renewed vigor after a winter of very hard work.

The general contractor had agreed that he could finish the third floor of the building first, as this would allow us to get

in and begin installing racks and cables for the Master Control area which was, of course, the most complex part of the system. This work was a little delayed and so we started out about two weeks behind schedule. Catching up would be made more difficult by the fact that the air conditioning was not ready and very warm weather at that time resulted in the temperature inside the building going over 100°F on several days.

September 12th had been chosen as the date that we would sign-on from the new building. The most complex part of the project was about to begin. This would be the gradual transfer of operating equipment from the old operation to the new, hopefully with no disruption of service.

An installation progress chart had been developed over the winter and covered the period from May 9 to September 26. The chart was based on such things as material and equipment deliveries, estimates of installation times and many consultations with the Operations Dept. to determine when existing equipment could be taken out of service.

Bell and CN were most helpful in working to our schedule and provided temporary equipment that allowed us to transfer our STL and CN Tower (network) feeds into the new building with no disruption. This was done in mid-August so as to avoid any last-minute problems close to the on-air date. A cable harness strung between the two buildings carried the signals to the Bell and CN terminal equipment operating in the new building. All that had to be done on opening day was to pull some patch cords that would drop the old feeds.

The transfer of existing equipment was scheduled to begin the first week in August and arrangements had to be made with the moving company several weeks ahead of time. This meant that it would be difficult to re-schedule the transfer of

any equipment that, for whatever reason, was not ready to be moved. The chart was indispensable in this regard as it allowed us to have an accurate picture of our progress and allowed us to re-direct work when late deliveries or other delays would have caused a problem. In addition, it allowed us to carefully schedule overtime work so as to keep on track and not miss the September 12 air date.

The actual transfer was made possible by the fact that we were given a budget of \$1.5 million for the purchase of new equipment. This was used to purchase such important items as a 50x48 routing switcher, a 48x48 microprocessor-based intercom system, a new master control switcher, 2 production switchers and a large number of DA's, jackfields, etc. This allowed us to install the central core of the system so that the distribution and interconnection wiring could all be done in preparation for transfer of the existing equipment. As the transfer took place some operations such as VTR editing moved into the new building and were in fact in daily use for 3 or 4 weeks prior to going on air. Trunks for video, audio and intercom were provided between the two buildings so that production work could continue as usual.

This whole period required the highest degree of co-operation between all departments and this had a lot to do with the fact that on the morning of September 12, 1983, we signed-on from the new building, as planned. The project was completed on time at a total cost of \$7 million. Work continued throughout the winter of 1983-84 on the restoration of the old Southam House, and the official opening by Premier William Davis took place on the 7th of June, 1984, the station's 30th anniversary.

Jim Mercer is director of engineering for CHCH-TV Hamilton, Ontario.

THE BASICS

By Bruce Dingwall



AM STEREO:

Planning of New Master Control Room at CFRB

The reason *The Basics* was missing last month was pretty well indicated by the number of times the Big Guy's name appeared in the last issue. He was busy through August and September with the CCBE/84 Convention and Trade Show registration. As well, he designed and installed the Plant Control System for the new CHIN AM Transmitter Site (thanks, Clive).

Last, but not least, he was putting together a CCBE/84 Technical Paper on CFRB's new Master Control Room. That paper was written to be an extension of *The Basics*, highlighting how a number of the theories and philosophies expounded in this space over the last two years were put to use.

Now, according to the records, I was supposed to be writing something about the Transmitter Site this time. However, since I noticed in the masthead of the November/December issue that I would be writing about our MCR, I got busy with my Electronic Stylo and finished that article! (Wonder what I'll be writing about next issue?)

Stereo MCR for CFRB

Probably the most important aspect of the CFRB project that should be stressed is the fact that we were rebuilding the on-air Control Room of Canada's largest radio station. This meant that we had a number of items of paramount importance, points which apply to this kind of a project no matter what the size of the radio or television station.

- First, we had to *maintain continuity in our on-air programming*. This meant making changes and additions to the Production Control Room selected to be the interim MCR and planning our work very carefully so as to avoid unexpected interruptions.

- Second, wherever possible, we wanted to *reuse existing facilities*, such as cable-carrying facilities, ventilation and electrical, speakers, turrets, etc.

- And third, throughout the design and implementation, we stressed that the *new MCR equipment should be as similar in operation to the old* as we could make it, while incorporating as many new features as possible. This would aid in ensuring that the transition between the old and the new MCR would be as smooth technically as we could possibly make it.

These points required that we maintain an attitude of flexibility. Too, we needed an openness to change and compromise, which had to be maintained right from the start of the MCR project. While we could look at the existing drawings and ascertain that conduits and floor trenches were at certain locations relative to the surrounding walls, we received some rather nasty surprises once construction started, and had to deal with them.

On a personal note, as project planner, I insisted that all of the new equipment (particularly the console) be on site before we started. Clive Eastwood thought I was crazy, but only months before, an MCI tape machine was dropped off the truck while being delivered to us. Also, I was working for McCurdy some years ago when a console was dropped while being unloaded from an airplane in Boston. *I do not trust movers!*

Planning

The concept for the console design was born at the 1983 CCBE Trade Show. You will see in Photo 1 that a precedent has been set at CFRB/CKFM, of keeping the console to the right of the operating desk, in order to maximize the work space available to the operator or announcer. At the Trade Show, I sketched the concept of using the enclosure for an 8-input console, to house a 12-input unit. Following some questions to McCurdy Radio, Ward-Beck Systems and Auditronics representatives, I realized that the idea was viable, so I made drawings of my concepts.

Besides small size, the other existing

console features which we wished to retain were as follows: CFRB's unique "Set Level" principle (post-fader cue, with metering) on Line Inputs; Diminish on Cue; switches for controlling the 50-input Line Switcher; CR-to-TX Select Switcher control; Network Switcher control; Transmitter Plant control; Delay System control; and RT Record Input selectors.

The original MCR package had four microphones (two booths and CR) through three faders; this feature we retained. As well, there were three turntables on three faders and four cart machines on one fader, through a 1-of-4 switcher. In the new console, we opted for two turntables on two faders, and six cart machines on three faders. Squeezing all of this into the small tub was going to be some design trick!

Clive designed Live-End-Dead-End acoustics for CRI, in order to optimize the listening environment for the operator. This required that we lower the profile of the equipment over that which had been in the room. The way to do this was to eliminate the shelf over the tape machines, which had been used for the cart machines and for carts to be aired.

Just before the project was ready to tender, we decided to eliminate a free-standing counter which housed four rack frames, and replaced it with a wall-mounted counter with only two rack frames. This meant finding a new home for the Transmitter Remote Control Panel, and reworking the wiring design of the Delegate Panel for the CR-to-TX Select Switcher.

These separate jobs became part of the overall job; unexpected, but accommodated—indicating the need for adaptability in this business.

The Project

While the underlying principle was *maximum planning for minimum downtime*, The game plan which was developed was just that—a game plan



Photo 1: CFRB's 18 year old MCR, showing it's age.



Photo 2: CFRB's new MCR and equipment.

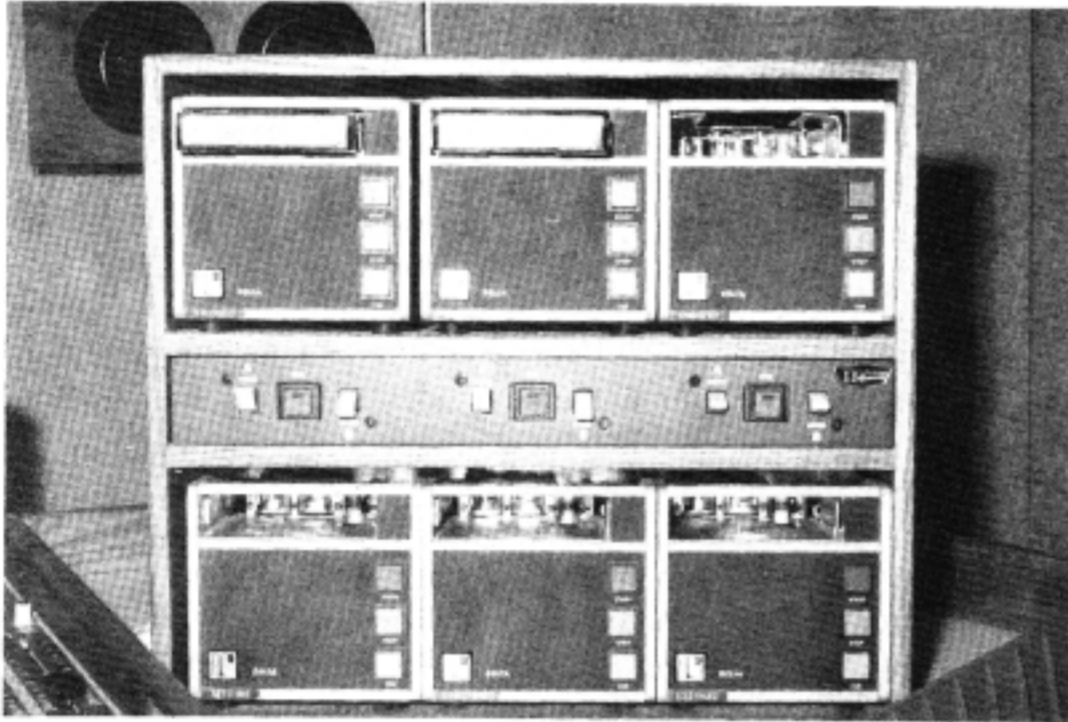


Photo 3: ITC Delta Cart Machines, with active Stereo/Mono switcher.

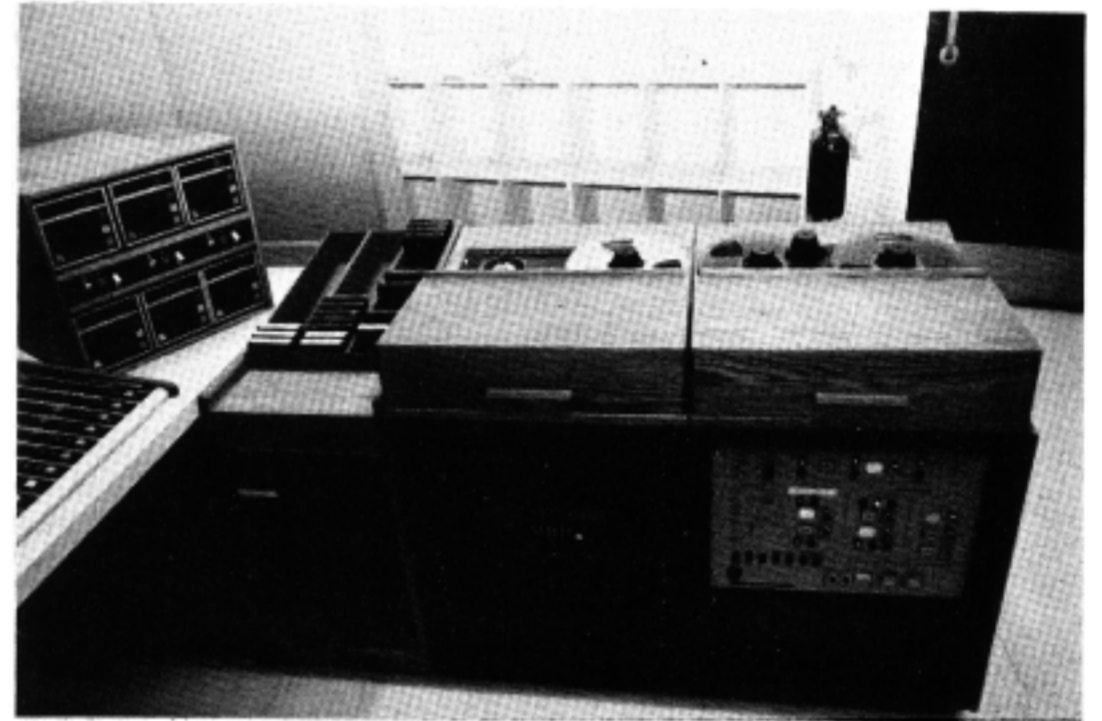


Photo 4: The Cart Organizer on the reel tape machine covers.

rather than a solid set of steps to be followed for the installation. Yet, despite having to change our game plan several times in the course of the project, we nonetheless finished the project in a time that has amazed some people.

I wanted to be done within 21 days of transferring operations. After seeing the renovations which would be necessary, I realized that 28 days would be more realistic. Even with the surprises and changes, we transferred operations back 35 days to the minute from when we started. This included the planned 7 days for operator familiarization.

One of the first changes we had to make in our plan came about after the running lists for the required cables were drawn up. The floor troughs would have been filled to capacity, and so we had to find a new route for the bulk of the audio and control cables running into the MCR. We retained the floor trenches for cabling the news booth, and a small section of the cabling to the announce booth.

Also, the design of Clive's acoustics, combined with the location of the console pedestals meant that we would miss the floor trenches for direct entry. We worked that one out using solid wall Panduct and wooden trench covers.

We reduced the workload with a decision to remove only the terminating end of all control cables. This meant carefully cutting the wiring from the existing terminals, tapering and taping the ends of these active cables, and pulling them back about 110' (without incident, by the way).

The old equipment was removed (generally with a Skil-saw), and all old audio cabling completely removed from the trenches. The construction trades then re-did the acoustics and electrical; this is where we lost the difference between 28 and 35 days. While this was going on, we prepared and installed the new audio cabling required, and wired up the turrets in the booths.

The Results

From Photo 2, you can see the results, a project of which CFRB Engineering is very proud. Much credit must go to Rick Jalsevac of McCurdy Radio for his skill in interpreting my concept drawings and our specification into the finished product.

In order to accommodate the console top panel space constraint, the standard 8-input MRI tub was used; I like to call the

result a "stretch" SS8808. The microphone input preamplifiers and the output amplifiers are located in a tray in the rear of the console. The ancillary relays are on a pull-out tray in the base of the console. The balance of the necessary DAs, the monitor switching cards, and the seven power supplies are located in the left-hand pedestal.

It may be of interest to note that, because of the two booths, there are three separate talkback busses in the console. The monitor switcher for the Control Room is made up of the solid state SM1401 cards. The console power supplies create considerable heat (as PS855s do), but they are located directly below the return air grill for the control room. I'd like to think that was by design, but it actually just happened that way (luckily).

Cables are carried from their entry point, at the rear of the room, to the console through two runs of solid wall white Panduct (one for Audio and one for Control cables), fastened at the base of the room walls and the acoustic build-outs. This is a simple, effective, and esthetically pleasing way of doing this. The MRI intercabling option was purchased, to simplify on-site installation; let me recom-

mend this as being well worth the small additional cost on any package.

The turret to the left of the console houses the various System operational controls mentioned earlier, which could not be accommodated on the console. Space which might have been available in standard designs, was taken up by the two RTW stereo PPMs (supplied by J-Mar), the time, and the Line Input selector controls, which could not be located on the Line Input modules themselves.

To address the problem of eliminating the shelf over the tape machines, the six Maruno ITC Cart Machines were put into a custom housing to the immediate right of the console. These Delta 1 cart machines feed through three AT394 amplifiers in order to permit high isolation Stereo/Mono (left only) switching, without compromising stereo performance.

In addition, I designed what has come to be known as the *Cart Organizer* (see photo 4). With three fixed and three removable AW-20 cart holders, the cart organizer was probably the most difficult aspect of this entire project to "sell" to the operators. But I did. As a teaser, I added the half covers over the reel tapes, to give

more work space when the tape machines aren't in use. (Compromise, as mentioned earlier.

The local turntable controls have been simplified without major modification of the MRI SP-10 package.

The Conclusions

Probably the most gratifying remark I've heard about this job, came from an operator who had worked with the equipment during the training period, but was on holidays when CR 1 went back on the air. He said that within half an hour of coming back in, he felt like he had been using it for years. *That's nice!*

And that's the whole idea, and one of the points I have been making in *The Basics*. When designing a control room or any facility, put yourself in the position of the people who have to use the equipment, and make sure the operation is as clean and simple as possible.

When we went to MRI to do the acceptance tests on the package, we did the operational tests first. When they were finished, I turned to Ian Sharp who was with me, and said, "This package works exactly the way I had envisioned it

would." And let me tell you, that's a really nice feeling.

There is no substitute for careful planning, and for discussion with the staff who will ultimately use the equipment. Between the Chevrolet you can afford and the Cadillac they want, a suitable compromise can be reached. I hope the description of this project will serve you well when the next major project arrives.

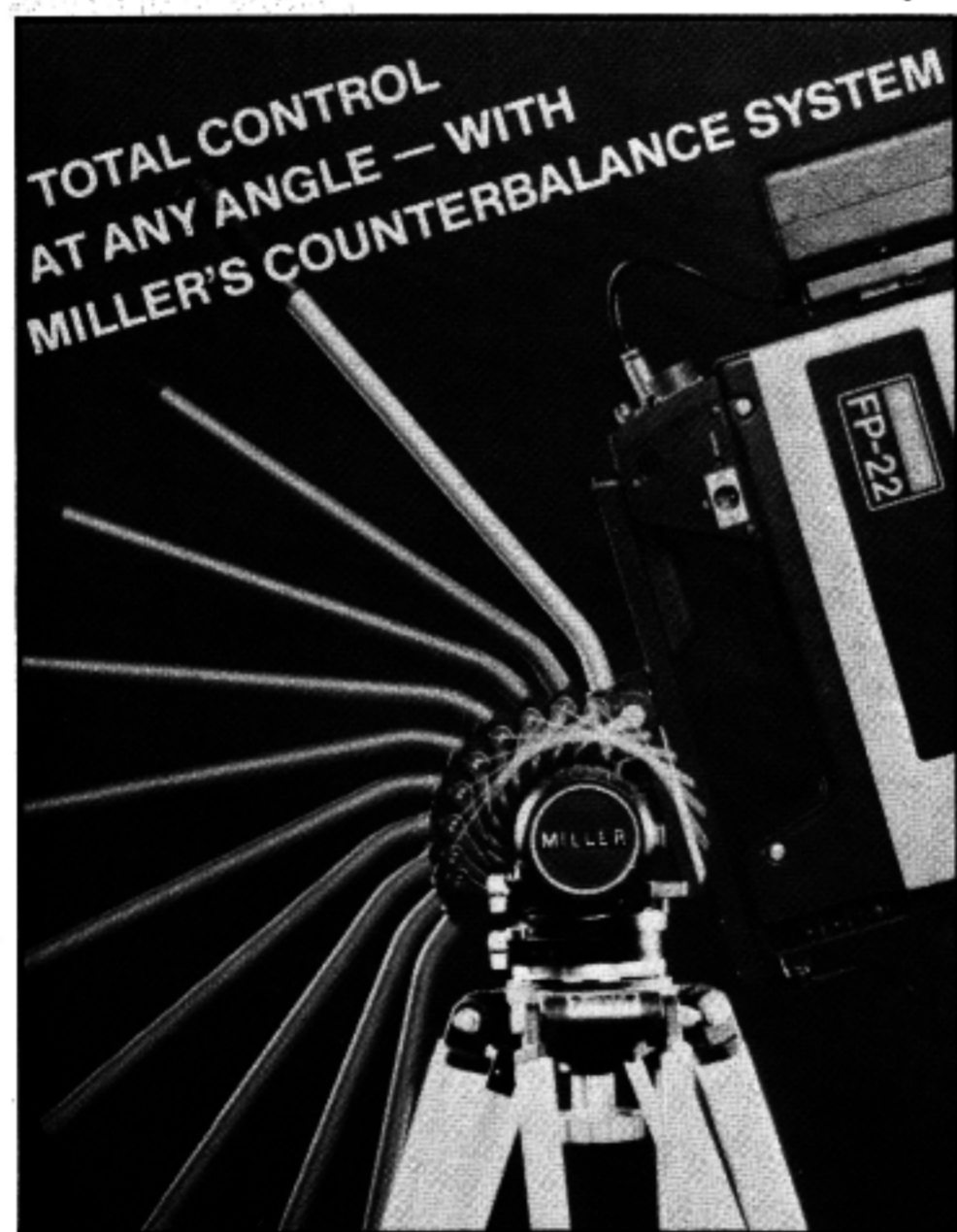
Personally Speaking

A little crass appeal here. In our rec room, Carole and I have just finished a display shelf for coffee mugs from Radio and TV stations. If you would like yours added to the eight presently there, please send one to the address below.

Next time: *who knows!*

Bruce Dingwall, C.E.T., is chief technologist in charge of studios and transmitters for CFRB. The Basics is a practical review of common engineering problems, and readers are invited to send their questions or comments c/o CFRB, 2 St. Clair Ave. West, Toronto, Ontario M4V 1L6.

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THE PHIL STONE REPORT

An Interview with Peter Shurman of Standard Broadcasting

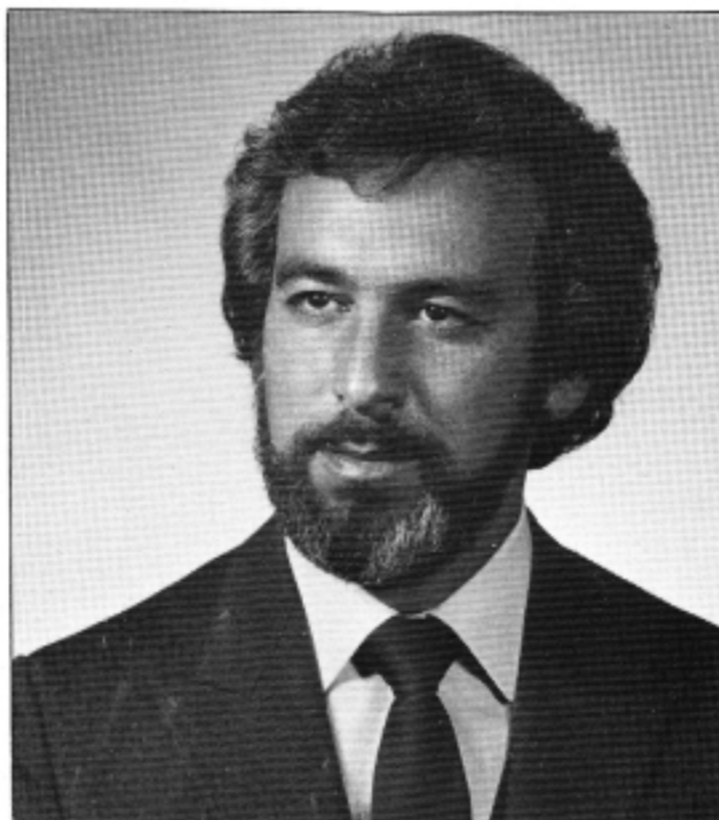
Technically speaking—and the engineers/technologists out there should relish this—it was that side of broadcasting that opened the door for Peter Shurman...a door that was ultimately to lead to one of Canadian broadcasting's most prestigious positions, presidency of the Radio Division of Standard Broadcasting Corporation Ltd. It is here a bow must go to the legendary chief engineer of CJAD/CJFM Montreal, Ernie Mott, who gave Peter his first job in radio.

From his earliest childhood, Peter displayed an avid interest in things electronic. "I recall at age four," he said, "going to see movies in the church basement and while the other kids watched the film, I watched the projector." It wasn't something that Peter inherited—his father was in insurance, his mother, an office manager/bookkeeper.

"My brother and I are both involved with media and we don't know why, but we're happy with it." All through his growing-up years, Peter was involved in electronics, and radio was his hobby. While at Sir George Williams (now Concordia) University, and afterwards, he served brief stints at Heathkit, the electronics manufacturer, and at Bell Canada, where he built prototypes of engineering projects in a small electronics lab. "In 1966, I resigned, and with \$1800 in the bank (which was pretty good for an 18-year-old), decided to go off to Europe for a spell. But the first morning after leaving Bell, the 'phone rang. The caller was Ernie Mott, chief engineer at CJAD/CJFM (now recently retired). He had been given my name by a mutual friend who was a broadcast engineer. He wanted to see me, and when he offered me a job as a technician, I took it. I never did make it to Europe."

Like many young people back in 1966-67, Peter listened to radio primarily then for the Beatles. His love affair with radio gave him, in addition to a growing

technical background, a sense of programming and presentation. "I had some pretty good receiving equipment, and used to log stations—I'd see how many I could listen to during the course of a night. I remember sitting there in the suburbs of Montreal, listening to WKBW's Joey Reynolds and WPTR's Roger Scott. Roger, a British disc jockey who was in vogue at that time because of the Beatle influence, is now with Capital Radio in London, England. As you have previously written, Phil, Capital is affiliated with Standard Broadcasting—so the wheel came 'round."



*Peter Shurman, president of the Radio Division of Standard Broadcasting.
(Photo by Stanley Studios, Montreal.)*

Initially, Peter went into broadcasting because, "I wanted to play with the tape recorders and the transmitters and so on. It was only after I had been working with Ernie for about a year that I realized the guys who were making the money and had the high profile were on the air. So I said, 'Well, I can do that.' I started using the studios at night, on a clandestine basis, practising talking to a microphone. When I had done that for a year, I guess I had

enough nerve to go to the then CJAD program director and say, 'I've done something beyond fix a tape recorder. Would you like to listen to my tape and critique it?' He did, and the next thing I knew I was on the air, doing an overnight shift on Saturdays. In those days, even major radio stations worked on a shoestring budget overnight; I announced, did the music, wrote and read news, answered the 'phones and swept the floor. The program was simulcast on CJAD and CJFM—in short, I was the only one in the building for a period of six or seven hours! That was my first taste of actual on-air radio and I'm happy to say I've never looked back."

Indeed, Peter Shurman has not looked back. After those two years at his technician's workbench, he moved to a broadcast console as that overnight announcer, then to the news desk as a writer/reader, and after two years passed he took on reporting responsibilities for CJAD. "I worked with Sid Margles and Rick Leckner, the then infamous and now defunct 'JMS' as everybody called our trio—the Jewish Mobile Squad. I don't know what it was, but there was a chemistry there, and as a group we were literally unbeatable. I don't think there is a team of three reporters assembled in any radio station in this country—before or since—that covers the city they work in the way we covered Montreal. That was in the latter '60s and early '70s, and remembering the Cross-Laporte kidnapping affair and the kind of coverage and treatment we gave that major news event, I don't think I could ever match that in terms of excitement again. And I don't think that three broadcasters could ever mesh the way we did."

"From there, Sid went to Ottawa to become head of Standard Broadcast News. Rick went into his own public relations business, and still does morning helicopter reports on CJAD. I took over

the role that Sid had filled until that point as director of special events. Today, Sid heads up Standard Sound Systems, the Muzak franchise we own in Montreal."

After six years as assignment editor and director of special events for CJAD/CJFM, Peter further expanded his broadcast knowledge and skill when he became a sales rep for the two stations. He had only been in that post for seven months when he was asked to take over the management of the then ailing CJFM. Peter says his time in sales was enlightening and most valuable. "I proved a point to myself, that stayed with me, regarding the sale of time on our medium: that is, if you are reasonably articulate and know the product, you shouldn't have a hard time selling. In dollar terms, it is worth noting that I tripled my income in the course of about four months. I made so much money in those days, comparatively, that I didn't know what to do with it—so I stuck it in the bank and my wife and I eventually used it as a down payment on our first house. But six months into sales I got a call from Don Hartford, then president of the Radio Division of Standard, now retired, and he said, 'I hear you're pretty good at this business and, as you know, we have a sick FM station there. We want to know if you're interested in talking about running it.' That was what I had been waiting for and, of course, I said yes. I got on a plane to Toronto that night, saw Don Hartford, and within a month was running CJFM. That was in June, 1975. I worked as CJFM's station manager until the summer of 1981. CJFM had become quite successful, but CJAD had run into a fair amount of trouble. The fellow running the station was asked to leave, so I took it over as well to become vice-president and general manager for the two stations. I held that position until I came to Toronto in the fall of '83."

At Standard's Toronto headquarters, Peter was made a vice-president with responsibility for five of the company's

seven radio stations and three other Standard subsidiaries. A year later, he was appointed to his present position as president of Standard's Radio Division.

Much of Peter's success happened while he was in his 20s and early 30s (he's now 37). We wondered if there had been resentment, particularly from older staff.

"I can't speak for all of them, but I can tell you there was some concern on my part at the time. When I became station manager of CJFM, I was the youngest manager in Standard's history, and I may have been the youngest manager of any major radio station in Canada—I was 27 years old. At CJFM it wasn't a problem because we only had about 10 people on staff, and their average age was about 19. When I assumed responsibility for CJAD, I had less concern about my age, because I knew I could do it—I *had* been doing it, and successfully, too."

***"...radio is
the ultimate survivor...
radio adapted and became
a constant companion..."***

However, Peter was concerned that he was going back to work with some people he had worked with before. "The difference was that I would now be their boss. I'm talking about people like Doug Williamson, who at one time had been news director, and I had been a newsman under him...Al Colley, who had read the news to my mother when we were in the kitchen when I was six years old...the late Paul Reid, who had been in radio since before I was born. I asked myself, 'How am I going to handle this?' But I found that the problem wasn't really a problem. I found out something that has stood me in good stead since then with regard to older people working with younger people in a subordinate-superior or employer-employee relationship: that as long as you don't come on like gangbusters and act

like you know everything—because frankly, nobody knows everything—but rather sit down and work with them, then somebody who is 20 years your senior is perfectly capable of taking advice from a guy who may have something new, a new angle to look at. To put it in a nutshell, if you can offer something that's new and interesting to anybody, regardless of age, they'll grab onto it. Therefore, I've never had a problem with any staffer who was my senior chronologically. We've always gotten along well and the situation is repeating itself with my involvement with CFRB, which has been around for a lot of years. Wally Crouter, who has the well-earned reputation as the best, longest-running morning man in Canada, has been on CFRB for one year more than I am old. I didn't see any problem getting along with Wally—he's interested in the fact that there's a guy here whose job it is to make Standard survive as the premier radio operation in Canada for the next 20 years. And he's interested in continuing to do the morning show on CFRB as long as he can, as he has in the past, with his magnificent set of numbers."

It follows that with his accumulated background in radio—technical, through announcing, news, sales, management—that we should expect Peter to have a philosophy about the medium. "I think strongly," he said, "that radio is a survivor, the ultimate survivor in media. Look at what has happened since radio was born—many people have said this before me, there's nothing profound about it—but when television came along in the early '50s, everybody said radio was doomed. Radio could no longer be the purveyor of *Duffy's Tavern*, *Amos 'n' Andy*, *The Green Hornet*—all the things that radio was famous for in the '40s and '50s. So radio didn't survive as that; radio adapted and became something else. It became a constant companion—a source of classical, contemporary or middle-of-the-road music, of sports or talk shows or news—whatever you wanted."

Peter says radio did "a great job" in re-defining its role, segmenting itself to serve different audiences. "Radio is stronger today, in my estimation, than it has ever been. And my philosophy is that radio will always survive for all kinds of reasons. Certainly there is a lot of television around and it is just as fragmented now as radio has become. And there are VCRs, pay-TV and computers—the list of available media goes on and on. But what is so portable, so contemporary, so current, so informative, so available? Radio doesn't demand anything; it's just there, available for listening wherever you are, whatever you are doing. And I believe it will always have that role. The only thing that will change is technology—the way radio is delivered. Who would have thought 10 years ago—much less 20, 30, 40 years ago

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—that youngsters would be so interested in radio to wear it on their heads? Who would have thought that the technology would develop to the point where you can get high-fidelity stereo sound in the automobile? Or for that matter, AM stereo in cars?" It is these things that Peter said "point to the truth of what I am saying. Radio is a survivor and it will always be a survivor."

When Peter became manager of the troubled CJFM, he had only really one way to go, up.

With CFRB, for example, he obviously has a different kind of challenge—one of maintaining a radio giant's pre-eminent position. "It's a very different kind of challenge and I'm attacking it from a different kind of angle. You have to remember that when I went to CJFM, I went in as a young, green station manager. Here I am an older, somewhat experienced, I hope, president of the Radio Division. There is a station manager at CFRB by the name of Bill Hall. I don't have to go in there and do his job for him; he knows what has to happen.

"But your perception of the way it has evolved is correct. At CJFM, Standard could afford to take a chance and give a 27-year-old kid (granted, with some experience and some street smarts) the opportunity; there was only one way to go. It couldn't have been any worse: we were grossing \$200,000 and spending \$300,000. So that chance could be taken.

***"common sense
is in short supply...
people have it,
but just don't use it..."***

"With CFRB, which is at the top of the heap, the challenge is to keep it there. At CFRB there's only one way to go, down; when you're on top, that's the only other direction—and I don't intend to see that happen. CFRB is a grand old lady who has the ability to revitalize and become a young lady with a young outlook, while at the same time not disenfranchising the millions of people who have supported her for many, many years."

Peter is willing to guarantee that CFRB can stay on top. "Certainly, there's a process of adaptation and change, but to say that of CFRB is to say there is nothing that makes it distinct from any other radio station or any other business. When something reaches the level of maturity that CFRB has, the challenge for the people in charge is to reshape it and rethink it in a way that makes it survivable in the next period of time, whatever that may be. So if I can reduce this to a very personal level, I can tell you I'm 37 years old. I'm not going to quit next year. I'm not interested in having somebody make that

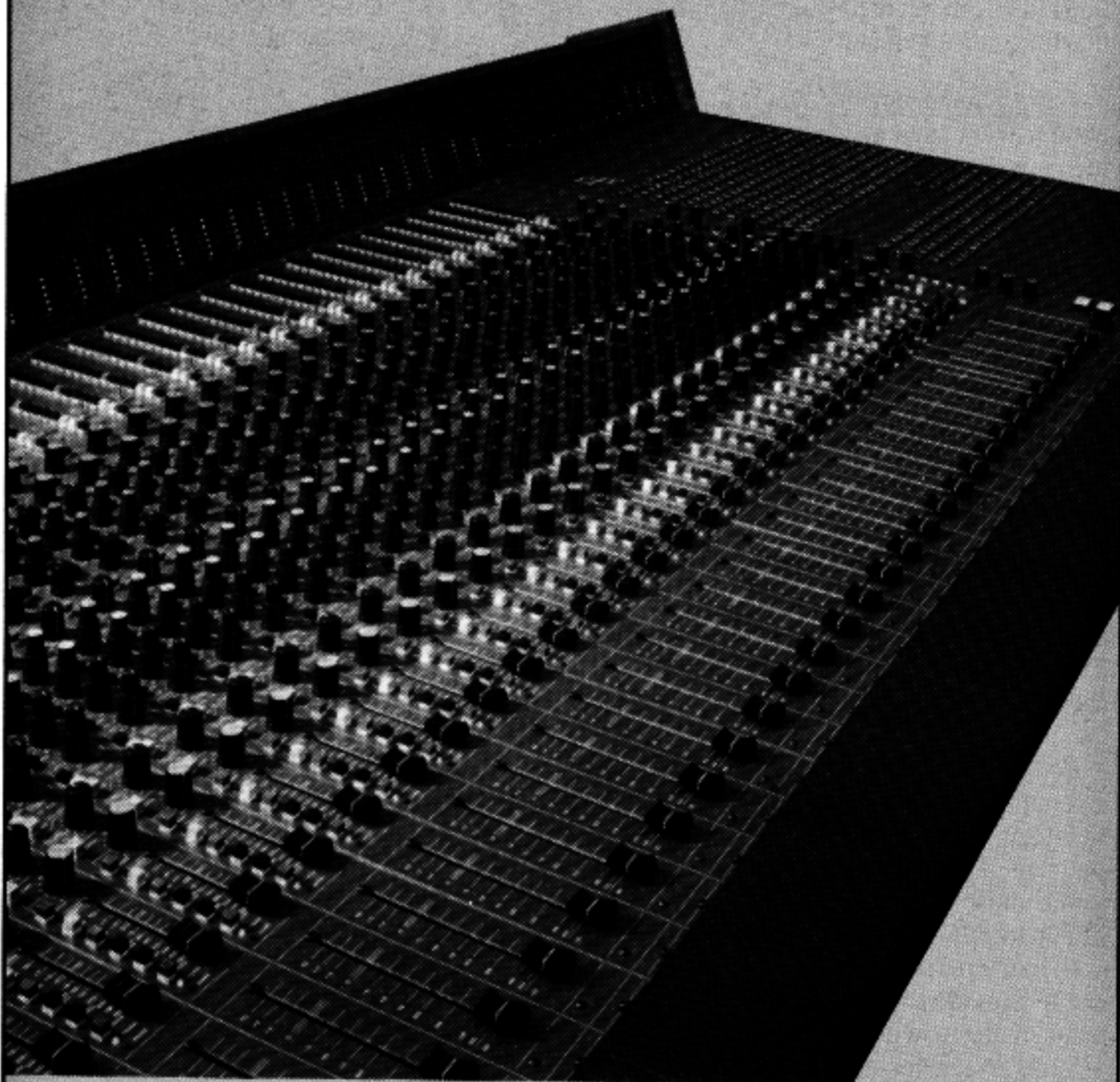
decision for me. I want to survive the next 20 to 25 years and to do that I've got to think in those terms, how CFRB and CJAD, the great radio stations that built this company, can continue to be the great institutions that they are."

If Peter Shurman can put his finger on what has taken him up the ladder he would cite "common sense. I think that it is a commodity that is in short supply in this world. I think people have it, but just don't use it, don't think before they act. If I have any success with what I do, it's because I apply common sense."

It is obvious, as one observes Peter Shurman's climb to the heights, that he has exercised along the way an abundance of common sense—the kind of common sense that Standard demonstrated in choosing him to lead their Radio Division.

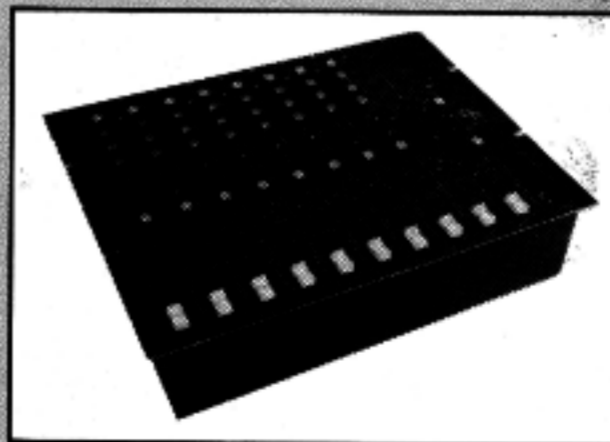
Phil Stone is a well-known broadcaster, writer and educator, whose Phil Stone Report and Broadcast Beat are regular features of Broadcast Technology. Phil may be reached at 2350 Bridletowne Circle, #1601, Scarborough, Ont. M1W 3E6, telephone (416) 492-8115.

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Selecting an Antenna for FM or TV Broadcasting

by Marvin Crouch

The purpose of this paper is to familiarize the reader with the fundamentals of antenna array design so that he can make an intelligent choice of the many types available to him as to their suitability for any particular set of circumstances. All projects have circumstances. Some are listed below with brief comments intended to provoke thought and start us thinking about design.

• Top or Side Mounts

New towers give an owner his choice of top or side mounts. Older towers tend to allow only side mounts unless we are replacing an existing antenna. Side mounts that try to radiate through the structure usually run into pattern problems and/or the destruction of circular polarization characteristics.

• Omni or Directional

With the spectrum filling up, new services find they need to use directive patterns to protect existing contours. Many multipath problems could be minimized by not stimulating sources of reflection using directional patterns in hilly terrain. To cover oceans or moose pasture is very inefficient.

• Beam Tilt and Null Fill

Exceptionally high EHATs, such as mountain tops, require special vertical radiation patterns. These take the form of beam tilts and null fill to approach an ideal pattern of constant field strength at any distance.

Urban area towers have to be careful not to provide too much signal around the base of the tower.

Multiple service towers with several services in the same band, using different antennas, require that the antennas be decoupled to guarantee that intermod products will be at least 80 dB down. An option to the multiple antenna and their inherent intermod problems is the combined antenna. Broadband combined antennas make good economic and environmental sense.

• Environmental Conditions

An antenna that only works well in fair weather is not of much practical use to a broadcaster.

The foregoing no doubt is stating the obvious, but sets the scene for a discussion of fundamentals.

Antenna Fundamentals

The basic element of an antenna array is a dipole. In the evolution of the art, the dipole has been modified into wings, rings, bent rings and slots. However the basis is still the dipole. The volume pattern of a dipole is a donut shape; it has a gain over an isotropic volume sphere pattern of 2.15 dB, because of its shape.

When several horizontal dipoles are stacked vertically one wave length apart and all elements are driven in phase, the resultant pattern has major lobes both at the horizon and up and down the mounting axis with minor lobes in-between. Major lobes up and down are not desirable because they cost gain and can cause intermodulation with other services on the tower.

Several techniques exist to limit the radiation up and down the tower:

- 1) Dipoles one-half wave apart cancel up and down radiation very well (double density);
- 2) Winged dipoles cancel also (turnstile);
- 3) Bent dipoles tend to cancel;
- 4) Slots and all dipoles equipped with reflector screens tend to cancel radiation up and down the tower because of the reflectors' action directing radiation forward.

Number one and two are the best; three and four are less efficient. A person buy-

ing an antenna should ask to see the vertical patterns all the way out to 90 degrees, because it is a direct measure of the efficiency of the antenna. In the case of circular polarization, a prospective customer should ask to see the vertical radiation characteristics of both polarizations to 90 degrees.

Beam Tilt and Null Fill

We can tilt a beam or fill the nulls by two methods. The easiest is to stagger the phase of the feed; more expensive is to stagger the power fed to each element. If each driven element is decoupled from its neighbour by not having any radiation up and down the tower, phased feeding will not bother the match of the antenna because each element will not see its neighbour. If on the other hand we have heavy coupling, phased feeding could bother the match.

A directed pair of dipoles are decoupled from their neighbours by 30 dB. This is a big advantage of a panel antenna.

There are two ways in which the driven elements are fed: 1) those where all the elements receive transmit information within the same wave length; and 2) those which receive the information to be transmitted in sequential wave lengths. The former are called electrically short antennas, and the latter electrically long. Another expression could be parallel fed



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or series fed.

Bent ring antennas and slots, for instance, are electrically long, whereas panel antennas and turnstiles are electrically short and consequently much broader band. Although the phase does change on the broadband antenna with changes in frequencies, it is only a differential phase change. We do not have the accumulated phase change that you get in a sequentially-fed antenna. Small changes of frequency soon put the electrically long antenna out of operation, because the phase on the first element is multiplied by the number of sequential bays for each element in the chain. The phase is cumulative.

Ideal vertical patterns, such as those required when broadcasting from extreme heights, can only be achieved with electrically short antennas where we have the flexibility in choice of phases without bothering the match of the antenna.

Horizontal Directional Patterns

Antennas that have few driven elements in the horizontal azimuths around a support structure have very limited choice of directionality. More elements allow more flexibility in horizontal pattern shaping. Not only can you modify the phase but you can also modify the power split to yield almost infinite variations. A turnstile has only limited horizontal pattern

possibilities because it has only two elements and they have to have a fixed 90 degree phase relationship.

Gain

Whenever I speak of gain in antenna systems I mean gain with good patterns—because to speak of gain alone is very dangerous. You may not realize it, but because of the way gain is calculated mathematically it is possible to have gain and no coverage in the most important areas, not just in vertical nulls but also in the horizon.

Gain is a volume consideration and is calculated from the vertical and horizontal radiation patterns. The first part of the calculation is to find the RMS perfect circle equivalent of the directional horizontal pattern. The distance from this circle to the peak is the directional gain of the antenna. To find the gain of that RMS circle above a half-wave dipole, one must then go to the vertical pattern.

A volume integration of the vertical pattern as if it were a perfect circle in the horizontal plain then yields a number which when divided into the volume integration of the peak sphere gives the RMS gain of the antenna; 2.15 dB corrects this to the gain relative to a half wave dipole.

Mathematically speaking, this integration simplifies down to the sum of cosines

of all the vectors from the sky to the horizon to the earth. With the sky at +90° and the earth at -90°, the cosines are zero, hence the loss of gain with major lobes up and down the tower. If by some mistake or by design we should have a null on the horizon we still would have gain in the antenna but the pattern may not suit the desired coverage.

Gain is, in summary, a measure of all radiation, not just the radiation on the horizon. The patterns are an apportionment of that gain, and it is possible to have a zero portion at any particular azimuth or elevation. A minor lobe touching the ground at much shorter distance is strong. Hence minor lobes cause local audience overloads and are a characteristic of misspaced radiators in electrically short antennas. Always study the patterns carefully and do not be too timid to question those you suspect.

Environmental Aspects

One can speak of the mounting circumstances as an environmental consideration as well as the more obvious weather aspect.

Side mounting and radiating through a structure is analogous to Russian roulette, with only one empty chamber. To do this with circular polarization and expect no effects is to load the remaining chamber and hope for a misfire. Pattern optimiza-

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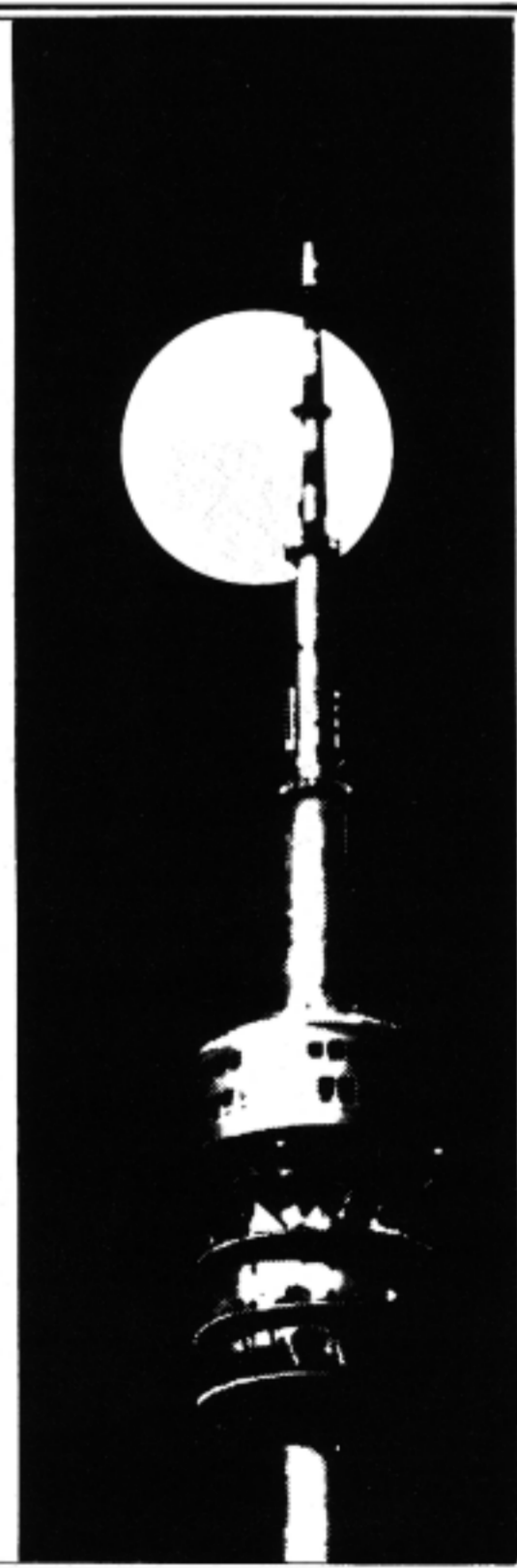
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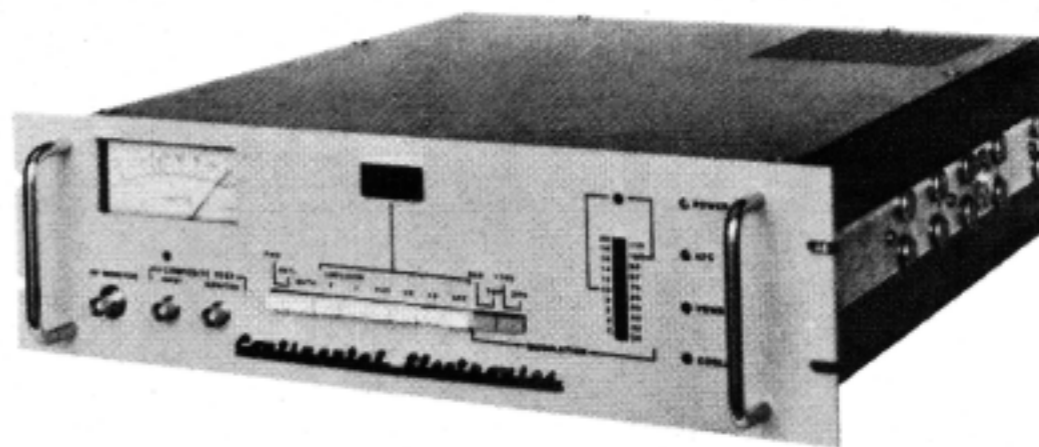
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tion with parasitic elements is very critical, very narrow band and an exercise in incorporating the structure into the antenna design.

Avoidance of mounting effects is the only way to guarantee patterns. This is done by radiating elements that rely on themselves alone for patterns. They have to be directed radiators to do this.

The weather aspects of antennas pertains to how well they operate (maintain match and pattern) under ice and snow conditions. Many older antennas try to control the environment with de-icers. Problems of bombing the streets and continuous maintenance have developed an alternate technique which is in wide use today. Antenna designs today work with phased arrays that automatically cancel VSWR effects of ice and snow. With broadband antennas built to take the loads and physically protected in critical high current areas, the automatic VSWR compensation design takes care of the rest. Nevertheless in dense urban areas we recommend full radomes to prevent heavy ice build up, not for the antenna's performance but for the liability toward the people and their property in the near vicinity. The tower itself is a source of ice build-up, and there is no other answer than a full radome such as those installed on The World Trade, Sears Tower and Toronto CN Tower projects.

From the foregoing you may see why we favor the broadband-directed dipole panels as our favorite building blocks. With only a few high quality types we can design arrays with virtually any pattern for any TV or FM service, and have it work well in any environment without de-icers, trouble-free for 25-plus years.

Design Techniques

Those readers who have little faith in computer-generated antenna patterns probably developed that opinion because of an incomplete mathematical treatment or trying to use antennas that depend on mounting structure for their patterns. Test range results are the proof. We have been very successful in computing patterns that match test range results.

We measure amplitude and phase characteristics of *an individual panel* at many frequencies across its band, and use that as our data base to combine with the mechanical and electrical phase we require for any particular array design. This together with a weighting figure to represent power split yields patterns that are amazingly close to test range results. A lot of early computer work did not bother with the azimuth phase signature (timing of the vectors' maximum) and results were erroneous. Today we can produce patterns very quickly—of even very

elaborate arrays requiring several hundred thousand calculations—thanks to high speed 32-bit computers. Our office has two such computers busy every day helping customers and their consultants with designs to suit each set of circumstances. Sometimes we get involved trying to analyze older antenna problems built by others. They were built long before there was such a marvellous tool as the desk top high speed computer.

Service is how we advertise and we invite anyone in need to contact us.



Marvin B. Crouch, P. Eng., is president of Tennenplex Systems Ltd. of Ottawa, ON, and Timonium (Baltimore), MD. His article was presented as an invited paper at the September, 1984, conference of the Washington Executive Broadcasting Engineers (WEBE) in Virginia Beach, VA.

BROADCAST BEAT

by Phil Stone

Should there be brokerage of television time for ethnic programs? The CRTC is working on a policy; interesting figure is that over 30% of Canadians come from a background other than English, French or native Canadian... A group of Toronto shareholders acquired Mutual Communications Ltd., the national radio sales rep house, which will continue to rep Ontario and western stations; Québec stations will be represented by Mutual Broadcasting Ltd... Look for a new AM Stereo receiver which will automatically select the mode (system) being broadcast; Kahn Communications is the developer... **Gary Parkhill** has scored a real winner for his annual Awards Night at Conestoga College: **Lorne Greene** will be guest speaker...

This is the month **Ernie Steele** retires from his presidency of the CAB and there is little one can add to the praise for his seven great years that has been written and spoken of him. I recall when I visited Japan's NAB in Tokyo they told me Ernie had been there and how impressed they were. I think everyone who meets Ernie is impressed by his talent, vigor and warmth; he'll be well remembered by broadcasters and I trust he'll stay in the industry as a part-time consultant...

Alan Mabee became national sales mgr., CFRN-TV Edmonton...

Peter Alpen, from Fraser Valley Broadcasters, joined Target Media... CKO Radio named **Jim Welcher** to head its national sales office in Montreal... Now at CFNY-FM as retail rep is **Harold Grabowski**... Matsushita appointed **Donald Vale** as gm of the Quasar division... Here's an interesting use of fibre optics: *Report on Business* says U.S. railways plan to link 53 cities (80% of the population) with 'Fibertrak'—a wholesale telecommunications network installed along railroad rights-of-way... Shell Canada, which spent \$2 million on advertising in 1984, will spend \$3.5 million this year, largely on TV with the theme 'putting technology and people to work'... After the Sun Newspapers dismissed **Peter Worthington**, this hardy soul surfaced quickly—one of his new endeavors: guest commentator on CHFI-FM Toronto... The battle between Canada's breweries for TV rights to major sports events is a furious one. The Carling O'Keefe-CTV consortium hired **Francois Carignan** as executive producer of its new production company—he'd been vp of the Molson-CBC Canadian Sports Network... **Andree Champagne**, the federal minister for Youth, once played in the popular soap opera *Les Belles Histoires* and more recently was secretary of the Union des Artistes in Montreal... **Earl Pomerantz**, one-time CBC personality, dropped his role as co-executive producer and head writer for *The Cosby Show*, reportedly to 'return to his family in Los Angeles'...

In our early days at CHUM, one of our sponsors was a new Toronto dining and dancing spot called The Cork Room. The band there was led by a warm, personable and highly talented young man named **Chico Valle**, who also starred on CBC Radio from 1946 to 1967. He died recently at age 60... Most of the animals on TV commercials in Canada were trained by **Marc Conway** of Mississauga, Ontario. At 35, he died while out for an early morning jog... And **Don Reno**, whose *Duelling Banjos* became a major country hit, passed away at 58. The 'bluegrass' pioneer produced more than 60 albums and 500 songs... **John Gazsi**, the 42-year-old concertmaster of the Ottawa Symphony and founding member of the National Art Centre Orchestra, was killed in a car accident when his auto crashed into some trees near Aylmer, Que. He had often been on CBC radio...

Telemedia Broadcasting Systems will syndicate four productions in the U.S., Britain and Australia: a series on legendary pop music artists, 30 years of rock music, a Valentine's Day special, and 50 hours of 'the greats' of country music... A Baker Lovick bulletin prepared by vp **Anne Parkes** says cable penetration in Canada is 60%, 49.2% in the U.S... **Bill Anderson** has now won the Top Country D.J. in Canada Award five times in its seven years of existence... Sincere best wishes to **Bill Ballentine**, 20 years with CKFM... CJOH-TV's **Brian Smith** is doing play-by-play and CJSB's **Dave Kittle** color commentary for 'SB's coverage of Ottawa 67's' hockey games... Condolences to CFRB traffic manager **Dawn Schneider**, whose father passed away... Watch for **Ted Gorsline's** book on wildlife filming; outdoor editor for the Toronto Sun, he once worked for *Wild Kingdom* and says such programs are heavily staged... CBC-TV has taped the Shaw Festival production of **Eugene Labiche's** 19th century farce *Celimore*, and retitled it *Friends of a Feather*... **Paul Martel**, president of a Montreal media buying firm, told ACRTF, the French-language broadcasters association, that while New York City has 42 radio stations, Montreal has 24, but with



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one-sixth the population. Martel says Québec has gained 47 new radio licenses in the last 15 years... ACTRF has moved from Quebec City to 4823 Sherbrooke St. W., Room 250, Montreal H3Z 1G7, (514) 932-7717. **Yvon Chouinard** of CHAU-TV succeeded **Roger Hudon** of CJPM-TV as president; vp, radio is **Robert Dineau** of Réseau des Appalaches... We hear Global-TV newsman **Larry Jackson** paid a retired grain farmer \$40 for his place in line to get into the **Colin Thatcher** trial... **Gary Miles** compares an account executive to an old cannon—it doesn't work, it takes up room and you can't fire it... CKFM-FM Toronto's staff of some 52 took out a full-page newspaper ad to wish 'Dazzling' **Don Daynard** a happy birthday...

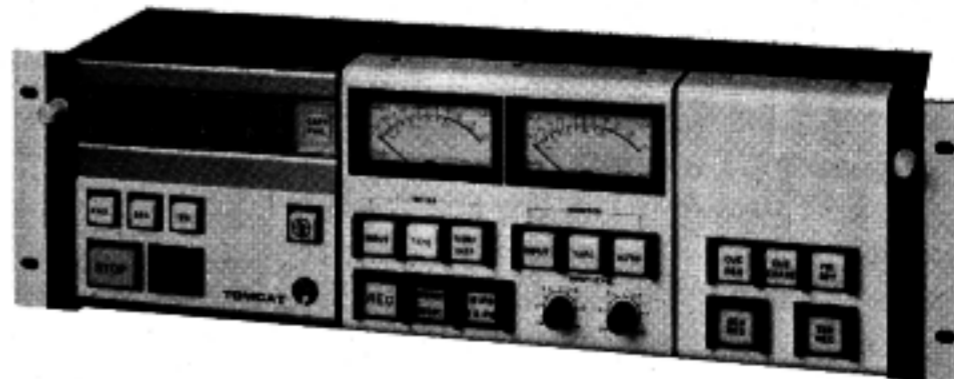
It was a son for **Patsy and Rico Gerussi—Pierre Berton's** daughter and **Bruno Gerussi's** son... Roy Thomson Hall is named for the late tycoon, whose son, **Ken Thomson** contributed \$4.5 million to the hall, one of North America's most illustrious performing arts centres. It's ironic because Roy once said he had no interest in the performing arts—quote: 'The most beautiful music to my ears is a spot commercial at ten bucks a whack'... After **J. Robert Woods** resigned as gm, CHUM Toronto, the station realigned. **Allan Waters** is gm, AM and FM, his eldest son, **Jim Waters** stays as pd of AM and becomes operations manager, **Duff Roman** becomes operations manager, FM, and **Ross Davies** continues as pd... **Holly Chercover**, a production assistant on *Snow Job* is **Murray Chercover's** daughter... International Broadcast Awards, where Canadians often do well, will be held March 19th in Los Angeles... At CFMS-FM Victoria, **Jack Dunbar**, with Capital Broadcasting almost 30 years, is now sales manager, and **Ron Andrew** is both pd and account executive... In Toronto's Yonge-Eglinton area, 30 Soudan St. is now the address for such media people as McKim (accounting), the Institute of Canadian Advertising, Case Associates Advertising and the Paul L'Anglais rep firm...

The CRTC is tough on Montreal FMs: CHOM-FM and CKMF-FM got only one-year renewals... Where's **Richard Rohmer's** daughter **Ann**? She is entertainment correspondent for *Canada AM*... Promotion director **Suzanne Legault** says CHUM's two million card-carrying listeners are the 'biggest success story in Canadian radio'... **Gary McGown**, pd at CKSA Lloydminster, moved to CKX-FM Brandon... CHF1's **Peggy Colston-Weir** won the door prize at the Canadian Radio Commercial Awards—a new Mustang. She doesn't drive... At the awards dinner, we were sitting next to charming and vivacious **Jennifer Neal**, who recently joined the Radio Bureau's research team... **Isabel Bassett** is working on a book dealing with 'women in power'... **Don Parrish's** nightly *Candlelight and Wine*, 24 years on CHF1-FM, has moved to weekends. One of the finest announcers we've ever trained at Humber, **Paul Fisher** takes Don's evening spot...

Joining CKAR Huntsville: **Lee Habinski** from CKO, Humber graduate **Tom McColgan**, **Paul Romanuk**, a Toronto freelancer, and **Brent Caupens**, from CKOT Tillsonburg... **Blair Andrews**, out of Ryerson, and Mohawk grad **John Rodenburg** are now with CKOT news... **Cal Johnstone** and **Richard Thomas** joined the CHUM newsroom; at CKBB Barrie, **Martin Vanderwood** returned from CFTI Timmins to replace Johnstone... **Tim Hesketh** became nd at CJVI Victoria. BN Toronto added **Grace Macaluso** from Edmonton, **Anne-Marie Geddes** from CJWW Saskatoon and **Aerianne Le Blanc** from CJME Regina. **Gene Constaine** moved to CKAN Newmarket from CKRY-FM Calgary. **John Yoannou**, police reporter at CKEY Toronto became communications and advisor to the office of the Ontario attorney-general. **John McGillivray**, another Humber success, is sports editor at CKO. **Doug Huskison**, news director of ATV in Saint John was moved to Halifax and replaced by **Pat Ryan** of ATV Charlottetown. Farm commentator at CKNX Wingham is former MPP **Murray Gaunt**... We're proud to read in *The BN Report* that **Glen Lisle** was saluted for coverage of the wounding of two Nepean policemen; Glen, of CFRA news, attended Humber as a mature student...

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New chairman of the Institute of Canadian Advertising is **Bruce Chadwick**, president of R.T. Kelley ad agency, Hamilton...

The 1984 Canadian Radio Commercial Awards: This is our first opportunity to talk about this event presented by the Radio Bureau of Canada, the Broadcast Executives Society, the Canadian Association of Broadcast Representatives and Canada's commercial radio broadcasters, with **Brian Minton** and his staff at RBC administering. Some 850 attended the enjoyable, well-staged presentations at the Sheraton Centre in Toronto and the audience included a veritable Who's Who of the industry's creative people... CHUM's **Allan Waters** (who was one of those instrumental in forming the Radio Sales Bureau, now RBC, and in hiring **Larry Heywood** as one of its original employees) created for annual presentation *The Larry Heywood Award For Imaginative Use of the Medium*. **Wes Armstrong**, CHUM vp of sales, presented the first award to Camp Associates Ltd. A fitting gesture to Larry, who, as Wes put it, has for over 20 years 'given of himself so that others may learn...no one man has made a greater contribution to sonic activity than Larry Heywood.' And that is so very right... **Miles Ramsay** and **Gary Miles** were the warm, humorous co-MCs and the general good humor of the evening was heightened by the comments of **Enoch Kent**, creative director for Buckingham, White, Salituro, Inc., one of the presenters and a very comic man... We chatted with Morgan Earl, who now heads a firm called Top O' the Mast; also, Jerry Good, Tony Viner, John Spragge (his son David is in RTA at Ryerson), Dory Trowell, Peter Harricks, Larry and Gerry Heywood, Bob Munro, Bob Quinn, Gary Greenway, Gord Hume (still getting mail and phone calls about the piece on him in BT), Bob Oliver, Rick Shurman, and the lovely Sandra Radick... We renewed acquaintances with many former Humber students, among them Peter Henderson, Scott Parsons, Rick Mickolwin, LuAnne Nicholson (there with father Ron), Brian Larter, Joe Lefresne, Jim Norman, Dave Avdichuk. A great evening!

Jim Adams advises that he, **Peter Sisam** of CTV and **Pat Hurley** of CKMW Brampton are co-lecturers in a course on Broadcast Sales and Marketing (2nd year RTA) at Ryerson. Last year, Jim wound up hiring the top student, **Deborah Dennis**, who became the fifth employee of Adam Promotions... Singer **Diane Stapley** became mother to a 9 lb. baby girl; hubby is music director **Ed Henderson**... **J.D. (Doug) MacFarlane**, the eminent journalist who was a close friend of the late **Gordon Sinclair**, is chairman of the Gordon Sinclair Foundation; it will provide journalism scholarships. Some years ago, CFRB set up a Gordon Sinclair Award at Humber College for the most promising student in news... **Prior Smith**, a recent *Phil Stone Report* profile, is now in his eighth year of broadcasting Canadian news on Florida radio and has added powerful Radio Antilles to cover much of the Caribbean... The hard-hitting Construction Safety TV commercials are narrated by actor **William Hutt**... When the Ottawa group 'Singing Fools' made a video of their peace song *Apocalypse*, they were able to convince Ottawa Mayor **Marion Dewar** to make a cameo appearance... Talented **Anne Mroczkowski**, CITY-TV co-anchor, started out as a copy writer at CKPG Prince George after studying broadcasting in **Larry Taylor's** course at Niagara College... **Toby Tarnow**, who appeared in CBC-TV's first drama, is now a New York producer. Her current venture is **Bernard Slade's** play *Fatal Attraction*. Known for his hits, *Same Time Next Year* and *Tribute*, Slade also cut his eye-tooth in drama with the CBC... *Canada AM's* **Norm Perry** got his start through **Jack Kent Cooke**; Norm worked part-time at CKEY while in high school and university.

We get letters...

From news director **Tony Cox** of CHEK Victoria, BC: 'CHEK has moved into its new multi-million dollar building, built by the CBC. Word is that such a good job was done re-arranging walls and installing new equipment that CBC moguls are jealous and want it back... The move to near the centre of town has meant a constant stream of guests for live inserts to almost all newscasts. **Bruce Kirkpatrick**, host of the hour-long *Noon Report*, assistant news director **Mark Jan Vrem** on the flagship 5:30 report and **Susan Long**, who does the 11:20 news, are all enthusiastic about the concept of live interviews. (In fact, morale is so high that Kirkpatrick, reporter **Mike Farquhar** and sports director **Alex Robertson** created some kind of media record October 22: they all became fathers on the same day.) CHEK is also doing a weekly *Crimestoppers* report with some success—one report resulted in \$6000 worth of stolen articles being recovered even before the department store knew they were missing... Weekends at CHEK, **Marisa Antinucci** and **Robin Adair** continue their team approach to news and sports.'

From **Bill Somerville** vp of Bellair Communications, Toronto: 'Bellair celebrated its 2nd year as Canadian distributor for Scottish TV with the sale of 6 hours of programming to CFMT-TV. Included is the *Hogmanay Show* sent via satellite and broadcast live on New Year's Eve... Also a *Robbie Burns Special* on January 25th, the bard's birthday.
Och, but it gladdens mae Scottish heart...

Good to hear that **Jim Brady** is going great guns as morning man for Winnipeg's CFRW... TvB's president **Cam Fellman** received a singular honor: he'll be a judge for the 25th annual Hollywood Radio & TV Society Awards... A 1983 study reveals that 26% of French-speaking Montrealers watched English TV, as against 14% in 1976... The Grey Cup, as all know, featured Winnipeg and Hamilton. Interesting that the very first broadcast of Canada's major football event also featured those two cities: the date was December 7th, 1935, and four radio stations carried the play-by-play—CRBC in Toronto (later CBC), CKOC Hamilton, and CKY and CJRC Winnipeg. The West won then too, 18 to 12... **Ross McCreath** was re-elected chairman of the Radio Bureau of Canada; new directors include **Don Luzzi**,

CHML/CKDS-FM, **John Huschi**, CKRM/CFMQ-FM and **Terry Williams**, Mutual Communications... Some four months after the wedding, it was revealed that Cablecasting's **David Graham** had married **Barbara Amiel**, editor of the Toronto Sun, author and broadcaster... A special diary, designed by BBM, is being used by Roy Chernoff Media Ltd., and Environics Research Group Ltd. in a market study of Canada's 750,000 Italian-Canadians. The study will include 1,000 interviews... Moffat would be a partner in the third French commercial TV network proposed by Cogeco for Québec... Télémédia may also apply... Subscriptions to CBC's *Radio Guide* have leapt from 12,000 (in 1982) to 32,000; it will now carry paid advertising... Keg Productions' TV series *Profiles of Nature* won prizes at both the New York International Film & TV and Yorkton festivals...

Congratulations to Fundy Cable of Miramichi, NB, first winners of the new annual *Sony Award of Merit*... **Ron Vandenberg**, once gm of CJOR Vancouver, is now president of Seaboard, the BC outdoor advertising company... With many people switching to caffeine-free drinks and juices, U.S. coffee firms have upped ad spending to \$20 million... **Nancy Wilson** moved from Global TV news to CJOH-TV... **Harvey Kirck** is back on CTV with *Harvey's People* once a week on *Canada AM*... **Robert Cooper**, former host of CBC-TV's *Ombudsman*, is re-locating in Los Angeles as a movie producer... **Peter Shurman**, whom we profile in this issue of BT, continues doing freelance announcing. Another on-air corporate president is CKO's **Taylor Parnaby**... If you ever worked CKCB, send along your taped messages and anecdotes for the stations's 20th Anniversary to: **Dale West**, CKCB, 84 Hurontario St., Collingwood, ON, L9Y 2L8... **Angelo Bomba** became vp/gm, Quality Records of Canada... New chairman of the Association of Canadian Advertisers is **Ron Willoughby** of Imperial Oil... At CJFM Montreal, **Susan Davis** was named pd and **Judy Goodman** promotion director... And named managing directors at TVOntario: **Sandra Birkenmayer** (corporate development) and **Howard Krosnick** (educational communications)... MuchMusic predicts 500,000 subscribers by the end of year one, one million by 1989...

Departures from CFRB Toronto include: **Valerie Pringle**, after 11 years, to co-host CBC-TV's *Midday*—her replacement is **John Stahl**; promotion manager Betty Abrams, succeeded by former copy director **Peter Henderson**; and newsman **Neal Sandy**, who went to government work... At CKO, **Ian Brownlee** left and **Lynne Gordon**, entertainment editor, is taking a 6-month leave of absence to write her autobiography; she'll continue on CFTO's *Toronto Today*... Congratulations to **Annis Stukus**, colorful CFUN sportscaster who turned 70 and is still going strong... and to CTV Sports vp **Johnny Esaw**, elected to the Canadian Football Hall of Fame...

Singapore Airlines and Seiko were among the first to buy time on Chinavision, the new cable satellite channel on the air in Toronto. It can carry three minutes of ads per hour... **Joan Paley** moved from CITY-TV promotion to manager of p.r. for the Metro Toronto Convention & Visitors Association... **Toby Robins**, who with husband **Bill Freeman** has lived in England for years now, is in a new Thames TV series, *Smiff*... Congratulations to **Denis & Shelagh Whitaker** whose book *Tug of War* won the first John W. Dafoe Award as the best book on Canada's international affairs... **Patrick Watson** is hosting CBC-TV's new Monday prime time *Business Show*... **Nora Fountain** returned to CKO Toronto as desk editor... **Raoul Engel**, former Global TV business commentator now living in Nassau, was married recently... **Bob Holiday** promoted our youngest pebble **Glen** to overnight managing editor at CKO; and our middle son **Doug** has a lead part in the film *Deadly Pursuit*, making its debut on CHCH-TV about this time...

Information for Broadcast Beat should be sent to Phil Stone at #1601, 2350 Bridletowne Circle, Scarborough, ON, M1W 3E6.

people in the news

• ABC Radio—**Rick Sklar**, vp and former pd of WABC, has formed his own consulting firm in New York City.

• Atlas Electronics Ltd.—recent appointments include **Alan Bass**, director of marketing; **Jacqueline Mickiewicz** and **Esther Bensadon** received promotions in the sales and purchasing department.

• CBC—**Anthony S. Manera**, president, Vancouver Community College, named vp, human resources, effective March 1. He replaces **Guy Coderre** who is retiring. **Paul Cadieux** has been promoted to general manager, CBC Enterprises. Producer **Walter Unger** has a 4-month assignment to help rebuild Grenada Radio in the Caribbean.

• CFX Victoria—president **Mel Cooper** re-elected chairman, Association of Independent Metropolitan Stations (AIMS).

• Dielectric Communications—recent promotions include **Stanley Thomas** to vp, broadcast product sales and **Beverly Shane** to administrator, FM/TV products.

• General Instrument—**Harry W. Hooper** appointed vp, marketing and sales, Satellite Systems Division, Toronto.

• Ikegami Electronics (USA) Inc.—**Harvey Caplan** named national sales manager for professional products, dealer sales.

• JBL Inc.—has hired engineers **Drew Daniels**, **Roy Cizek**, **Henry Martin** and **Paul Apollonio**—to design and develop new professional sound products.

• LeBlanc & Royle Communications Inc.—**Tom Whitney**, previously with CGE, RCA, appointed manager, technical sales, to direct marketing of Celwave and Cablewave antenna system products.

• Les Locations Uni Vidéo Inc., spécialisée en location d'équipements professionnels, annonce la nomination de **Serge Shanks** à titre de directeur général. Pour de plus amples informations, vous pouvez contacter Serge au (514) 761-4525.

• Microdyne Corp.—**Stephen M. Lovely** named satellite systems engineer.

• NRBA—**Peter Ferrara** replaces **Tom McCoy** as executive vp.

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CYSTIC FIBROSIS RADIOTHON TOURS CANADA



Bill Robinson (left) and CKOB Renfrew morning man Bob Rose are seen during 6-hour Radiothon at CKOB. Bill and company from Toronto joined CKOB staff and Renfrew Kinsmen Club to raise over \$4000 to combat cystic fibrosis. After this first effort, the Radiothon team is to visit 40 radio stations a year across Canada. Bill, a long-time evening host on CKEY Toronto, became interested in fighting CF when the disease took the life of an 18-year-old friend and listener, Michelle Brinkwell, in 1983.

RAY SONIN NAMED MBE BY QUEEN



Ray Sonin, host of the CFRB Toronto radio show, 'Calling All Britons' for more than 25 years, is seen with his wife, June, and his insignia of the MBE (Member of Order of the British Empire), after an investiture by Queen Elizabeth II at Buckingham Palace. Ray's program, aired Saturday afternoons and several evenings a week, has provided a large audience with music and news from 'over 'ome'. While in Britain, the Sonins renewed contacts with many friends and personalities in the entertainment field.

- **J. Lyman Potts**, founder of the Canadian Talent Library, named first recipient of the **Walt Grealis** Special Achievement Award by the Canadian Academy of Recording Arts & Sciences (CARAS).

- Scientific Atlanta—**David Eggers** promoted to vice-president.

- Strand Century, Inc.—**Jeff Sessler** rejoins firm as vp, sales, based in expanded corporate headquarters in Los Angeles.

- Studer Revox—**Clary MacDonald**,

general manager, has announced the appointment of **Erik Ryalen**, formerly of McCurdy Radio Industries, as sales manager. Former gm **Brian Lowe** is now with NBC in Los Angeles.

- Wegener Communications—added to marketing staff are **Harry Matthews**, communications; **Roger Doering**, broadcast; and, **Jon Thrasher** cable.

- Western Broadcast Sales—named manager of new TV division is **Keith Morrison**, formerly with All-Canada.

IN MEMORIAM

Roland G. Taylor

Rolly Taylor, 42, transmitter engineer for CHSJ-TV Saint John, N.B., died on November 16, 1984, of cancer. A native of Saint John, he began his career with CP Telecommunications in Montreal, then joined CKTM-TV Trois-Rivieres, which named him technical director of its sister station CKSH-TV Sherbrooke, when CKSH went on the air in 1974. In 1981, Rolly was named eastern manager for Comad Communications and made his headquarters in Truro, Nova Scotia. He subsequently returned to station engineering with CHSJ in 1983. Rolly is survived by his wife Marion, daughter Ashli, 12, and son Kye, 10, his father Gord and brother Robert.

Jim Butler

Jim Butler, 67, veteran broadcaster and news director of CHRB High River, Alta., died November 27 of a heart attack. He was attending a meeting at the station at the time. Previously with CFAC-TV Calgary and CITV Edmonton, he was one of the original staff members of CHRB in 1977. Jim is survived by his wife June and two sons.

Margaret Olwin Colpitts

Known to Atlantic Canada audiences for more than 30 years as Joan Marshall, Margaret Colpitts, 69, died in Ottawa on November 11, 1984. She began her career with KKCW Moncton, moving to CBC Halifax in 1956.

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