

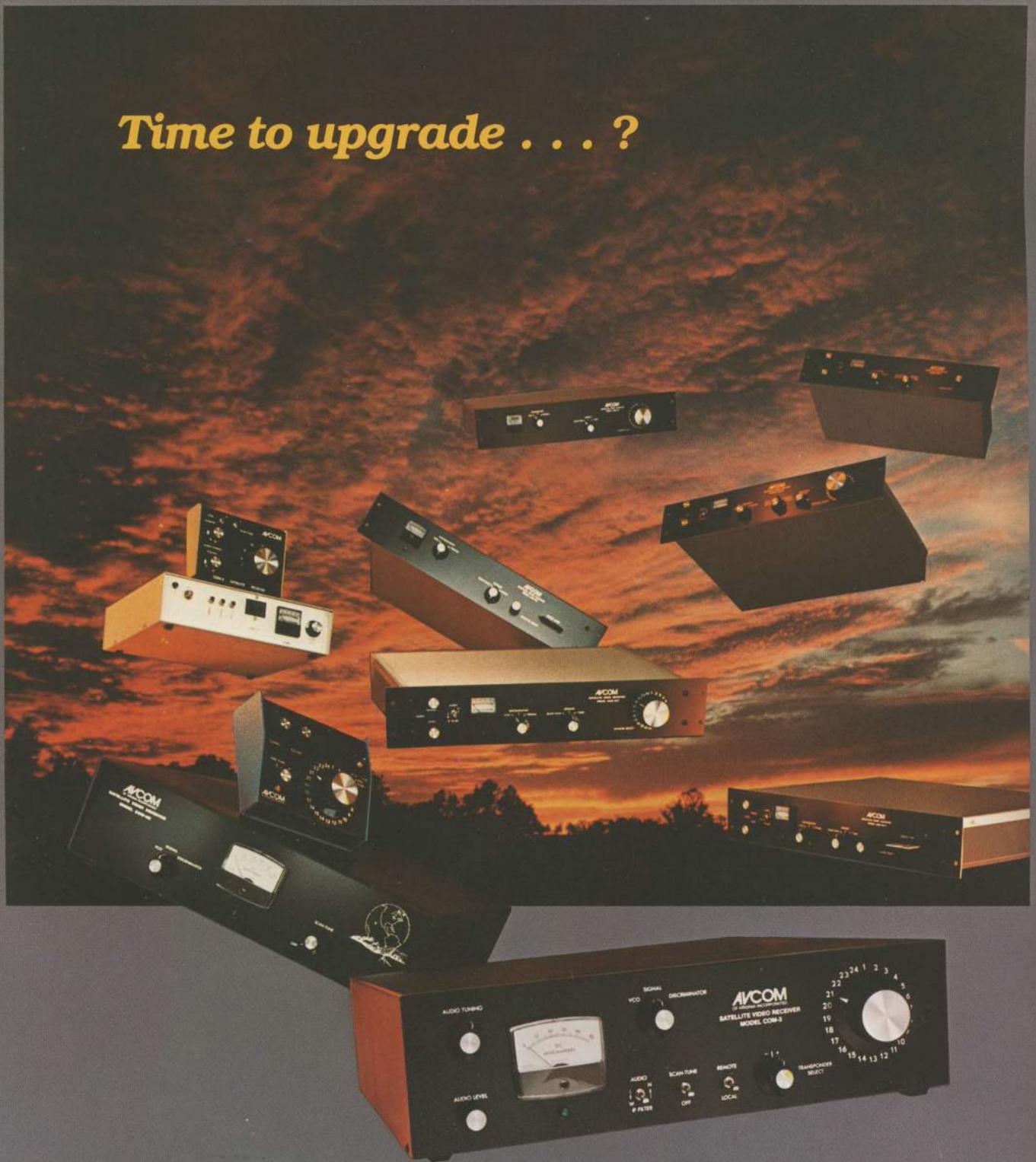
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**JANUARY 1984**



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**TOP OF THE MONTH**

**1984.** We had been warned by George Orwell. Some chose to ignore the warning. Others considered the source and threw his prognostications into the trash can. Now it's here. We look at what '84 has in store for the TVRO industry starting on page 8, this month.

**FEEDS.** Our December CSD began an announced three-part series on feeds, what they do, and how they do it. Now it is four parts and our 'extra' shot at feeds appears this month. Big time lawsuits and big corporate bucks are flying in the TVRO feed world. Lots of very profitable dough is on the line. We see why starting on page 18.

**MAN OF THE YEAR.** He is David P. Johnson of Paradigm Manufacturing Company. His is a 'rags to riches' story running by in double-time. We see why starting on page 14.

**SRI LANKA/** Arthur C. Clarke. We were there, and so were you (in spirit). New, strong bonds of friendship and international cooperation formed as nearly 30 TVRO industry representatives traveled around the world to bring this Indian Ocean nation into the 21st century. An unusually long Coop's Comment focuses on the 'Trip/ Experience Of A Lifetime' as we discover why this is, indeed, going to be 'one world' bound together by electronic umbilical cords in the years ahead.

**LAWSUIT.** The big one is here. Cable firms in Wichita have gone after a local TVRO dealer charging the TVRO firm with every imaginable 'count.' No small time suit, this one pits OUR industry against THEIR industry. Coop Comments, this month.

**JANUARY 1984**

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**OUR COVER/** The father of geostationary satellites, the man responsible for all that we enjoy today, **Dr. Arthur C. Clarke** of Sri Lanka on the patio-deck of his home in Colombo with 1983 TVRO Industry Man Of The Year **David P. Johnson** of Paradigm Manufacturing, Inc. Above them, a 16 foot Paracclipse antenna installed for Clarke by the CSD tour group.

**COOP'S  
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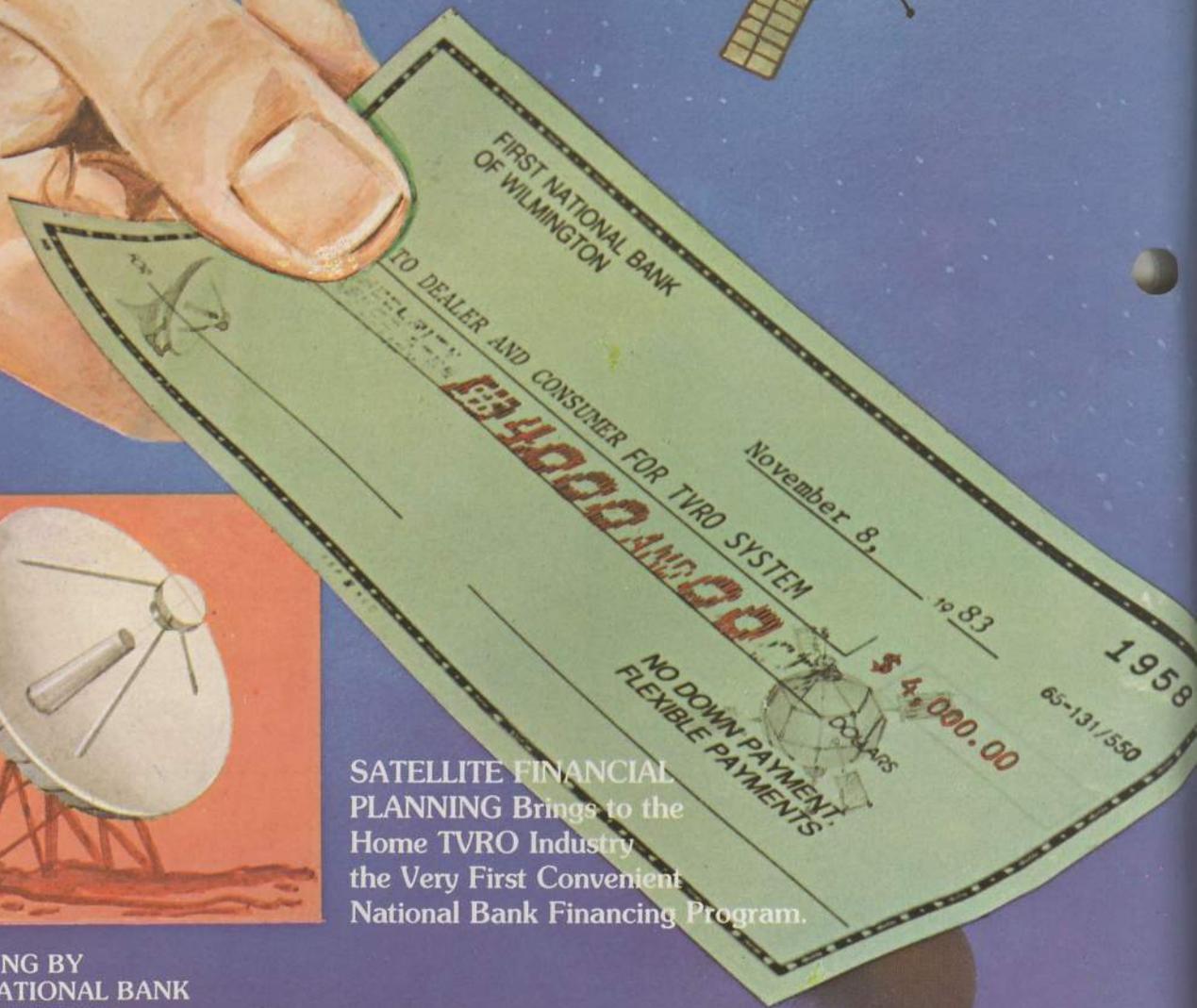


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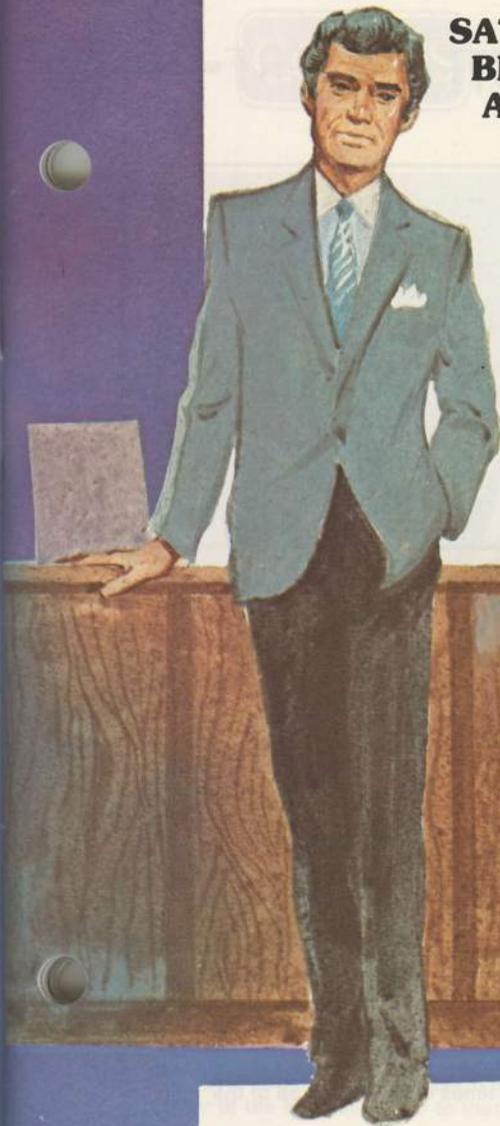


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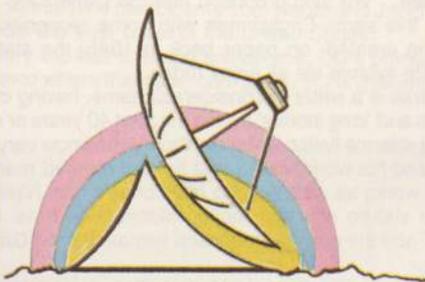


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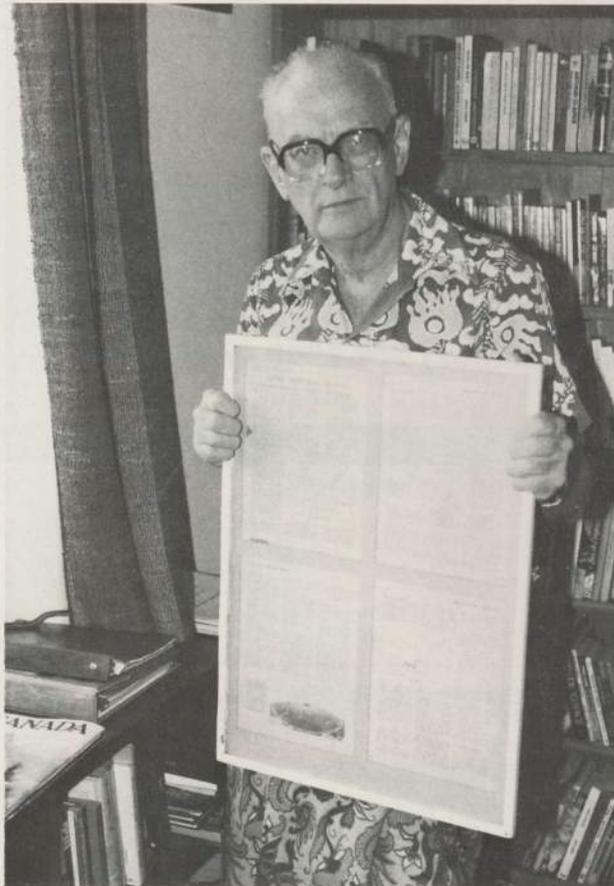
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## COOP'S SATELLITE COMMENT

- INDUSTRY Sri Lanka Tour
- WICHITA Case A Bummer
- PLAYING Dangerous Games

Mark Twain was there before us. Portuguese traders preceded Twain and Marco Polo was a step ahead of the Portuguese. Three hundred years before the birth of Christ, an Indian Holy Man crossed the Gulf of Manner to an island lying off the southern tip of the Indian sub-continent and introduced the teachings of Buddah. None of these earlier visitors received a warmer nor more cordial welcome to the fabled island of Paradise than the group of 29 Americans, Canadians, and Japanese who visited **Arthur C. Clarke** in **Sri Lanka** during the last week in November. For most of those traveling to Clarke's island paradise, it was indeed "the trip of a lifetime."

For those coming into the show after the curtain has raised, this brief background. Back in 1979, when the first issue of **CSD** was being printed, we proposed in print that in honor of an Englishman named



**OUR HUMBLE BEGINNINGS/** A carefully preserved original copy of the 1945 *Wireless World* article penned by Clarke, and the man himself.



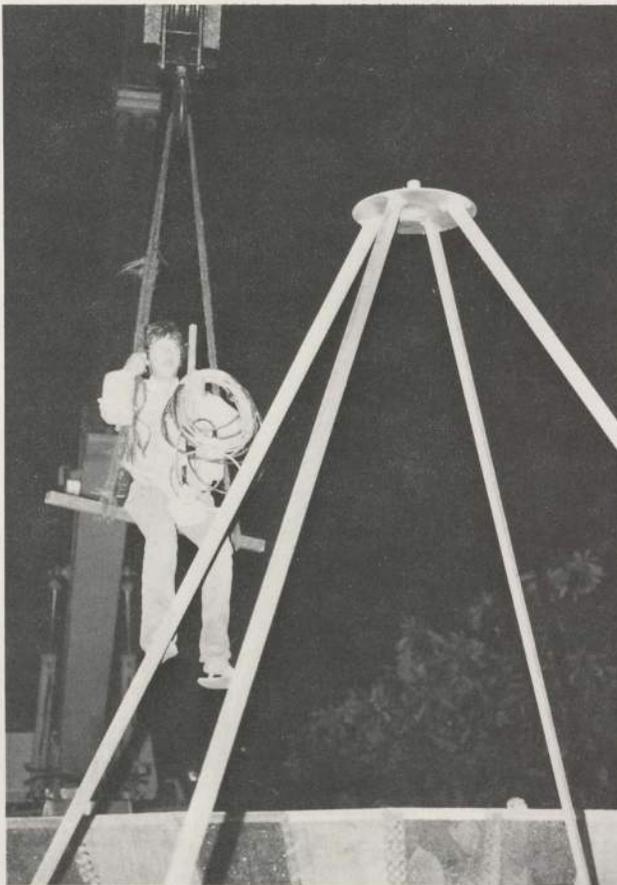
**THOSE %\$#\* CLIPS.** Lee Lubbers, a Jesuit Priest, came close to 'profane utterances' several times while getting all of the 'clips' onto the 'Clipse array'.

Clarke that we as an industry re-name the geo-stationary orbit belt the '**Clarke Orbit Belt.**' We also proposed that the (American) TVRO industry accord this same Englishman with some recognition and thanks for having created, on paper back in 1945, the stationary equatorial satellite system we all enjoy today.

Arthur C. Clarke is a writer of considerable fame, having created nearly 100 books and 'long stories' during the past 40 years or so. His best fame is as a science fiction writer but those who know very much about the man and his work realize that he has created many non (science) fiction works as well. Among his stories which have been 'elevated' to the stature of major motion pictures we have **Space Odyssey: 2001** and the now-in-production sequel '**Space Odyssey II: 2010.**'

It was in **Wireless World** in 1945 that Clarke penned a non-fictional piece, a technical paper proposing geo-stationary satellites. Clarke, to write this paper, had to create every detail out of 'thin air'; the rockets required to lift objects into geo-stationary orbit, the multiple-burn staging of the rockets, the satellites which would use microwave frequencies to beam television and radio programming back to earth, the operating frequency for those satellites, and the complex mathematics required to support the entire system. Clarke's 1945 printed work became a blueprint which would be followed, some 18 years later, by the United States to launch the first of our geo-stationary satellites; the first Telstar system. For his pioneering work in this area, Clarke has been accorded just about every official award that the scientific and electronic world has to offer. For example, there was the '**Marconi Award**' in 1982.

But there was one thing that Clarke, living on the distant island of Sri Lanka (formerly Ceylon) in the Indian Ocean, did not have; **he did not have his own satellite terminal.** So four years after proposing that our industry give Clarke such a terminal, here in **CSD** in the fall of



**INTO THE BREACH/** Henri Guerin rides the crane chair into the center of the Hero 25 footer to install the LNA and feed.

1979, more than 20 of us set out from San Francisco to take to Clarke his very own TVRO terminal system. And along the way, we picked up an additional nine participants from Nepal and Japan and Hong Kong and from the east coast of the United States.

Every trip has to begin someplace. Ours officially began in San Francisco where the initial, core group of 20, gathered on the evening



**OUT IN SPACE/** Local crew from engineering school plus tour-group engineers at work on ADM 20 footer three stories above ground.

#### SELLING To SMATV Ops

Back in the summer of '82, a pair of antitrust suits were filed in the state of Arizona. One of these two suits was brought by the Attorney General for the State and both sought to force premium program suppliers (Showtime, The Movie Channel, HBO et al) to sell their movie and entertainment packages to Satellite Master Antenna Television systems (SMATV) in the state.

The private cable operators were trying to get a new industry off the ground in Arizona. The effort was stymied by a reluctance (or 'refusal') of the satellite delivered premium folks to sell their products to SMATV operators. The premium folks had various contracts with cable firms and the premium folks chose to treat these contracts on an exclusive basis, effectively shutting down SMATV before it got started. The would-be SMATV operator(s), and the Attorney General for the state thought this was a peculiar way to do business and so lawsuits charging the premium guys with withholding their product were filed. **That's antitrust.**

The SMATV and state people charged that the 'exclusive cable contracts' were created to protect the franchised cable operators 'at the expense of the SMATV/private cable operators.'

Well, law suits have a way of dragging on (and on) and after 18 months or so this series has been settled; in favor of the SMATV/private cable people.

**The original suits** had named HBO, Showtime, The Movie Channel, ESPN and USA Network. ESPN and USA had agreed, after the suits were filed, to sell their services to SMATV after all, apparently believing that settling 'out of court' was the wise course of action. HBO was dropped from the suit because they had a 'clean record'; there was no evidence that HBO had EVER sold service to an SMATV operator, and the cases in question hinged on the question of premium folks FIRST selling to SMATV, and then later changing their minds and withdrawing the service to SMATV operators. The cases did not tackle the larger question of whether ANY premium or satellite service could be FORCED to sell to ANY private cable system merely on demand.

This left Showtime and The Movie Channel, who at the time of the suits were competitors but who now are commonly owned and managed. Both have now agreed, **without the cases going to trial before a judge**, to sell their services to SMATV operators; at least within the state of Arizona. Under the terms of the agreement/ settlement, the duo will now sell premium service to 'legitimate' SMATV folks provided the SMATV operators have legal (written) access to the building/ buildings to be cabled, a letter of credit indicating they have the finances to handle the system and its operation, and, agree to meet certain minimum 'technical standards' in the delivery of the satellite fed signals.

That's in Arizona, which is the only geographic area impacted by this decision since the suits were brought there on a state basis. However, an attorney for Showtime and the Movie Channel has announced that 'the company' is now reviewing the present national 'anti-SMATV' policy and that some announcement could be expected concerning the availability of premium service signals in other areas of the US, shortly.

You may recall that The Movie Channel and Showtime became a single corporate entity this past fall after a long round of legal hassles. One of the roadblocks thrown in front of the two independent companies, when they were talking about a merger, was SPACE. Our trade association used the merger as an opportunity to raise questions at the FCC and the Department of Justice concerning just this very issue; the failure of each to offer its programming to legally constituted private/ SMATV cable systems. SPACE got the attention of Justice on this; the FCC showed less interest in the matter. High level meetings between SPACE and Justice certainly did produce some pressures on the two firms who were nothing short of desperate to merge into a single, hopefully profitable operation. Showtime has been slightly profitable for a few years while The Movie Channel has been a drain on its parents from the beginning.

Outside of the cable industry, there is little awareness as to the highly competitive nature of the premium programming business. HBO and Showtime are at it, tooth and nail, virtually all of the time.

# KENNEDY SPACE CENTER

The Paraclypse 4.8 meter satellite antenna was installed atop NASA's Central Instrumentation Facility, at the Kennedy Space Center, November 1983. Paradigm engineer Gene Campbell (l.) and chief engineer Frank Casten (r.) assemble the superstructure using only simple hand tools and step ladders.





The completed installation of the 4.8 meter antenna with the 3.8 meter Paraclipse in the background.

Mark Fator, photographer

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NASA engineers watch as Gene and Frank fine tune the 4.8 meter with a spectrum analyzer.

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## 1984/ HOW WILL WE CHANGE?

### FROM BOOM to Bang

By all accounts, the most recently completed TVRO 'year' was from 250 to 300% bigger in performance than the previous record growth year of 1982. And if you believe in prognostications, most of those involved in the industry see similar growth ahead of 1984. Why 1983 was the 'take off' year, and why 1984 is so widely forecast to be the 'in-orbit' year, begs a detailed study.

Industry prophet **Peter Dalton**, head man at KLM, early in 1983 forecast that the industry would see no fewer than 200,000 new (home) TVRO systems manufactured during 1983. Most felt Dalton was overly optimistic. Looking backwards, Dalton was low by perhaps 50,000 units as the end of year rush saw upwards of 30,000 terminals leaving the OEM level facilities during the last month of the year. Dalton, trying for two in a row, now suggests a 600,000 terminal year in 1984.

Channel Master's **Donald Berg** is comfortable with his own forecast that the industry will produce and ship upwards of 400,000 'systems' during 1984 but quickly points out that "others are forecasting as many as 600,000 terminals and they are making plans to produce that many."

Still others are convinced that the industry can sell as many terminal systems as it can produce. Practical engineers such as Sat-Tec's **John Ramsey** feel that the industry will be component-part limited; key receiver parts such as the Phase Lock Loop devices will be in short supply for at least the first six months of 1984 and that will slow down the growth of the industry. Intersat's **Jim Halley** suggests that if the industry is to reach its true market potential during 1984, a high level task force of industry management types should be putting heat on the component part suppliers worldwide who to date have been able to slow down production output because they have been unable to produce the required number of component parts.

What 1984 all boils down to, the bottom line, is that after five years of painful growth, the industry has several major forces all coming together in 1984. Let's see what those forces are and how they might create growth for the year ahead.

### DBS/ A Threat?

CM's Berg warns that the industry is painfully short on public awareness; a not unfamiliar concern which others have voiced as well. "The primary ingredient we're missing, now, in the selling of home earth stations is consumer awareness that such a product exists, and what it can do," suggests Berg. "The publicity concerning the new DBS service offerings will make consumers aware that living in a rural area, with weak or no television reception, is not something which must be tolerated any longer." Berg and others see the DBS promotional efforts as good for the 4 GHz quasi-DBS offerings. Most industry people point out that a \$500 (upwards) DBS package of equipment plus around \$400 per year in service use fees for five channels of 12 GHz service will compare favorably with the \$3,000 average price for a 4 GHz package which offers between 80 and 100 channels of service.

The 12 GHz launch of early bird services is not going as well as had been hoped; that's from the viewpoint of those firms engaged in

this new business activity area. One of the two 1983-scheduled early entrants **dropped out before** the race began and the second, test marketing in central Indiana, is not finding the public that interested in the service. Most feel that it will take the big marketing muscle of the Comsat backed 12 GHz service late in 1984 to make a dent in public opinion for 12 GHz DBS. Whereas the 1983 entrant, USCI, is being very cautious and approaching only small segments of the USA at a time (Indianapolis and surrounding countryside was their opening shot), Comsat's program will at least impact on major urban area such as the 'northeast' all at one time. Prior to the launch of the Comsat service, you can count on massive publicity, news stories and television features heralding the arrival of DBS television. And that is where the increased public awareness comes in.

There are **other** 12 GHz players **just below the surface** who might do more for the public awareness factor of 'home satellite television.' **Radio Shack** is one of these firms.

Way back in 1979, when the 4 GHz world was just beginning to come into focus, Radio Shack fielded a task force to study the market potential of the new industry. That task force made the unfortunate error of talking to the press, telling journalists about the 'task force recommendations' prior to the task force getting corporate approval for the plan. The press 'leaks' destroyed the program before it began and key members of the task force were relieved of their Radio Shack responsibilities shortly after. That was the end of the Radio Shack 'early entry' into the 4 GHz world.

Learning from that experience, people at Radio Shack charged with the responsibility of insuring that Tandy does not miss the 'DBS boom' are being extremely close lipped about their corporate plans for satellite television. Divisional managers have been assured, as far back as September of 1983, that the firm **would be offering** 'satellite television systems' **before the end of 1984**. Store managers, in turn, have been told to tell persistent customers that Radio Shack would, indeed, have a satellite TV package **as soon as August or September of 1984**. All of this is important, **if it happens** because where USCI or even Comsat may be stirring up publicity on a limited local or regional scale, Radio Shack will tackle the project from coast to coast.

Radio Shack information sources will confirm **little** relating to the status of the program as we enter 1984. 'Press' is still a red flag to them, remembering the 1979 fiasco, and to learn where the program really is you have to dig deeply into the structure. What we find is conflicting. There is written evidence that Radio Shack plans to offer a \$300 package that includes a very simplistic 3 foot dish. They are talking about the package being capable of receiving between **6 and 8** television **channels** via satellite. All of this strongly **suggests** a 12 GHz package. One piece of internal RS literature even lists the channels or services and it includes Showtime **and** HBO, ESPN and others. It sounds like a cream-skimming of the presently available 4 GHz services. Unfortunately, none of the packaging they are writing about internally actually exists in anyone's programming portfolio, at 12 GHz, today. Perhaps Radio Shack knows something about packaged 12 GHz programs that nobody else knows, or, perhaps the people responsible for the project at Radio Shack don't know enough . . . about their project . . . to know what they are really doing.

None of this really matters, at the moment, and it won't matter until Radio Shack makes an announcement. Some expect that announcement to come quickly; it could come before you read this, in fact. The Wall Street Journal would be a logical place for it to pop up first. How **much** they announce, how credible their announcement is, we shall all have to await. If the program is sound, is backed with equipment, and Radio Shack can deliver, well, it will do as much to increase public

\* / RADIO SHACK **did** announce that they were joining forces with 12 GHz early bird/pioneer USCI; effective the end of January. The role Radio Shack will play, initially, is that of 'selling agent' for the 12 GHz service. Apparently Radio Shack stores in the 'target service areas' will install 4 or 2.5 foot dishes as displays, serve as demonstration points for USCI, sell the service and execute contracts. Rumors of **other** involvement, including there being a Radio Shack electronics package using a 3 foot dish to be available for \$300, could **not** be substantiated. For another view of the USCI 12 GHz program, see **Coop's Comments**, page 54, this issue.

awareness of satellite TV in 1984 as any other single effort. And once the public's attention is captured by the notion that television reception can come from a satellite, the first and biggest hurdle is past for those who would like to convert that interest to a 4 GHz terminal sale.

## THE HBO 4 GHz DBS

CSD first wrote, at length, about the master game plan for a 4 GHz DBS-type service on the Hughes Galaxy I satellite in our September issue. We reasoned that with six or more transponders in the HBO/Time stable on Galaxy One, and with a mushrooming home TVRO marketplace, the setting was ripening for Home Box Office to enter the marketplace.

Subsequently much has appeared in the general cable and broadcasting industry trade press on this topic. By the end of November, various stories had Ted Turner of WTBS and personnel at HBO "agreeing in principle" to establishing a 4 GHz direct-to-home service on Galaxy. Turner himself said as much while appearing at the SPACE Orlando show in early November. Now, what are the problems here and how real is all of this?

HBO's first problem is naming the service. That may seem like a minor problem, but it indicates the caution the world's largest movie distribution firm faces. For now it is being called 'CBD' which stands for "C Band Direct." For the unwashed, 'C band' is the same as 4 GHz, a hold over from the old military standards. The public will never hear that phrase but for those 'inside' the industry 'CBD' will do just fine until HBO finds a real name.

As one HBO person suggests, "We are not in a hurry to name it because as soon as it has a name, it is then 'official' that we are going to do something." Staying off the record, unofficial, is important to HBO right now. There is a myriad of problems to sort out before any of this can happen. Such as?

- 1) **Scrambling.** The new Galaxy One service will be scrambled. The service will consist of as many as 9 transponders, on GI. They may all be vertically polarized (to eliminate one semi-costly part in dedicated terminals; the polarization switcher) or they may be split up. **The scrambling will be 'hard audio'** (digital) and **semi-soft video** (defeatable with effort) initially, to keep the costs down. The scrambling system will be a form or version of the M/A COM Linkabit package; provided. Provided the costs can be brought down to around say \$400 a unit.

The initial units being supplied to the west and east coast HBO affiliates will be costing HBO around \$2,000 each. That's the "first generation" system and for all practical purposes they are hand wired and hand tweaked. The next version, the second generation (VC2), will be a stripped down version of the first. It will be the middle of 1986 before the third version (VC3) is likely to be in production. This will be a large scale integration (LSI) package and by then the costs will be in the \$100 per unit range.

- 2) **Integrating to the home TVRO market.** The descramblers will be housed initially in their own container or housing. To get descrambled video out of the system, you will loop out of the receiver at baseband video, from a point within the receiver ahead of clamping or video processing. Very few presently-sold-receivers have a **jack** that allows you to do this so a rather comprehensive program of determining which receivers already in the field (or in the field at the time the service starts) can be modified, and how they can be modified, is now underway.

The truth is that there may be a large number of receivers now operating, or being sold by mid-summer of 1984, that cannot be properly field modified to accept the outboard descrambler. We expect to see HBO carefully research this problem and to further see them publish a list of receivers which can be field modified for plugging in the required descrambler. The engineering evaluation now underway is looking at both the ease of getting into a receiver to tap into the 'unclamped/unprocessed video' line and how much work will be required, in the field, to make the modification.

We expect HBO to have a difficult time determining the best way to authorize field modifications for receivers. There is not presently a national chain of equipment repair centers which could be trained in this job. Training of hundreds of individual repair centers and TV shops to do the work, and certify their workmanship, seems like a

formidable hurdle, still.

Very shortly, perhaps far in front of the March Las Vegas show, we expect to see HBO meeting **privately** with major receiver suppliers to advise them of their 'plug-in' requirements, and to encourage the receiver suppliers to make prompt changes in their production models to allow the outboard descrambler to be simply 'jacked into' the system. The way the outboard box will work is this. The video will come from the receiver, before clamping and before processing. It will travel by jumper wire to the outboard descrambler, which will cost the early users around \$400 each. The descrambler will clear up the scrambling (i.e. descramble) and also recreate the stereo or monaural audio channels from information in the video baseband information (remember that the program audio channels with the Linkabit system are transmitted within the picture elements, in digital form). Thus the receiver audio section will simply not be used in the process; the M/A COM Linkabit package will have its own modulator (channel 3 or 4) and that is what the TVRO user will connect to the TV receiver(s). This will require an external 'A'/B' switch in the system, to clear up the CBD signals on Galaxy I, through the Linkabit descrambler package when that bird is in use, and then direct from the receiver's own demodulator/modulator for those services received from other satellites.

We will not be surprised to see M/A COM, since it is their **Linkabit division** that is creating the scrambled system and the descramblers, to offer a special home TVRO package which marries a home TVRO receiver plus a Linkabit descrambler into the **same** container. This will be a marketing advantage which M/A COM is apt to have for the balance of 1984, and perhaps beyond; until such time as the '3 version' or third generation of the Linkabit descramblers (the one with the LSI technology) is available. For that interim period of time, **nobody but M/A COM** will be offering the two functions in a single container. We would also not be surprised to see the M/A COM combination package priced very-very competitively; perhaps lower in total (dealer/user) price **combined** than most receiver manufacturers can match in a receiver **plus** outboard descrambler **pair** of packages. There is a marketing opportunity here, for M/A COM, which is not apt to pass unnoticed by M/A COM.

- 3) **Programming.** Ted Turner has repeatedly admitted that WTBS will (or wants to be) a part of the 'CBD' package. The HBO feed used for this service is likely to be a brand new feed, something called initially a 'central time zone feed.' It may show up on Galaxy I very shortly and it will be **said** that this new one hour later release schedule from the eastern schedule is to accommodate the central time zone **cable** operators. Ultimately, this central zone feed of HBO will become the primary (and only) time zone feed for HBO on 'CBD.'

There is some confusion, even in Turner's camp, as to how effective WTBS will be on Galaxy I 'CBD' scrambled, when just a couple of degrees away sits WTBS on F3R, **not** scrambled. There are two possible scenarios here. Turner could scramble on F3R, making WTBS scrambled all over. Or, he could eliminate the F3R feed of WTBS (in time) and have only the scrambled GI feed. There is a third; Turner could **also** do a one hour tape delay of his feeds from F3R and release them in the same 'central time zone format' on GI as HBO will do for their primary 'CBD' scrambled service.

The service, as noted, could encompass as many as 9 channels or perhaps as few as 6. **Final** decision time is several months away. What is **known** is that the basic encryption data will travel from HBO's new Long Island uplink to all of the other GI uplink sites; such as Atlanta for WTBS. There it will be married to the WTBS 'CBD' service feed so that as viewers switch their satellite receivers from HBO-CBD to WTBS-CBD there will be an instant 'lock up' of the descrambler since all will be seeing the same scrambling encryption data at essentially the same time.

- 4) **The cable TV connection.** HBO, now admitting that a 'CBD' service is being planned, is going **first** to the major cable MSO (multiple system operator) firms. Distribution of the service, that is the marketing technique which will be employed to get 'CBD' into user hands, will first pass by the cable operators. On the surface that may sound like a bad deal for the local TVRO dealer since he is not presently exactly friendly with the cable operator (see **Coop's Comments**, this month, for a discussion

of the "Wichita lawsuit" brought against a local TVRO dealer by two Wichita area cable firms.

**This is mandatory for HBO** since they cannot allow their present marketing position with the nation's cable operators to slip. What is likely to happen here is the following.

- A) HBO will, we feel, make it very plain to the cable operators that while the cable operators are getting first 'crack' at selling 'CBD' in their areas, that there will be certain strings attached to that distribution right. For example? Well, the cable firm will have to agree to provide a service department for descramblers and satellite receivers. The cable firm will have to agree to make home TVRO antenna installations, following a fee schedule which HBO will have a hand in setting. The cable operator will have to agree to make service calls, probably for few bucks, to keep the 'rural CBD customers' happy.

Some of the early reaction from the major cable operators suggests that many, perhaps most, of the cable firms will thank HBO 'for the opportunity' and then pass it up. For example, Daniels & Associates Vice Chairman **John Saeman** pondered "**Suppose in Baton Rouge (CBD) got 30% of the 10,000 homes which we don't have cable in front of. Three thousand homes at \$3 or \$4 a month, net to us, brings in \$10,000 to \$12,000. I don't know whether that makes us any money . . .**"

As noted, HBO **must** run the (CBD) package by the cable operators first. It is likely, probable even, that after they do so, they will then find that very few of the cable operators want anything to do with sending a service truck 40 miles into the country to replace an LNA or adjust a descrambler. Cable firms are, for the most part, thin on extra personnel and not anxious to load up on specialized test equipment and vehicles to service a market which is actually foreign to their own day to day business activity. **When it all sifts out**, and it will, HBO with its (CBD) package **will** turn to the home TVRO industry dealers and installers, which is where the expertise in this specialized area already exists. There will be some teeth gnashing over this one, SPACE will scream loud about HBO going to the cable operators first (or at all) but when it is all settled, HBO **will** be dealing with **you**, the TVRO installing dealer. Because **that** is what makes good business sense from the beginning.

- 5) **The master plan schedule.** HBO would very much like to be able to formally announce the (CBD) service at the Las Vegas gathering. They will not announce until they have gotten over the cable hurdle, have cleared up the last of their programming contract revisions with the movie suppliers, have the bugs out and behind them with the first generation of Linkabit descramblers, have all six to nine of the program service offerings 'locked up,' and feel they can make a coherent presentation to the manufacturers of home TVRO receivers.

Getting the receiver suppliers on line, early, is the first priority. It will cost the existing receiver suppliers some money and several months time to work a retrofit into the present receiver designs so that all of the receivers produced after a certain date have external jacks on the rear apron which will interface with a 'standard' plug that will connect the receiver to the M/A COM Linkabit descrambler. HBO would like to see four to five months between this 'show and tell' specifically for the receiver manufacturers (perhaps held at Las Vegas) and the actual start up date of the service proper. After all, how much good is a service launch if there are no receivers out there capable of having the (CBD) service adapter added? And how many people are going to be willing to have their existing receivers modified by a local technician so that the external (CBD) descrambler can work with the receiver? HBO, properly, feels that the market will be with the **new terminals sold from mid '84 onwards**, not those 500,000 or so that may possibly be in place when the service starts up. They may ultimately decide that field retrofitting of existing receivers is not worth the hassle, and that with limited exceptions only receivers factory designed for the Linkabit plug-in will be accepted for service. Remember, there **will be an 'HBO Approved Equipment List'** publicized and those that don't make the list (for whatever reason) will probably not be able to sell into the (CBD) market.

If Las Vegas is a go or no go, (and only another 60 days or so under our belts will tell us) for the first **formal** announcement to our industry, the schedule after that looks more and more like this:

- 1) **June 1 to 30th**; formal announcement **to the public**, and start-up of a massive promotional campaign.
- 2) **August 1 to September 1**: formal start-up of service on Galaxy One.
- 6) **Pricing?** Still up in the air. The target of \$400 per descrambler is pretty firm, but **who pays** \$400 for it is not so firm. Is that a dealer price or a consumer price? Time will tell. And that brings us to the other monetary unknown.
- 7) **Monthly pricing and collections.** Every possible concept that man can think of has been tossed into the hat. They ran the gamut from a monthly dun automatically appearing on the consumer's VISA/Mastercharge card to the dealer collecting the money for a year in advance when he installs the (CBD) descrambler. No decisions yet because there are other problems that have to be solved first. For example? Will HBO directly market the service itself, through its own sales offices or will it allow the (CBD) authorized dealer to market the service, and (like the cable operator) make some payment to the dealer for the marketing service? Even the monthly service fee is unsettled but numbers between \$19.95 (not commonly mentioned) and \$29.95 (more commonly mentioned) keep surfacing. It's all too soon to decide yet and speculation is foolish. **When the decision is made, then we will ALL know.**

There are side effects to all of this. The SPACE Superfund program, for example. SPACE has a bunch of money salted away to force firms such as HBO to either offer descramblers to the home viewing public or go to court to explain why they have not done so. Not a small amount of the total SPACE effort to date has been wrapped up in pursuing, on paper anyhow, the possible ways of getting 'legal viewing rights' for home TVRO owners. With the (CBD) program, HBO would seem to be settling the issue once and for all; making the services available, as SPACE is demanding, at relatively attractive rates. SPACE's Brown is oft quoted as saying that when issues such as the 'viewing rights' question are settled, he sees the day when there will be **no further need** for the trade organization. Does this suggest that **after 1984**, there will be **no more SPACE** because this issue is resolved? Did Virginia believe in Santa Claus?

#### THE FAR EASTERN Invasion

It was at the STTI show in Minneapolis this past summer that Sat-Tec's John Ramsey appeared before the television cameras to argue that 'cheap Korean copies' of his popular home style receiver were inferior products a long ways from 'home' when they broke. It was the same John Ramsey who, at the September STTI show, found himself standing in a crowded aisleway face to face with a stack of Korean receivers which bore more than a striking resemblance to his own receivers. The words John uttered when he spied that stack of 'exact-copy-receivers' are not printable but the several hundred people within earshot of John when he came face to face with his own ghost will remember for a lifetime what John said. It was inevitable; Far Eastern production was coming and it would be cheaper, and perhaps even better, than its North American counterparts.

Those in the **CSD** tour group to Sri Lanka have now seen with their own eyes the 'invasion force' being readied in at least a small segment of the Far East. It is formidable. While the early Korean 'copies' of the Sat-Tec were prolific, brash and not terribly well done, the next level of Far Eastern technology to hit our shores will be finely tuned, immaculately finished, carefully documented and carrying a pedigree which any of the North American gear would be proud to claim as its own.

Already in the USA, for more than 18 months now, has been the **Maspro** line brought in with the assistance of **USS/United Satellite Systems**. When the tour group visited the Maspro plant in Nagoya, we saw an army of engineers and technicians working on both present and future generations of TVRO hardware. The USS Maspro receiver is already **one of** the finest available in the USA, from any source. What we saw in Nagoya was proof that talented Japanese microwave and baseband engineers do not stop their engineering efforts until they are second best **to no one**. The first year or so of the association between Maspro and USS was perhaps one of seeking levels; each side was looking to measure the other, to determine just what could be done with the resources on both sides of the Pacific. With Maspro providing the engineering and production and USS providing the

marketing and service, they found out just how difficult it would be to work out the inevitable bugs from locations 7,000 miles apart. It worked and now as we enter 1984 the only thing slowing down the Maspro production of a wide range of TVRO receivers, MATV high grade modulators, stereo demodulators and a wide range of other products intended for the home and SMATV marketplace is the ability of USS to 'move' the hardware. And with a trio of receivers, priced from low end to top end, available by mid-1984, backed up by a full line of accessories and in-place USA service, Maspro will be a formidable competitor during 1984. But they are hardly the story of what is going to happen to the US market when another formidable Japanese supplier opens the flood gates. **Uniden.**

Maspro, they will admit, is engineering driven. That means that the engineers run the company; a company which T. Hashiyama started back in 1953 by building TV antennas and signal amplifiers and splitters. Uniden is younger, and marketing driven. Uniden President H. Fujimoto is the impeccable organizer, a man who thrives on seeing that no small detail is left undone. With a primary work force of more than 4,000 spread through Japan, Hong Kong and Taiwan, Uniden is a 'global' communications firm. An Americanized four color booklet, prepared to describe Uniden to the English speaking world, talks about their "global strategy for growth."

Uniden is possibly the largest manufacturer of wireless telephones in the world. They continue to be a worldwide dominant force in 27 MHz CB radios and with the new 900 MHz CB coming on fast in the USA, it should not surprise you to see 900 MHz 'personal' radios already on sale in Japan and Hong Kong 'over the counter.' Uniden's Fujimoto is driven by concepts that capture marketplaces, dominate the market, and leave very little head or leg room for competitors to wiggle and turn. Maspro may have the engineering (which is not to say that Uniden will not); but Uniden has the marketing savvy to turn engineering into glamorous, desirable, attractive packages which everyone who can afford will buy.

Uniden will be showing a 'mock up' version of their first C band TVRO receiver at the January Consumer Electronics Show (CES), just days after you read this report. They are scheduling the first live demonstration of their C band receiver package for the Las Vegas show in March. Delivery will begin in May and the pump thusly primed, they expect to end up with no fewer than three separate models covering low, medium and high end terminals by the end of 1984. And Fujimoto is taking no chances on making the US market consume all of the products his 4,000 person team can crate during 1984.

First there is the new President of **Uniden Satellite Technology, Inc.**, a new wholly owned corporation for Uniden proper. He is none other than Dr. Y. Konishi, the former director of research and development for the Japanese NHK (national government) network. Konishi is the man who pioneered 12 GHz (K/Ku band) technology, worldwide, creating the first microwave strip line low-cost, high performance 'integrated circuits' for 12 GHz. Dr. Konishi was 'wooned' away from a lifetime at NHK by the forceful Fujimoto because Konishi had the best credentials in Japan in microwave technology. It could be added that since Dr. Konishi is highly respected worldwide for his numerous innovative designs and creations, that Fujimoto may have gotten the 'ultimate Taylor Howard' of the microwave world, worldwide, in the deal.

Second there is **John Lane**, former CEO of **Midland International**, the Kansas City based importer of far eastern electronics which at one point in history held the distinction of being the largest distributor of communications equipment in the world (in the boom days of CB radio). Lane, a resident of Hong Kong plus Tokyo, is the senior advisor to Uniden on the satellite project and since he obviously knows and understands the US electronics world exceedingly well, he will have a direct impact on the way the Uniden satellite product is marketed.

After Lane and Konishi come a long line of forceful, Fujimoto-trained sales and engineering people who are totally devoted to the company they live and work for. In our group's tour of Uniden we saw rows of US satellite receivers being dissected for 'trade secrets' and 'hard measurement' for performance. We also had the opportunity, at leisure, to talk extensively with Dr. Konishi while in Sri Lanka (see **Coop's Comments** this month for a report on the industry Sri Lanka tour); Lane, Dr. Konishi and Tom Kawada came to Sri Lanka with the US group to be a part of the Arthur C. Clarke festivities.

**Konishi was open and above board with his engineering direction.** He clearly does not favor the standard 70 MHz IF, for example. A preference? Perhaps 130 MHz. He has some non-American thoughts about extending the threshold on satellite receivers, making pretty pictures play with carrier to noise ratios in the 6 dB region. A heated debate between Konishi and Canadian TVRO designer **Jan Spisar**, pool side at the Palm Beach Hotel in Sri Lanka, taught the half dozen or so of us listening intently more about AGC and limiting systems, and the impact of both on threshold improvement, than a lifetime of following Taylor Howard around. It was obvious to all, hard headed Spisar included, that Dr. Konishi will be making a considerable mark on the worldwide 4 GHz TVRO field before 1984 is over.

**Lane is equally open and above board with the Uniden approach to marketing.** From manufacturer to dealer, through distributorships with protected territories. Policing of price integrity, closely defined distributor territories, and a close working relationship between those (carefully selected) distributors and the factory in Japan, through an existing US Uniden office and management system.

Well funded, superbly engineered, brilliantly directed by Fujimoto, the long feared 'Japanese invasion' of the 4 GHz "American marketplace" is upon us. And the bright, perhaps slightly fearful, American manufacturers are scrambling to cover their bets.

**Some are already offshore** in discrete ways. R.L. Drake, fully aware that 'Japan, Inc.' would one day arrive if our marketplace grew to sufficient size, went offshore for LNAs during 1983. Their product line of LNAs-only has a single problem at the moment; it is so good and so well regarded that they can't supply enough to meet the demand. We met in Japan with a major, quiet, manufacturer of LNAs; the president of JRC or New Japan Radio Company. JRC has been building LNAs under contract for several well known (and a couple of not so well known) US 'distributors' for some time. Our discussion centered on two things; would JRC enter the US market directly, on their own, with a JRC low noise amplifier product? And, how would they support a Japanese firm such as Uniden?

"As long as our total output of LNAs can be bought by American firms, there is little need for us to create a direct selling line within the USA," responded Dr. Shigeru Yamashita. And Uniden?

"We are expanding our production capability, perhaps as much as seven fold, during 1984, to support Japanese firms (such as Uniden) in their 4 GHz marketing efforts," was the response.

We met with perhaps a dozen of the leading Japanese bankers who are vitally interested in what Uniden is doing in North America. Publicity in Japan has been high, accorded to Uniden's pioneering status for their efforts to mass market and export Japanese microwave technology. "Just how big will the US TVRO market be?" asked **Tadashi Osada**, Director and General Manager for **The Kyowa Bank, Ltd.** of Tokyo. We told him what the best figures were. "How much of the 1984 marketplace might the Japanese suppliers achieve," asked **Eigo Kudo**, General Manager of the America's Department of **The Sumitomo Bank, Ltd.** of Tokyo. We made a stab at a number. "Room for many more Japanese suppl(r)iers," he smiled.

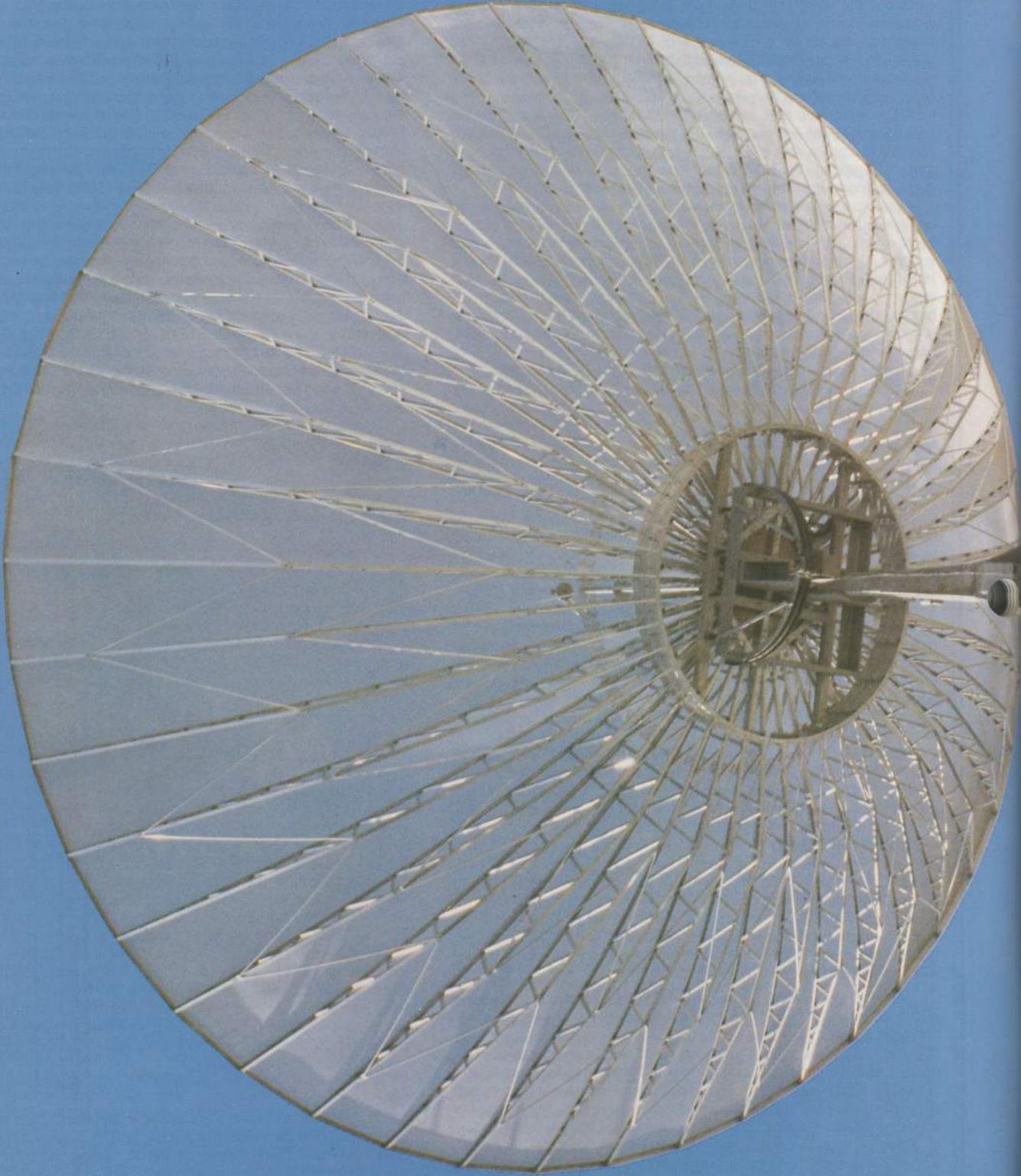
All of this says what the pessimistic American suppliers have been mouthing privately for a year or two; the North American TVRO industry, in 1983, achieved 'critical mass.' As 1983 drew to a close, as HBO admitted to a 'CBD' program, as people like Peter Dalton loudly proclaimed a 600,000 terminal year in 1984, Japanese electronics producers, bankers and entrepreneurs were listening, and formulating their own courses of action.

Ready or not, 1984 was here and for the Japanese it would be 'year one.'

"How is all of this 4 GHz activity measuring up where you sit?" we asked Dr. Misao Matsushita, Controller for the Satellite Broadcasting Planning Division for NHK. "Japan has no real plans to use 4 GHz for DBS applications; all of your eggs are in the 12 GHz basket," we suggested.

"We are comfortable with our 12 GHz plans," was the response, "because for the limited size of Japan we can better cover it with smaller receive antennas at 12 GHz."

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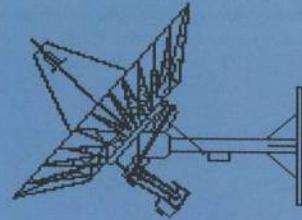


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We wondered about the **rest** of the Pacific, remembering an earlier conversation we held with some Japanese engineers who had seemed intrigued with the possibility of Japan launching a series of regional 4 GHz birds not unlike Palapa, and offering transponders on those birds to all of the nations from New Zealand to Sri Lanka, and in between, on a leased basis. Would not this provide a tremendous boost to the Japanese 4 GHz technology base, and also offer Japan as a nation the opportunity to become an electronic switchboard in the sky to a vast area of the world?

**"Yes, there are certain applications where C band does make more sense,"** came the measured response.

If Japan is awakening to 4 GHz technology, and more importantly, to the worldwide marketplace for 4 GHz systems, there is a surprising amount of public recognition of 12 GHz already in place. In the world famous Akihabara district of Tokyo, where you can spend days visiting the thousands of small electronic shops that sell everything from precision knobs to the latest in solid state power amplifiers, we saw a half dozen of the offset fed 12 GHz **DX Antenna Company** receiving

terminals on display; **and for sale!** Can you imagine walking into a store in the USA and purchasing a complete, ready to take home 12 GHz package off the shelf? You can, today, in Tokyo. And at a price 40% lower than we hear 'promised' for stateside delivery. A fellow could pay for his plane ticket to Tokyo by simply popping over and picking up a couple of these packages and putting the money saved towards the cost of the ticket.

Actually, the airwaves between the USA and the Far East are heavily populated by US satellite people these days. John Ramsey of Sat-Tec is spending plenty of time in Korea and his "If you can't beat 'em, join 'em" attitude may signal a turn around for others as well. We barely missed being in Japan while **Peter Drake** of R.L. Drake was 'in town' and before our group and immediately following our group were more than a dozen other 'names' in the industry. It all says that 1984, product wise, will have a distinctly oriental taste. Perhaps the last show of 1984 for our industry should be held in Tokyo. Or as one pessimist was heard to remark "Will the last American supplier leaving the industry please bring down the stars and stripes?"

## MAN OF THE YEAR/

### YOUNG MAN Driven

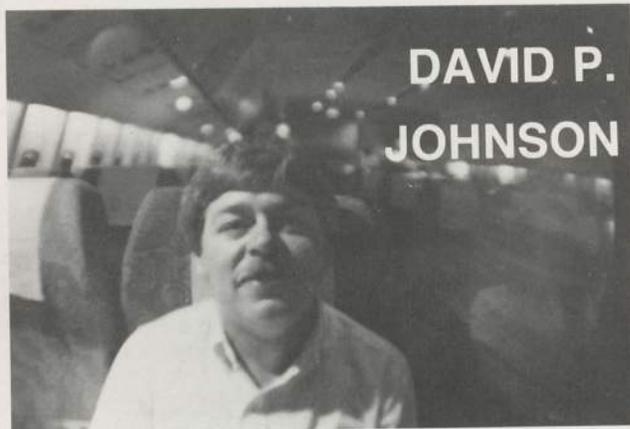
Those who have had the opportunity to watch **Paradigm Manufacturing's** David Johnson might well ask the classic question "What Makes David Run?". We felt that while we knew young (33 years) David quite well, the recent TVRO industry worldwide tour to Sri Lanka and back, with David and wife Laurie, might give us an opportunity to better discern an answer to this question. We were not disappointed.

**David Johnson one year ago.** Fresh from an internal corporate squabble concerning the ownership and direction of his self-founded Paradigm Manufacturing Company business, Johnson was one of the 20 or so who traveled to the **CSD Provo Retreat** in the fall of 1982. Paradigm and its product line, the Paraclipse antenna, was hardly a household word at the time. In fact, it was not yet an industry word. All that would follow in the next 12 months.

**David Johnson five years ago.** A junior partner in a General Electric Mobile (two-way) radio dealership in Eureka, California. Struggling, in an exciting field, but not progressing at a speed he liked. The first signs that he was an impatient (young) man were beginning to show. He was just beginning to hear phrases like 'TVRO' and 'home satellite TV' and he wanted to know more. David Johnson had his personal goals set and he was a young man looking for a way to reach those goals.

**David Johnson in the summer of 1980.** He attended the third of the industry trade shows, held in San Jose, California and was introduced for the first time to the wonderful world of home satellite terminals. And he was hooked. He co-founded a TVRO dealership with the name of 'TV Unlimited' and gave the business a year to amount to something. While he was getting his feet wet, he was carefully studying where he could attain his own personal goals in this exciting new field. It was during this first year that he decided that TVRO antennas offered him the best opportunity to realize those personal goals.

By February of 1981 Johnson had built and was testing the prototype of what would eventually become the Paraclipse antenna. By



June of 1981, one year after attending the San Jose SPTS, Paradigm was formed. And then the fun began. Getting from a working prototype, in what he now admits was 'rough form,' to a production ready design, with virtually no investment capital available, was no easy trick. It was February of 1982 when the first production 12 foot Paraclipse antenna came out of the small facility.

If getting the first unit produced and into the field was a struggle, what followed was a double-struggle. An original partner had **his own** goals and ideas about how the firm should progress and grow. There was a considerable amount of conflict and before it was all over Johnson, a co-founder of Paradigm, would awaken one morning to learn that he was virtually isolated from his own business; checking accounts had been changed, key employees had been 'recruited' by his warring partner and all suppliers had cut David's portion of the business 'off' from raw materials.

Johnson went to the 'well' and found local backing to allow him to take his partner out of the business. Many of his supporters, in his hour of need, turned out to be early customers for the Paraclipse antenna; people who believed in young David Johnson, his product, and his integrity. They would not regret their support.

**By the Atlanta show** in the month of November (1982) Paradigm was 'up to' monthly shipping high of 244 antennas. Certainly not the largest firm in the business but the reputation was already well established. That was when a 12 foot Paraclipse made the long trek to Provo for testing and analysis, and subsequent editorial review here in **CSD**. The firm was employing around 30 people at the time and occupying slightly more than 2,000 square feet of production space to make it all happen. Things were cramped but Johnson was already making plans to expand in two growth phases.

**One year after the Atlanta show,** an eventful year for both Johnson and the company, the firm had grown to nearly 200 employees and was in the process of making the second move within 12

months. First it had been to 7800 square feet with a sub-expansion to an additional 4000 square feet during 1983, and then as the year wound down, to 14,000 square feet with a further expansion to 46,000 square feet just around the corner. Meanwhile, Paradigm had become the second largest employer in the county area in just one year's real growth and was pushing hard at being number one.

**Production?** From slightly over 300 antennas in December of 1982 to a scheduled 4,000 antennas in December of 1983. And that, recites Johnson, is but the beginning.

"Our master business plan calls for the ability by the end of 1984 to be shipping up to 35,000 9, 12 and 16 foot antennas per month using nearly 50,000 square feet of production space and more than 600 employees." And the firm's own line of antennas is not the complete Paradigm story since they have been producing portions of antenna systems for OEM customers such as Amplica for some months now, with sub-system shipments numbering over 1,000 terminal systems per month.

**Paradigm**, like another antenna pioneer ADM, has also held onto a strong 'local' market position for complete TVRO systems. Johnson notes "**We started out** as a retailer of TVRO systems and **with more than a year of effort** created and produced our own 12 foot antenna system. When we produced our first antenna, it was sold to a local, retail customer. As we have grown and as the market has grown, we have beefed up our northern California regional direct-to-the-consumer sales program." As a consequence of this, Paradigm is a major 'buyer' of TVRO system hardware, moving a substantial number of LNAs, receivers and associated electronics and cables. "We continue to be a full line distributor for a wide variety of electronics, to supply our own retail operation and to service our own network of dealers who count on Paradigm for their complete system packages."

Such amazing growth, controlled and manageable, is in itself a considerable achievement in our rapid growth but highly unstable industry. That alone **might** have earned David Johnson our CSD 'Industry Man Of The Year' selection. But there is considerably more to the Johnson/Paradigm story which marks the measure of this year's '**Man Of The Year.**' Johnson himself and the way he conducts his business affairs and relationships is the balance of the story.

Johnson professes not to like preparing for 'tests.' At one point in his youthful business career he was selling insurance. At another point he was selling real estate. At still another, he was selling used cars. In all three avocations Johnson jumped out of the chosen field of endeavor because he was faced with some sort of written exam. "**I always felt that if I couldn't wing it, I wasn't going to do it,**" he recalls. That suggests a bright person, accustomed to getting by on native smarts and perhaps good looks, not willing to make the sacrifice to buckle down and really apply himself.

"Perhaps," he remembers, "had I sat down and studied for the real estate exam, I never would have gotten into the two-way radio business. And had I not been in the two-way business, I would not have gotten bitten by the TVRO bug. You see, it all works out for the best afterall!"

This might suggest to the casual observer that the growth of Paradigm and Johnson's rapid rise within the industry has been happenstance. Actually, just the opposite is the case. Johnson, it turns out, is something of a master planner of his own destiny.

"**I have a clear cut set of personal and corporate goals,**" he will tell you, and then share them with you. A tiny fraction of those goals is found in corporate planning to be capable of producing and shipping as many as 35,000 TVRO antennas per month by December of 1984.

If the rise of the Paraclypse antenna line has been meteoric, the rapid growth of the Johnson stature within the TVRO industry has been meteoric-squared. From a virtually unknown stance in the month of November 1982 to **Chairman of the Board of SPACE**, and, the **President of the SPACE Superfund** program one year later has no parallel in the industry. Some study into why this has happened will be instructive to those who aspire to follow in the footsteps of the dynamic young man.

Johnson attributes his initial national launch of his product to the favorable publicity his 12 foot antenna received early in 1983. Orders for and shipments for the 12 foot antenna rose rapidly from a few hundred per month to more than a thousand per month in a span of **three months**, early in the past year and immediately following com-



**JOHNSON** outfitted with a UNIDEN 'Happy Coat' in Tokyo, prepares to attend the special "Coop's Group" reception hosted by the Japanese electronics manufacturer.

parison antenna testing and publication of the results. So rapid was the growth that during the latter portion of 1983 all corporate efforts turned to the long term effects of growth and the creation of an internal growth program which would 'stage' future growth against the need for expanded facilities. Because of the original and initially-unique design of the Paraclypse antennas, expansion of the product quantity was less of a planning hassle for Paradigm than it might have been, for example, for a fiberglass antenna manufacturer or a solid dish supplier. Within the first four months of 1983 it became apparent to Johnson that the firm needed two types of expansion; **an immediate expansion** of facilities to accommodate the rapidly building back order status for the product, and, the long term growth required to offset the expansion of the industry itself.

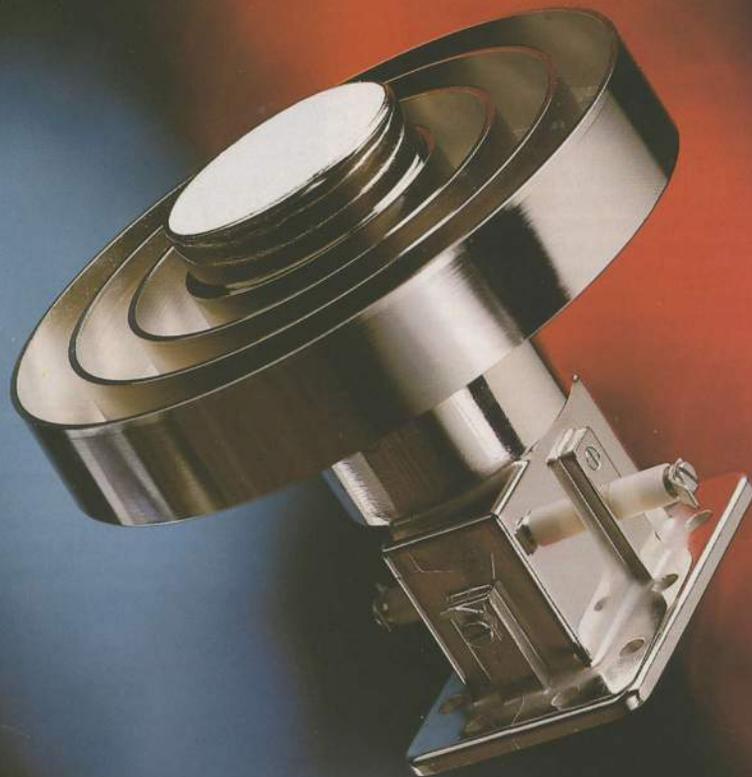
"Initially, during 1983, the growth we were seeing was the direct result of our 'share of market' increasing rapidly," observes Johnson. "Fortunately for us, the market itself was not all that big at the time and we had the luxury of forecasting with sufficient lead times how the share of market we expected to attain late in 1983 would translate to production requirements say in late 1984. That is how we did our expansion planning; **taking the share of market** we felt we could handle and expanding that to the maximum growth of the industry itself forecast for the following years of 1984 and 1985." And 35,000 antennas per month?

"That represents the **most optimistic number** we can create for our share of a market which has grown to the maximum forecasted size by the end of 1984. I will frankly be shocked to see such a number



**JOHNSON**, wife Laurie, and 21st Media's Frank Ogden toast the health of the TVRO industry at a traditional 'sit down' Japanese dinner in Japan. David didn't care for the raw fish.

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317-299-0020

## Echosphere Corp.

2250 S. Raritan  
Englewood, CO 80110  
303-935-1909

## High Frontier Distribution

2230 E. Indian School Road  
Phoenix, AZ 85016  
800-382-0395

## National Microtech

P.O. Drawer E  
Grenada, MS 38901  
601-647-6144

## Ross Electronics

900 Antelope Blvd.  
Red Bluff, CA 96080  
916-529-0200

## Satellite Receivers, Inc.

1819 University Avenue  
Green Bay, WI 54302  
414-432-5777

## Satellite Sales, Inc.

688D Alpha Park  
Cleveland, OH 44143  
216-461-0000

## Satellite Television Systems

P.O. 668  
Sandy Springs,  
S. Carolina 29677  
803-261-8209

## Satellite Video Service

Star Route 247A  
Palenville, NY 12463  
518-678-9581

## Star Com

**Distribution**  
1009 Gregg St.  
Big Spring, TX 79720  
915-263-8300

## Startech, Inc.

4053 Brambleton Ave. S.W.  
Roanoke, VA 24018  
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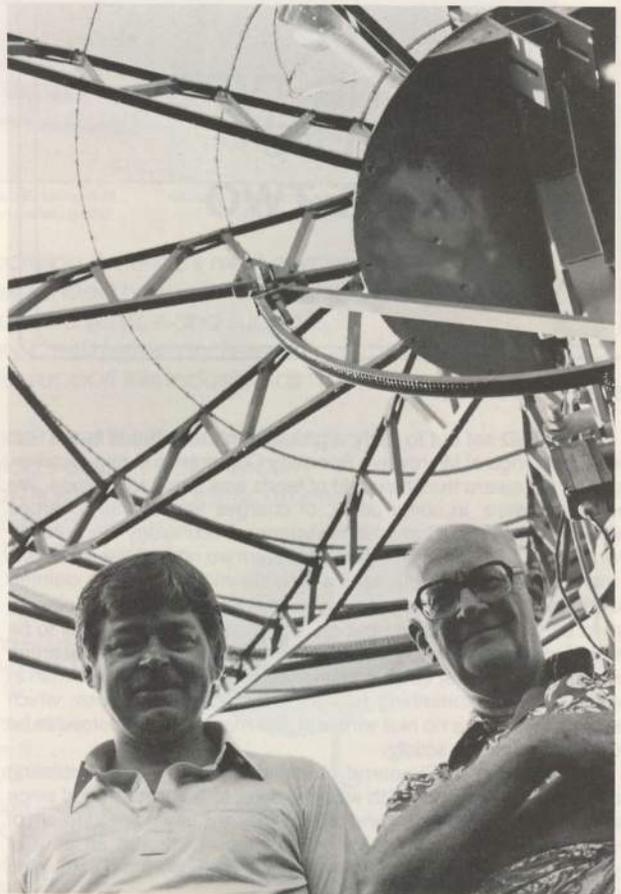


M/A-COM OMNI SPECTRA, INC.

happen since that will represent an industry that has quadrupled or more during 1984. But we will be prepared for such growth if it happens."

Those dealers who are handling or who would like to handle the Paracclipse line of antennas will be pleased to hear that statement since the firm went into the month of December back ordered approximately twice the current monthly production ability of the firm, and finding itself turning down orders hourly when they could not supply the products dealers were requesting.

The original Paracclipse antenna was the 12 foot antenna which CSD reviewed in print in the first quarter of 1983. Subsequent additions to the line during 1983 included a 9 foot version for the central USA and portions of Canada, and just as the year ended, a 16 footer for the 'deep fringe' regions of the world where Intelsat grade signals were the primary video services available. No smaller antennas (than



JOHNSON and Arthur C. Clarke with the completed 16 foot Paracclipse installation at 25 Barnes Place, Colombo.

9 feet) are planned but the possibility of a 20 footer is not ruled out during 1984.

Johnson's own involvement in the industry, as noted, has been maturing as rapidly as the product line and its production capabilities. A strong advocate of resolving the pesky 'viewing rights' issue, he set a personal goal of getting as involved as possible with the SPACE effort in this area. **Step one** was for Johnson to make Paradigm a 'Pioneer Member' of SPACE. **Step two** was to contribute his time and company money towards the special SPACE effort to litigate or legislate viewing rights for home TVRO viewers. When the SPACE legal defense fund turned into the 'Super Fund' in 1983, Johnson shortly found himself leading the group as its (first) newly elected President. It was but a month later when the full SPACE Board of Directors met in Orlando and elected him Chairman of the Board for the industry trade

association. From relative unknown in the industry in November of 1982, Johnson found himself in the **two** top spots in November of 1983.

When **CSD** announced an 'around the world trip' to meet with leaders in the TVRO industry worldwide in the spring of 1983, Johnson and wife Laurie were among the first to sign up. Johnson very much wanted to have one of his own antenna product in Sri Lanka for Arthur C. Clarke and/or the University of Moratuwa. He knew that his 12 footer was not up to Intelsat reception demands so with this as an impetus he put the firm's engineering staff to work designing a newer, larger antenna. The 16 foot Paraclypse was thus borne, over a four month R and D effort. This antenna would end up gracing the back

patio of **Arthur C. Clarke** in his home in **Colombo, Sri Lanka** and because of this fact Johnson would spend five full days with Clarke at his home getting the installation functional. From that close association with the legendary Clarke, many new projects for the American TVRO industry will flow in 1984 and beyond.

**David Johnson**; President of Paradigm Manufacturing Co., Inc., a young man who found himself with the right products, the right marketing philosophies and the required personal strengths in place when a new, vibrant and mushrooming industry was preparing to take off. **David Johnson** . . . the Home TVRO Industry's **Man of The Year in 1983**. All of the industry salutes you, David, for being the kind of leader we need for the busy and entangled year ahead.

## TESTING TVRO FEEDS PART TWO



### AS THE Probe Turns (\*)

When **CSD** set out to carry a group of industry feeds to the San Diego test range of Microwave Specialty Corporation in mid-October, we were not aware that the world of feeds was about to explode. We had been aware, in some detail, of charges and counter charges levied by Chaparral, Boman and Antenna Technology Corporation over the history of the rotating probe system we now all use so widely to make our switching from vertical to horizontal 'play.' Each claimed the other was a 'pirate', engaging in various levels of industrial espionage to carve out a market position. While such claims are not to be totally dismissed, nothing much seemed to be happening in that arena and other than a brief court appearance of Chaparral and Boman in the fall of 1982 (something neither side wishes to discuss, which suggests there were no real winners), the marketplace seemed to be rocking along pretty solidly.

That was before Chaparral obtained a patent on their rotating probe system. November 8th was the date, to be precise, and since that time there has been no end of legal trickery, an endless stream of press releases, and a long list of telephone calls and an aura of mystery surrounding the patent and its effects on the TVRO feed marketplace.

**The obvious first.** Chaparral has a patent on a rotating probe (Patent number 4,414,516). That patent was granted on November 8th. That's the end of the obvious, uncontested facts.

Immediately parallel to the granting of that patent, perhaps even prior to that patent actually being in the hands of Chaparral, a series of press releases were mailed to most of the publications in the industry, and to most of the large scale buyers of feeds (antenna OEMs, distributors, and so on). The Chaparral press release charged that it, ". . . a leading manufacturer of components for Satellite Communication Systems, (has) filed a complaint for patent infringement, trademark infringement, false designation of origin and unfair business practices against Boman Industries of California".

The effect of the press release, and the mass mailing of copies of

the complaint allegedly filed against Boman ". . . were devastating" according to Boman's Robert Maniachi. "What is worse, we went to the Los Angeles court to find a copy of the complaint. We had not been served, and the only information we had was from the many journalists calling to ask our response". That was the 8th of November. It would turn out, according to Boman, that more than three weeks would elapse before any papers were delivered to Boman officially 'summoning' the firm to the charges. Even then, as November turned to December and no **papers** had been served on Boman, the actual delivery of the charges (formal service is required in California) was handled in what Boman characterizes as a ". . . most strange manner". The papers came by messenger, were "simply dropped at the reception desk with no effort to serve them on an officer of the corporation, nor to obtain a signature as proof of service".

So while Chaparral was papering the TVRO industry with copies of the press release and complaint allegedly filed against Boman, Boman was at something of a dis-advantage. They had no direct knowledge of the charges. We'll return to all of this.

### TAYLOR Howard's Patent

**CSD** had been 'forewarned' about the pending grant of a patent, and the 'threat' of a lawsuit against Boman during the SPACE gathering in Orlando. At that time **Taylor Howard** told us that the long sought patent would finally be granted on the 8th of November (it was) and that Chaparral would immediately bring suit against Boman for infringing on the patent.

In as much as **CSD** was at that time researching the history of feeds, and we had some recently gained knowledge of feed patents, we asked Taylor to explain what his patent covered. We'll use some diagrams to explain why the Chaparral feed ended up getting a patent.

See 'Feed Basics # 1 here'.

A feed is actually nothing more nor less than an open piece of microwave waveguide; and a waveguide is nothing more nor less than a 'pipe' of the appropriate size to allow microwave signals of a particular frequency (band) to flow through the pipe. Waveguide varies, in physical size, as a function of the wavelengths of the signals to be transported by the 'pipe'. Generally speaking, lower frequency microwave signals, with a longer wavelength, require 'bigger' pipe. Higher frequency microwave signals, with shorter wavelengths, require a

\*With credit to Mike Pelzman of Boman Industries for the subtitle.

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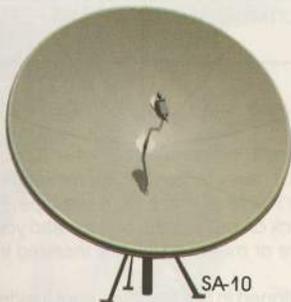
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'smaller' pipe. You can probably envision how a 'too long' wavelength would not 'fit' into a piece of waveguide 'pipe' that is too big. You should also understand that when the pipe is too large (ie. designed for shorter wavelengths, operating at a higher frequency) the results are also bad. Using 4 GHz frequency waveguide at 12 GHz causes something known as 'multi-moding'; you get the shorter waves bouncing around in an oversized pipe and they cause interference with one

## FEED BASICS - #1

BASIC ROUND WAVEGUIDE IS A PIECE OF "MICROWAVE PIPE"

INSIDE DIAMETER, OR "f", IS DETERMINED BY FREQUENCY (WAVELENGTH) OF WAVES

CLOSED → OPEN

IF ONE END IS LEFT OPEN, IT BECOMES 'MOUTH' AND SIGNALS CAN TRAVEL "IN". IF OTHER END IS CLOSED-OFF, SIGNALS ARE TRAPPED INSIDE.

## FEED BASICS - #2

IF A QUARTER-WAVE PROBE OR "ANTENNA" IS INSERTED INTO THE WAVEGUIDE-FEED, IT CAPTURES THE SIGNAL AND PROVIDES IT WITH A "CLEAN EXIT" ROUTE.

THAT ENERGY CAN NOW BE CARRIED TO AN (LN) AMPLIFIER THROUGH A PIECE OF COAX.

another. The important thing to understand is that you must use the right dimension pipe for each frequency or wavelength. Too big pipe is bad; too small pipe is not good either.

Now if we take a piece of 'waveguide pipe' and we leave one end open so the microwave signals can find their way in, but we close the opposite end of the pipe, we have a 'trap' for microwave signals. They can go in through the open end but they don't pass through because of the closed end. Again, see 'Feed Basics # 1'.

Now how do we get the microwave signals into the open-one-end/closed-other-end pipe? Simple enough. We place the pipe at the 'focal point' of the dish and we point the open end at the center of the dish. And we call this new piece of equipment a **feed**. It functions like a catcher's mit. If the microwave signals are 'thrown' directly at the 'catcher's mit' they plop into the pocket on the mit and lodge inside the pocket.

Check out 'Feed Basics # 2'.

With the signals inside the feed pipe, now the next trick is to get them out in a controlled way. If we simply closed one end and left the other end open, and positioned the pipe as a feed at the focal point of the dish, the microwaves would reflect from the dish surface into the open mouth of the microwave pipe and come into contact with the solid, closed end. Since microwave signals bounce from something solid (witness the antenna's reflector surface), you can see that the signals would strike the rear, closed end of the feed and bounce right out of the feed back towards the reflector surface. We want to divert them, now they have found their way into the microwave pipe, and

## FEED BASICS - #3

LOCATION OF THE PROBE, TO GAIN MAXIMUM PICK-UP (DISTANCE A), AND LENGTH OF THE PROBE TO GAIN MAXIMUM PICK-UP (DISTANCE B) IS CRITICAL.

MAINTAINING A "50 OHM" PROBE IMPEDANCE, TO "MATCH" THE 50 OHM LNA INPUT IMPEDANCE IS MANDATORY FOR MAXIMUM SIGNAL TRANSFER TO THE LNA.

having broken the bounce-bounce 'cycle', transport the microwave signals into our LNA.

We do this by placing a small 'antenna' inside the pipe. Some people call it a 'probe' but what it really looks like is a miniature '1/4th wave antenna' sticking into the inside of the microwave pipe. Picture those short 'whip' antennas stuck on police cars or taxis and you have the idea; a straight piece of wire or metallic material inserted into the microwave pipe.

If the probe/antenna is positioned in the optimum spot inside of the pipe, it collects most of the signal bouncing into the pipe. The probe/antenna acts like a 'sponge' soaking up the signal present. It acts in this way because the microwave signals are like the boll weevil; they are looking for a 'comfortable home' and to their electrical energy that little probe is the most appealing thing they have 'seen' since they left the companion probe back on the uplink transmitting antenna some 45,000 or so miles ago!

So now by careful design of the probe, and careful placement of the probe inside of the microwave pipe, we have the 4 GHz signal energy ('microwaves') 'flowing' onto the probe. On the opposite side of the probe, outside of the waveguide pipe, we connect a piece of cable or wire to 'transmit' the microwaves from the probe to our LNA.

Look at 'Feed Basics # 3'.

If the precise location of the probe, within the microwave pipe, is critical to the performance of the 'feed', so too is the way the probe connects to the LNA via the 'cable'.

**The very first feeds stood alone from the LNA;** they did not bolt directly to the LNA at all. The feed (piece of waveguide pipe plus probe) was mounted at the focal point while the LNA was mounted some short distance away. This was before it was discovered that the waveguide pipe fittings on the LNA and the feed could be directly 'bolted together' by eliminating the probe inside of the waveguide pipe and connecting the pipe on the feed to the pipe on the LNA through mating (compatible) 'flanges'.

The early LNAs had an adapter on them that allowed you to plug a piece of cable, coming from the feed-probe to the LNA, into the LNA. All cable has something known as 'characteristic impedance'. That means that the cable, like the dimensions on the waveguide pipe, has to be designed to carry energy in a certain manner. The 'impedance' of the cable describes, in technical terms, the technical parameters of the cable. It has always been very important that **the impedance of the cable, and, the impedance of the LNA's input stages** 'match' one another. A '50 ohm impedance' was selected as the proper impedance for all three elements in the system since 50 ohm (impedance) cable was readily available, and the LNAs were supposed to also have a 50 ohm impedance.

When the feed matured so that we were bolting the feed directly to the LNA, flange to flange, those flanges and the dimensions of the pipe that carried the microwave signals from the open mouth end of the feed into the open mouth end of the LNA were carefully designed so that they, like the cable, had a 50 ohm impedance.

Matching the impedance, from feed mouth to LNA amplification stages, is critical to performance of the system. If there is a 'bump' (some impedance that is not 50 ohms) someplace in the system or circuit, some of the microwave energy is blocked or lost at that point. Since we have such a low tolerance for losing any signal in the system, even a small amount of signal lost is noticed in a TVRO system.

**Now let's jump ahead to the polarization rotational scheme.**

The ability to directly bolt the feed to the LNA, waveguide pipe to waveguide pipe through mating 'flanges', worked just fine. Eliminating the cable between the probe on the feed and the probe inside the mouth of the LNA was a step forward. (Look inside your LNA's 'mouth'. Inside you will see a piece of metal, shaped like the letter 'T', or 'H' or something similar. This is the 'probe' or 'antenna' which captures the microwave energy that arrives inside the LNA 'mouth', and carries that energy inside the LNA proper where the signals are amplified.)

Alas, the probe inside the mouth of the LNA is polarization conscious. If you hold the LNA in one position, the probe inside of the LNA mouth faces **up and down** and when it does this the LNA system is now only capable of responding to signals which are '**vertically polarized**'. If you take the whole LNA and turn it over, 90 degrees, now the probe also turns so it runs **left and right**, parallel to the ground you are standing on. Now the probe only responds to signals which are **horizontally polarized**.

The first polarization switching system consisted of an Alliance Antenna Rotator which did just this; the LNA plus neutral-to-polarization feed horn were physically rotated, in front of the dish, so the probe inside of the LNA would face the appropriate up and down direction for the vertically polarized signals or left and right for the appropriate horizontal polarized signals.

In making commercial gain for Chaparral, Taylor Howard returned to the original concept of a probe in front of a probe; he created a system for manufacture which placed a new 'secondary probe' out in front of the LNA's own internal probe. And he made it possible, by operating a small motor, for that probe located in the feed to 'flip' from one position to another position.

The difficult part? See diagram 'Feed Basics # 4'.

A rotating probe, one that changes its position inside of the waveguide pipe, had to have a motor. A small motor. It also had to have some very precise electrical properties since we had to be able to insure that this probe-that-moved did certain things which changed the polarization of the signal without upsetting the 'impedance' of the LNA portion of the system. Remember, the LNA must see a 50 ohm

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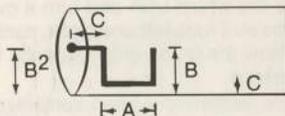
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impedance connection, from the feed itself, or the performance of the LNA is seriously degraded.

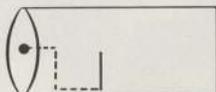
As Taylor explains it, and makes his claims for patent-ability, the probe's dimensions are in two segments. First we have the obvious lengths involved. The probe (as shown in diagram # 4) has a section

FEED BASICS - #4

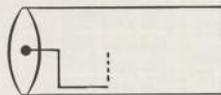


A QUARTER WAVE PROBE (DISTANCE B) CAN BE HOOKED DIRECTLY TO THE LNA, WITHOUT ANY COAX LINE BY BENDING AN EXTENSION OF THE PROBE (A, B²) SO IT IS POSITIONED A SPECIFIC DISTANCE (C) AWAY FROM THE METAL ON THE INNER WALLS OF THE FEED/WAVEGUIDE; SIMULATING A "50 OHM" COAX LINE BETWEEN THE EXTENDED PROBE WIRE (A, B²) AND THE INNER WALL OF THE FEED.

FEED BASICS - #5



PART OF THE "PROBE" THEN ACTS LIKE AN ANTENNA TO PICK UP SIGNAL (SOLID LINE), WHILE ...



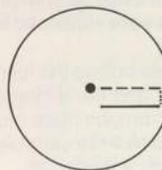
THE REST OF THE PROBE-WIRE ACTS LIKE A 50 OHM TRANSMISSION LINE (SOLID LINE).

which acts as a 're-polarizer'; segment 'B' in the diagram. However, to make a physical connection between this polarization 'skewing' segment and the motor, the probe has to somehow connect to the motor. It does this by taking the outline form of a 'ladle'; dimension 'A' carries the support for 'B' back towards the motor while dimension B² and C completes the physical connection.

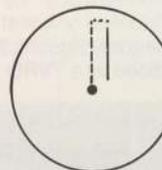
In making patent claims for his system, Howard says that the second set of dimensions are critical. They are shown as distances 'C' in diagram # 4. Howard suggests that the probe 'wire' must itself have an impedance of 50 ohms. Normally you have a 'wire' or 'cable' impedance only when there are two distinct segments to the cable; coaxial cable, for example, has the inside solid or stranded portion(s) and the outside braided (copper) or solid (aluminum) portion(s). You cannot have a 'low' impedance such as 50 ohms unless you have both a 'carrier wire' (the center conductor in coax) and a 'counter poise' wire (the shield on coax). How was Taylor to make the single wire probe act like a 50 ohm impedance?

The inside walls of the microwave pipe are metal. "Why not" pondered Taylor "consider the inside walls of the pipe as a cable designer would consider the 'counter poise' portion of coaxial cable?"

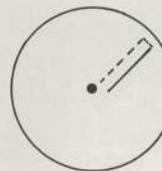
FEED BASICS - #6



ROTATING THE PROBE WITH AN ELECTRIC MOTOR CAN POSITION THE ANTENNA PORTION HORIZONTAL (SHOWN), OR



VERTICAL, OR ...



VIRTUALLY ANYPLACE IN BETWEEN.

In effect, by bending the 'A' portion and the B² portion of the probe so that their distance from the nearest inner walls of the microwave pipe were a precise distance from the inner walls (the 'C' distance), he felt he could 'simulate' a 50 ohm impedance for the rotating probe. And now, he felt, he could make some 'new and novel claims' for his device' claims which would, he hoped, lead to a patent for the device. See diagram 'Feed Basics # 5' here.

Working in a notebook on the breakfast table in Orlando, Howard drew this out for CSD and explained how the complex impedances inside of the waveguide pipe could be controlled. His 'novel application of technology', he explained, was the way he was treating the probe wire as a physical entity.

A portion of the wire was pretending it was a probe/antenna. The remainder of the wire was pretending it was a piece of transmission line. The two, working together and connected to the rotational motor, created the 'illusion' of making the incoming microwave signals 'swing in space' so that as the microwave signals left the waveguide pipe of the feed and headed towards the real world probe installed in a fixed position inside the mouth of the LNA, vertical and horizontal would 'swap'.

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We wrap this up with diagram 'Feed Basics # 6'.

The polarization rotational probe is a 'spoiler'. It floats inside of the microwave pipe/feed and it is moved around within its chamber by a motor. Any piece of metal, even a piece of non-metal such as a chunk of fiberglass circuit board, stuck down inside of the waveguide pipe, is going to 'upset' the delicate balance of the microwave energy captured by the feed and carried into the pipe.

By moving the probe around inside of the pipe, you can force the microwave signals to move around in space. If you move them in one direction, they assume a new 'polarization' inside of the pipe. If you move them in another direction, they assume an opposite polarization. Or, you can park the 'spoiler' piece inside of the waveguide so that both polarizations are 'skewed' or twisted.

And all of this fuss, all of these press releases and these threats of suits and counter suits are over this very simple process!

#### BEFORE The Probe Turned

No love is lost between Chaparral and Boman. Boman accepts some of the responsibility for this. Briefly, here is why.

**Boman Industries** first appeared in the industry at the Anaheim, California trade show in November of 1981. Boman has been building and importing auto radio and auto sound products for several decades. It is one of the major suppliers of auto radios/sound in the USA.

Boman's initial Anaheim entry into the marketplace was predicated upon some bad information. New to the field, relying on outside consultants for guidance, Boman tried to be everything at once; an antenna supplier, an LNA supplier, and a receiver supplier. The early Boman antennas were poorly designed and cheaply promoted. The early Boman LNAs, shown in Anaheim, were **supposed to be** manufactured in Korea. That never happened and Boman came back with a popular US brand LNA which bore their nameplate, and subsequently went to Japan for a high quality line of LNAs. The crux of the Boman/Chaparral problems began in Anaheim and it was over receivers.

**There is an untold story within the industry** regarding something called 'The Entertainer' receiver; a receiver which fable says was created and designed by one H. Taylor Howard for Cook Communications in Canada. Boman ended up buying a large quantity of these receivers, which bore the H. Taylor Howard stamp of approval. Taylor, the industry's technical leader, dis-liked being associated with Boman, even after the fact, and those 'Entertainer' receivers re-branded for Boman became a bone of contention.

If Taylor Howard was not overly happy with Boman's use of 'his' receiver, he liked even less what happened next. Boman got into the feed business.

Now Chaparral was the number one feed supplier in the home TVRO business from the day that Howard and partner Taggart introduced their now famous 'Super Feed' in the summer of 1980. The 'Super Feed' (with the scalar rings) did so well in the marketplace that it begged copying. Well, it begged copying because it was doing so well, and, because it was a tad on the expensive side. A whole 'world' of copies opened up; people in Tennessee were copying 'Super Feeds' with their own aluminum casting operations, people in Minnesota were copying the 'Super Feeds' by making them out of plastic and coating the plastic with a (very) thin layer of metal, and so on. But none of these 'copies' approached the business like Boman did. Where other 'copies' simply knocked off the original, Boman sat down and developed a complete marketing package and marketing program around **its version** of the 'Super Feed'. And Boman, unlike the others, backed their product up with a splashy advertising campaign. Boman zeroed in on something that particularly incensed Howard and Taggart; **the price of the Chaparral product.**

Boman wasted no time and minced no words with its promotions. It admitted to what the scalar feed it was building cost it ("under \$5 each, in a carton"), and then it priced its version about 50% lower than the Chaparral at the time. The point drove home well; some suppliers felt that Chaparral had been 'price gouging' because of its 'exclusive source' position with the product. Never opening their own books up to bare their own cost structure to counter the Boman offensive, Chaparral lowered some of its own pricing and put a black mark on the wall next to the Boman name. The time would come . . . when Chaparral . . . would even up the score.

If the battle between Boman and Chaparral over the 'scalar feeds'

was nasty, it was but a prelude to what followed. The rotational probe war was still ahead.

#### DID The Probe Turn?

The H. Taylor Howard patent for the Polarotor system was not won without some difficult times. The original application for a patent was rejected. So was the second, and the third. This process went on until nearly ten different applications were filed, each modified from the original. The problem was 'prior art'.

Prior art in the patent field means that what you are claiming, as unique and novel about the gadget you seek to patent, is in fact not unique and novel; that somebody has done it before you. The Polarotor applications were 'bouncing' because the U.S. Patent Office and the Patent Examiner kept finding a trail of prior art with polarization switching and rotational schemes.

There were two instances of prior art which the Howard/Chaparral patent application kept stumbling over. One was a patent granted in 1959 to a fellow named Murphy (see CSD for December 1983; page 10). Murphy clearly was the first to obtain a patent on a system which did essentially (or exactly) the same thing as the Polarotor. Murphy's patent ran out recently. Taylor Howard knew this.

**"One of our problems in getting a patent"** said Taylor to CSD during the Orlando show **"was a patent granted back in the 50's"**. We reached into our briefcase and pulled out a worn copy of 'Murphy' we had been toting around with us for months. "You mean this one?" we asked.

**"Christ"** said Taylor **"Taggart will have a hemorrhage when I tell him you pulled out a copy of Murphy!)"**. This was November 2nd, just days prior to the long fought for and hard won patent award. On the 2nd of November Chaparral knew the patent would be issued on the 8th; for them, at least for now, the battles were over.

If one studies the Patent Examiner notes, following the full course of events from the initial Howard/Chaparral application for a patent until the balking Patent Examiner finally 'accepted the claims' being made for the device, one clearly sees Murphy threading in and out of the story from an early date. There was at least one other important bit of prior art as well; we'll come back to that shortly.

The very last notes in the Patent Examiner's file deal with his crucial doubt that the Polarotor **really was** unique and novel. By this time the application had been amended many-many times, each time attempting to redefine what the device did in words and diagrams which would enforce the claims that this was a 'new and novel' design. In his last 'hearing' on the subject, the examiner had Taylor Howard on the spot. It was up to Taylor to show 'why' his device was novel and different, in the face of considerable evidence that it was not.

Howard relied on a trio of scope screen photographs. They purported to show that the Chaparral Polarotor design had 'lower loss' or a better 'impedance match' than any of the 'prior art'. You should, perhaps, now go back and re-study the Howard explanation of his moving probe and his use of the inner walls of the waveguide as a 'counter poise' for his rotating probe, on page 22 here.

#### WHICH Probe Turned First?

Getting a patent granted, even against the opposition thrown up by the inquisitive Patent Examiner, is one thing. Defending that patent against all 'interlopers', or proving if required in court that your use of this technology was 'first', is quite a different matter.

Patent law creates a system for **registration** of 'new and novel' concepts or ideas or gadgets. It does not allow itself to be the 'court of last resort' if there are counter-claims against a patent (**after the patent is granted**). That is a function of the civil courts.

In affidavits filed with the Howard/Chaparral patent application, Howard says he 'began design work on the device in August of 1981 and finished that design work in November of 1981'. The dates are important.

Another bit of prior art which the Polarotor kept stumbling over was a design credited to one **Gene Augustin of Antenna Technology Corporation** in Orlando, Florida. Augustin claims to have developed a system that did the same thing late in 1980. **"I was returning from a meeting in Arizona"** recalls Augustin **"and had several hours to think while crossing the country on a jet."** This was December of 1980. **"I drew myself a series of sketches for a polarization**

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rotational system". Back at his own shop, he had some samples made up and he tested them in January of 1981. He showed working models at a Texas cable show in February of 1981 and perfected, and then essentially dropped interest in, the design in April of 1981. Still, Augustin did display at the Omaha trade show in the month of August of 1981 and his version of the system was on display and seen there.

In initial affidavits filed by Howard and Chaparral it is claimed that Howard did **not see** that display. Later affidavits on the same subject seem to suggest that Howard **was aware** of the Augustin design in August of 1981.

If Chaparral was creating its own 'novel and new' device during the late summer and early fall of 1981, Boman's Maniachi was going about the device in a different manner. According to Maniachi "We contacted Gene Augustin and asked him for a license to build his unit. We subsequently obtained such a license and we have been building our Polar-Matic devices under a license from Gene Augustin, since that time."

So who was first? Taylor Howard, or Gene Augustin?

Augustin professes little interest in the matter, now heading up the world's largest manufacturer of 'Simulsat' antennas, he is very much pre-occupied with getting his up to seven meter surfaces installed in locations all over the world. In between trips to Taiwan and other exotic points, he is barely available to help Boman in their legal squabbles with Chaparral.

"We probably made a bad mistake by not making it better known that we had taken out a license with Gene Augustin" reflects Boman's Bob Maniachi. "People have believed the story that we 'stole' the concept from Chaparral and in the eyes of the industry that automatically makes us the bad guys. When Chaparral tells a story, they start with the way we got into the receiver business. Then they graduate with our getting into the 'Super Feed' business. Finally they draw the noose around our neck with their view of our building rotating probe feeds. It certainly is a convincing story and we are therefore guilty."



**PRE-OCCUPATION WITH Simulsat antennas up to 7 meters in size has kept Augustin out of 'thick' or 'Polar' battles.**

Augustin has no patent protection. He had prepared a patent application, at the urging of Boman, but when the patent application bounced back (Murphy, again) Augustin set it aside being more concerned about seven meter Simulsats than rotating probes. Boman then urged Augustin to keep after the patent application but in that interim the Howard/Chaparral application had moved forward several steps. It would be the first out of the 'chute'.

#### THE CHAPARRAL Offensive

Patent granted, Chaparral went on the offensive. They probably felt it was time to square the account with Boman. In its widely circulated press releases Chaparral charged Boman with the following:

- 1) Patent infringement,
- 2) Trademark infringement,
- 3) False designation of origin,

- 4) Unfair competition, and,
- 5) Unfair business practices.

The claims for the patent infringement are pretty obvious; if Chaparral has a valid patent, if Gene Augustin did not have prior (un-claimed) art, then Boman may well be violating the recently granted patent.

The four that follow are described by attorneys as boilerplate; "charges brought for their 'PR' value". At least that is how Boman attorneys describe them. Some of the ancillary charges are worth noting here since even they seem to be controversial.

Let's focus on the trademark infringement. A trademark is a service mark. It describes a product or service or company and it has value. XEROX is a trademark and it is a proper name. Properly printed, it would always be XEROX®.

Polarotor, says Chaparral, should always be printed as Polarotor™. If you read the fine print in advertisements in CSD where receiver manufacturers tell you that their receivers are designed for compatibility with the Polarotor device, you will usually see POLAROTOR® or ™. A company has to **protect** its trade or service mark from 'interlopers' for if it fails to prosecute firms that mis-use the trade or service mark, they have lost the right to claim it as their own trade or service mark.

Chaparral says that Polar-Matic is so close in spelling and sound to Polarotor that "**this leads to confusion within the industry**". They further claim that dealers who 'think' they are buying a 'genuine Chaparral' product are often 'mis-lead into buying a competitive product by Boman' because of the similarity of the two names. Boman obviously would take exception to this. Others who use the pre-fix 'polar' (such as Polatron) would also probably disagree with this supposition. Chaparral, none the less, dwells in their suit filed against Boman on this subject at some length.

Because Chaparral seems pre-occupied with this issue, CSD did some checking to determine the exact status of the Polarotor trade mark. We came to an interesting discovery. We could find no record of such a trademark issued in the name of Chaparral Communications. We did find more than 200% 'Polar' this and 'Polar that' trade/service/registration marks on record, however. Polaroid owned every one of them. What's more, they have owned every one of them for a number of years. As many as 30 years to be exact.

That led us to Polaroid where we found a gentleman in their legal department who specializes in such things. What could he tell us about Polarotor?

"Polaroid went in as far back as thirty years ago and filed trademark registrations on virtually every possible word combination that began or ended with polar" we learned. "We have used these names for various products and services from time to time, or they have lain in our 'trade mark bank' just waiting for the best and most appropriate use." And Polaroid?

"An exception to the use of the word has been filed" we were told. "On June 21, 1983 an application filed by Chaparral was stopped at Polaroid request. On July 25th this temporary halt to the processing of the Polarotor request was made permanent".

Then Chaparral had no trade mark rights to Polarotor when it began placing ™ next to its product name?

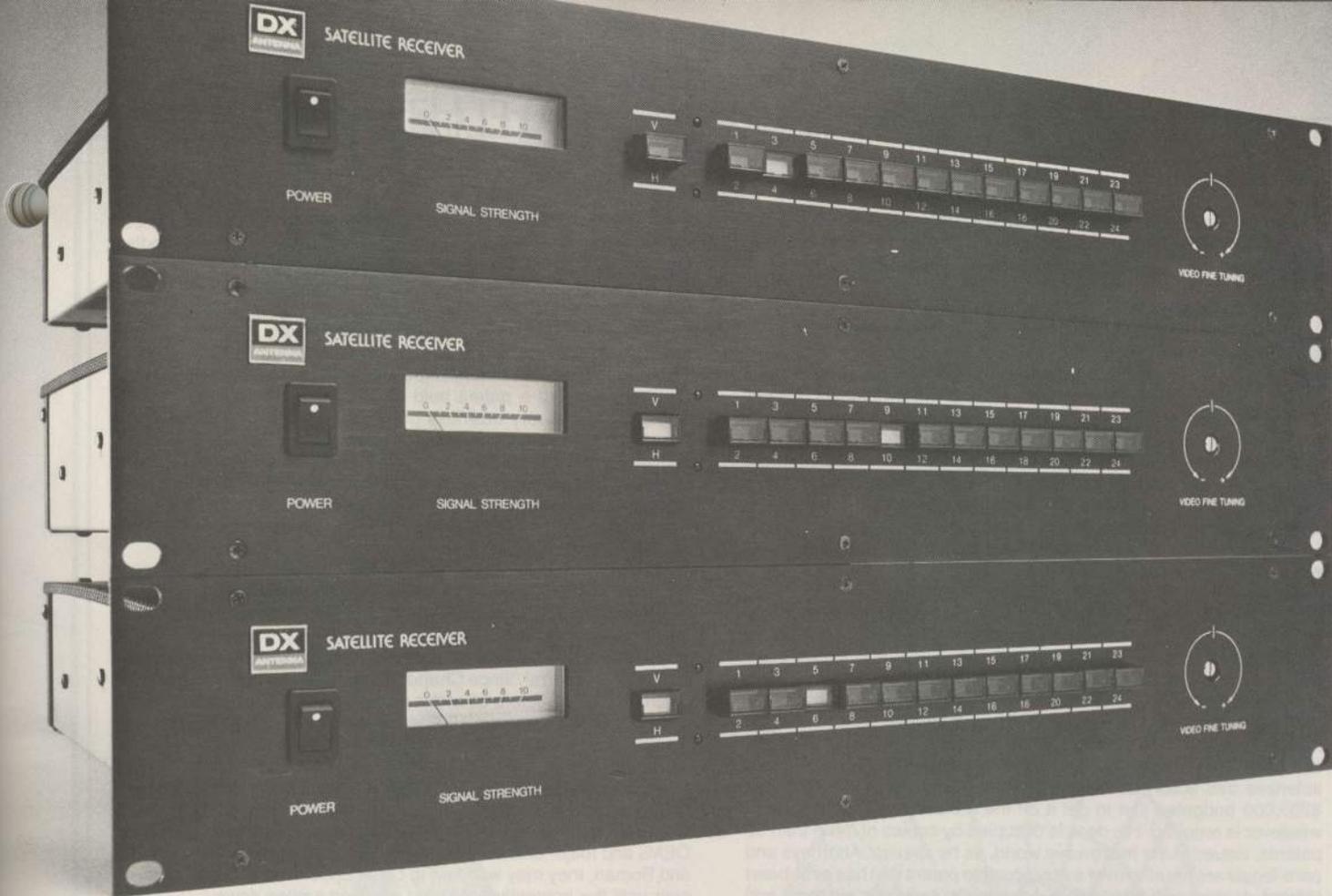
Boman's Maniachi on his use of Polar-Matic.

"Yes, it turns out that Polaroid does own just about every conceivable derivation the world 'polar'----. In fact, our Polar-Matic name was granted to Polaroid under Trade Mark registration number 1,095,805 some years ago." And what is Boman doing about its own 'infringement' of the trade marked name?

"We are negotiating with Polaroid, hoping to obtain the legal right, under contract, to use the name in commerce."

What about the last four listings in the complaint filed by Chaparral; those that charge Boman with violating of a Chaparral trade mark, and as a result of that 'violation', engaging in 'false designation of origin' (adopting marketing practices which tend to make the customers believe the products being sold by Boman are actually produced by Chaparral), unfair business practices and unfair competition?

"Our attorneys say this is just boilerplate, designed to cause disruption in the marketplace and to cause buyers to swing their orders to Chaparral for fear that in dealing with Boman they will become liable for legal claims Boman is liable for." And the questionable status of the



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Chaparral use of the phrase 'Polarotor'? "Very strange indeed that they would bring up trademark infringement against us when Polaroid has stopped their own use of that name on exactly similar charges!"

#### AS THE Probe Disrupts

If the Boman view of the Chaparral actions is correct, Chaparral accomplished their goals. CSD talked with distributors who were discontinuing handling of the Boman Polar-Matic product after receiving the Chaparral news release and a copy of the Civil Action brought by Chaparral against Boman.

Unserved, formally, Boman none the less reacted to remove the offending Polar-Matic product from the marketplace. As luck might have it, there had been a shortage of castings the first part of November and Boman found only a small quantity of feeds 'in the pipeline' from their factory to dealer hands when the Chaparral action hit.

Maniachi. "We recalled every feed instantly." Seemingly, that would put Boman out of the feed business; at least the Polar-Matic feed business.

Maniachi again. "I have to thank Taylor Howard for giving us a 'kick in the ass'; this action woke us up to the fact that we have been playing the game as a defensive action from day one and that since we were the ones who had the Gene Augustin license to build the feed, we should have been on the offensive rather than the defensive."

Two types of wheels starting grinding at Boman. The legal ones first. Boman says it will challenge the patent in court. It had engaged two Los Angeles firms that specialize in patent law. Maniachi characterizes this action as "long, drawn out and expensive." He has \$200,000 budgeted just to get it off the ground, says he will spend whatever is required. His desk is occupied by copies of more than 50 patents, issued in the microwave world, as he speaks. Attorneys and para-legals are pouring over every possible patent that has ever been issued dealing with microwave waveguide, switching systems and polarization moving schemes.

There is a possibility of a second lawsuit; this one involving charges of Restraint of Trade, Anti Trust, and marketplace Monopoly. The 'root' of this one is Boman's concern that Chaparral's handling of their press releases, and the way they have 'talked with' customers has led to an unnecessary disruption of the marketplace. Under California law, there are triple damages assessable under such a suit if Boman wins it. Lots of attorneys look like they are going to be very busy in California over the next 12 months or so.

As long as the Howard/Chaparral patent has been issued, and until that patent has been court tested, Boman cannot be shipping products which infringe on that patent. That is the nature of patent protection. Boman expects to 'settle' with Chaparral for around \$10 per feed that slipped through the call back procedure between the November 8th issuance of the Chaparral patent and the stopping of the Boman pipeline. Maniachi characterizes that settlement as chicken feed. What Boman did next was to find a new chicken.

"If the particular probe system described by Howard in the patent is their product, subject to a review by the courts of the circumstances surrounding the patent claims, we had to find another way to accomplish the same thing; without violating Howard's patent, nor anyone else's either".

From the middle of November until around the 10th of December, Boman shipped Polar-Matic feeds which employed a 'fall back position probe' which Boman had kept underwraps for some time. "We didn't use it previously because it increased the production time per unit" says Maniachi. "But faced with no shipments, or spending extra time on the manufacture and test, we elected the latter".

Then starting in mid-December Boman brought out an entirely new probe system; which was developed for it by a consultant from the California Aerospace industry. Always the bottom-line marketing man, Maniachi talks about the new probe.

"It is our 'Turbo-Charged' model. It is absolutely the best probe this industry has ever had in a feed. Every test we make confirms that it has lower loss, a flatter response across the 3.7 to 4.2 GHz band, and a better ability to carry microwave energy than any other probe ever available".

The new probe is 'gold plated' and the shape, important to both the performance and avoiding a new war with Chaparral, is described as 'revolutionary and new'. A patent application is being prepared.

Boman, meanwhile, is on the offensive to gain back those distribution outlets lost. A substantial number of firms who have handled Boman feeds in the past no longer feel comfortable doing so, threatened by a possible lawsuit if they continue to handle the feeds which Chaparral charges are in violation of their patent rights. To counteract this, Boman is offering to indemnify any users of its feeds against any and all claims or damages as might be awarded to Chaparral by a court. "I fully expect the courts to determine that we have not violated a patent held by Chaparral, that Chaparral has engaged in unsavory business practices, that Chaparral has used threats and intimidation to keep business people from handling our own feeds" warms up Maniachi. "But first, we have to keep the doors open and that means we must somehow make the buyers feel comfortable when dealing with us. We are guaranteeing that anyone who buys from us will be held 'harmless' from any Chaparral claims, to put the customer's minds at ease".

The industry is surely confused over this 'in' and 'out' fighting going on. Antennas OEMs in particular, faced with buying Boman product and a possible contingent liability in the form of awards from a court of law, or, buying Chaparral and paying more for product that includes the 'peace of mind' that there are no contingent liabilities, are usually opting for Chaparral. Since Chaparral probably had better than a 75% 'share of market' before all of this came up, the suit has pushed them even closer to the magic '100 percentile' mark.

Perhaps the real winner in all of this, in the short term anyhow if there is a winner, will be a firm such as M/A COM's Omni-Spectra. Using a technology which appears to be all their own, Omni-Spectra has been picking up ground rapidly of late built largely on the strength of an aggressive advertising and marketing program. If antenna OEMs and major distributors tire of being caught between Chaparral and Boman, they may well turn to Omni Spectra for feeds to tie them over until the presently confusing situation settles down.

## CANADIAN COURT DECISION

## SATELLITES ARE PUBLIC

#### TVRO's Legal in Canadian Hotels . . . Temporarily!!!

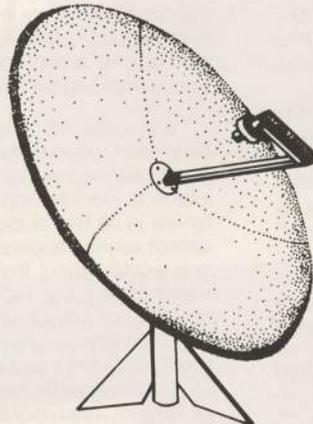
On November 10, 1983, Mr. Justice Muldoon of the Federal Court of Canada, Trial Division rendered a decision concerning the use of TVRO's for SMATV purposes. The case is sending shockwaves through the broadcasting, cable and pay-tv industry on both sides of the border. Officials at HBO and Showtime can barely hide their disbelief. Although a total victory for the Canadian TVRO industry, there are so many strange aspects to this case that it can only be thought of as a temporary lull in the battle.

Here are the facts: SaTel, (an Ottawa-based firm) installed a TVRO system at the Holiday Inn Hotel, Pembina Highway, Winnipeg, in 1980. The TVRO had multiple receivers and was aimed at Satcom F3. The modulators from the TVRO relayed the signals into a trunk line cable, which was interconnected to guest rooms in the hotel. At the

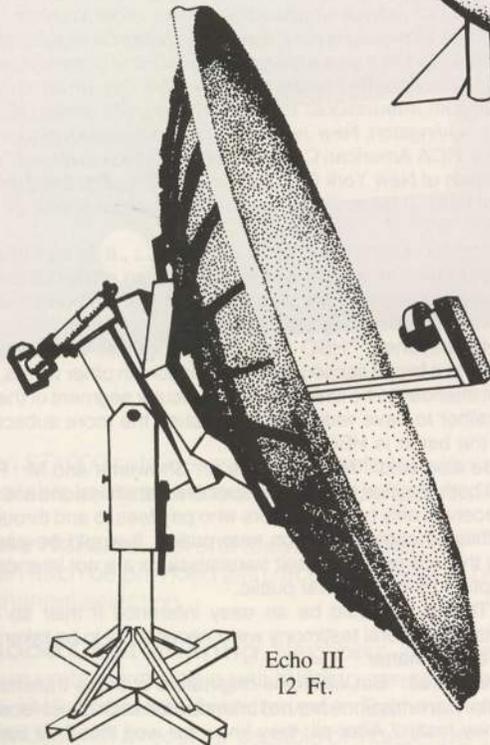
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717 Parkdale Av.  
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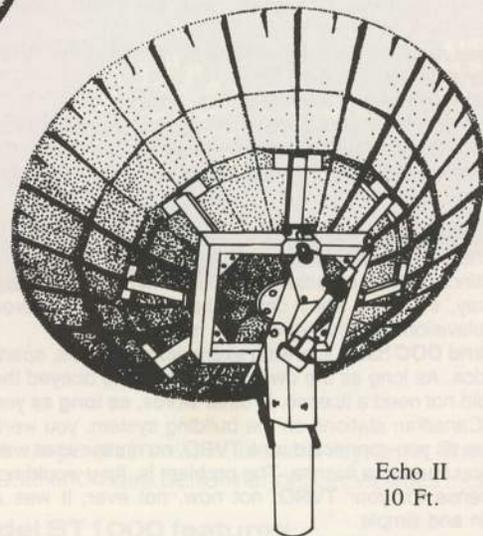
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time the case arose, the system within the hotel carried WTBS, Home Box Office, and Showtime Entertainment. No fee was directly levied to guests of the hotel for the privilege of viewing the three signals. There was a log-periodic antenna mounted on the roof, and four Canadian television stations were received by means of the antenna, and distributed to guest rooms by means of the same trunk cable and coaxial cables to television receivers. The use of the log-periodic figured prominently the legal case.

In 1980, The Department of Communications ordered the hotel management to cease and desist distribution of the signals received by satellite; otherwise the hotel management would be prosecuted and the satellite equipment would be seized and taken away. The hotel management under protest, agreed to discontinue the use of the TVRO, pending legal advice from counsel. After they received legal advice, they recommenced the use of the equipment.

The plaintiffs (SaTel and the hotel owners) then initiated a proceeding in the Federal Court Trial Division against the defendants, Canadian Radio-television and Telecommunications Commission (CRTC); Department of Communications (DOC); and the Justice Department and sought a declaration concerning the use of the equipment, and an injunction to prevent future seizure of the equipment.

**The plaintiffs essentially alleged the following:**

— that there were two separate and distinct sets of radio apparatus as that term is defined in Section 2 of the Radio Act: the MATV system which received conventional TV signals, and, the TVRO satellite system.

— that the signals received from the satellite by means of the TVRO system were "broadcasting signals."

— that the MATV system was exempt from licensing.

— that although Parliament can competently legislate, with delegated authority to the CRTC, to regulate, control or license them, but in the case of Apartment and Hotel MATV and SMATV systems, Parliament has not done so.

On the first issue of the nature of the SMATV system in terms of the TVRO and the log-periodic VHF system, the Judge ruled: "Clearly they are two distinct systems of radio apparatus which merely utilize a common 'highway,' the cable which carries their respective received signals to the television sets throughout the hotel."

The CRTC and DOC had a licensing exemption for hotels, apartments and condos. As long as the owner of the building obeyed the exemption, he did not need a license. In other words, as long as you had your local Canadian stations on the building system, you were O.K., but as soon as you connected up a TVRO, no matter what was on the TVRO, you needed a license. The problem is, they would not grant you a license for your TVRO, not now, not ever; it was a CATCH-22 plain and simple.

The Judge was very critical of the way in which the so-called exemption was triggered. He said: "from the viewpoint of the defendants, the Attorney General of Canada and the Minister of Communications, the MATV, or log periodic, system is of no concern." Counsel for those defendants, always denying the MATV system to be a separate and distinct one, nevertheless submitted in argument that "... the only reason the Minister takes the position that this hotel is acting contrary to the licensing requirements of the Radio Act is because it has the TVRO there, not because it has the log periodic antennae."

The licensing of MATV, SMATV and private systems in condominiums has also been premised upon the words in the Canadian Broadcasting Act which refer to "broadcasting receiving undertakings." Ironically, there is no actual definition of what a broadcasting receiving undertaking is; in point of fact, in 1967 when the Canadian legislation was drafted and passed, the people responsible for writing the Act overlooked cable television, SMATV and MATV, so the words "broadcasting receiving undertaking" were literally thrown in as a gratuitous afterthought. The problem today is that the CRTC considers that those three words give it power to regulate everything related to broadcasting and reception of signals, including satellite signals.

The reason why we keep dwelling on the words "broadcasting receiving undertaking" is because under the Canadian law, if you are found to have a broadcasting receiving undertaking, then you need a license, unless the regulations say you are exempt. The only way in

1980 to be exempt was to have a simple VHF and UHF antenna system on your hi-rise building, or motel. As soon as you attached a TVRO, bang, the feds said you needed a license, but they weren't granting a license (That hadn't changed between 1980 when the court action arose, and the date of the judgment.).

If you aren't too confused already, consider the arguments in this case. HBO, Showtime and WTBS were received. The owners of the hotel, and TVRO firm, argued that the signals which were received were "broadcasting," thereby making certain exemptions from licensing in the legislation operative. The CRTC and other defendants argued that the signals from the satellite were not "broadcasting" signals. The dispute arose over whether the satellite transmissions were "intended for direct reception by the general public" (the legal definition of broadcasting in the Canadian Broadcasting Act, and International agreements including the UT treaties).

The Judge went on to say: "The definition of broadcasting, as it is expressed, clearly is not concerned with whether such transmissions be actually received by the general public, but is concerned rather with intention. The intention, whatever its object, must be found or deemed by law to be that of the propagator of the radiocommunication. One cannot ascribe apparatus which the legislative drafter had in mind, one would expect the definition to speak of the transmissions or transmitters being 'technologically designed' or 'contrived' for direct reception of radiocommunication by the general public..."

Three witnesses were called by the defendants to testify as to what was intended by those who produce HBO and Showtime respectively. They were: Jonelle Procope, of New York City, an attorney employed by Viacom International Inc., which owns Showtime; Marvin Freeling, of Livingston, New Jersey, a principal member of the engineering staff of RCA American Communications which owns F3; and John S. Redpath of New York City, Senior Vice-President and general counsel of HBO. It takes little imagination to perceive their position in the matter.

Despite testimony which indicated "... it is not intended that individuals who are not subscribers to an affiliated cable system receive the signal," the Judge found that the signals from the satellite were broadcasting signals.

He reasoned: "HBO tries to put together a service which will appeal to a broad section of the population. In other words, the service is not intended to be limited to any particular segment of the population but rather to have wide appeal because the more subscribers there are, the better is HBO's revenue."

He also said: "Miss Procope for Showtime and Mr. Redpath for HBO both testified that their respective transmissions are intended to be received only by subscribers who pay fees to and through licensed or affiliated cable television enterprises. It would be easy, then, to draw the inference that their transmissions are not intended for direct reception by the general public."

"That is, it would be an easy inference if their so expressing themselves in oral testimony were necessarily to be taken as conclusive of the matter."

He stated: "But when the originators of those transmissions say that the transmissions are not intended for such direct reception, what do they mean? After all, they know full well that their transmissions can be directly received by the general public. Indeed, they both include warnings and disclaimers in their programs, HBO also sends cease and desist letters, and both are contemplating, if not actively planning, the encoding of their signals so as to deny intelligible reception to persons who are not subscribers. Clearly, they do not wish to provide their transmissions for direct reception by the general public, but, they continue knowingly to transmit signals which are easily available for direct reception by the general public. Plainly they desire and hope that their transmissions will not be directly received by that sector of the general public who decline to subscribe to their affiliates' cable television service. Plainly, also, their business objective is to protect their affiliates' interests in augmenting the number of non-subscribers. Can one then conclude that their transmissions are not intended for direct reception by the general public?"

"... the choice and expression of the word 'intended' in the testimony are not legally conclusive of the issue... the transmissions are neither scrambled nor encoded so anyone utilizing standard TVRO earth station equipment can directly receive them, ... the programs

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have mass appeal, are not limited in content nor directed to any particular segment of the general public but are formulated so as to attract as wide an audience as possible, . . . the transmissions are widely dispersed in an extensive 'footprint' which permits direct reception not merely in the United States, but also in parts of Mexico and Canada."

Mr. Justice Muldoon also stated: "Good sense must surely be the basic objective in the interpretation of the laws of Canada which are not to be deprived of it, even though in the instant case, the law under consideration is a regulatory one rather than compensatory or penal."

"There is no good purpose to be served in law or in reason for devising a double standard here. **The transmissions of Showtime and HBO must be found to be intended for direct reception by the general public, even though that result is not really desired by them**, because that is the wholly foreseeable and indeed, known consequence of their conduct. Accordingly, their transmissions are 'radiocommunication in which the transmissions are intended for direct reception by the general public.' That which the plaintiffs receive from HBO and Showtime is 'broadcasting' as defined in the Radio Act and in the Broadcasting Act."

He found that the radio apparatus (TVRO) was receiving broadcasting and thus the next matter for determination was whether the plaintiffs were engaged in a broadcasting receiving undertaking, and if not, were they exempt from licensing?

Not only did the Judge find that the TVRO/SMATV was receiving "broadcasting" when tuned to HBO and Showtime, he also found that despite the definitions and CATCH-22 of the Canadian Broadcasting Act, the SMATV was **not** a "broadcasting receiving undertaking."

Here's his reasoning:

"The service which the plaintiffs provide by means of their radio apparatus does not constitute an undertaking within the meaning of the Radio Act and the Broadcasting Act because it is not in itself a commercial enterprise whereby the plaintiffs undertake, or engage themselves, to provide television program reception to subscribers who have to pay for it. **It is not a profit center** such as the hotel's restaurant or cocktail lounge. It is more akin to the elevator service and telephone service provided to hotel guests, although there is no evidence here as to the imposition or not, of telephone use charges. So, in my opinion, the television service provided by means of the plaintiff's radio apparatus is neither one broadcasting receiving undertaking nor two."

But the Judge cautioned that the flaws in the present law are not irreparable; he said:

"As noted, Parliament has not provided a definition of what is meant by 'undertaking.' No doubt, by the choice of clear and specific words Parliament could enact that the circumstances disclosed in the case are meant to be comprehended in that term. Parliament's competence to do so is not disputed, nor could it successfully be disputed."

There is another interesting issue: The language of the Broadcasting Act refers to **the right of persons to receive programs**. Does this right to receive programs extend to the right to receive programs in a hotel room via a TVRO? Judge Muldoon stated:

"Regarding the interpretation of Section 3 (c), the right of persons to receive programs subject only to generally applicable statutes and regulations is unquestioned:

"...subject only to the provisions of the Broadcasting Act, and regulations, the unquestioned right of persons to receive programs must be understood to be an unlimited, unfettered, unregulated or unrestricted right, since Parliament characterizes it as unquestioned. Hence, the plaintiffs and the hotel guests right to receive the programs transmitted via satellite is and remains 'unquestioned' because the plaintiffs are not engaged in a broadcasting receiving undertaking. That is the crucial negative status under the Broadcasting Act."

**There was one more hurdle.** I mentioned that there was the CATCH-22; I lied. There were **several** CATCH-22's. Not only were there restrictions on operating a TVRO with an SMATV system, there were also restrictions on **possessing** the equipment under the Radio Act (administered by the Department of Communications). You may recall the legendary stories about the Mounties who tried to seize the TVROs operated by David Brough and others in the North because the Department of Communications contended that they were un-

licensed "radio stations." So mere possession of an LNC, Polarotor, or dish could make you a criminal under the Radio Act. Although the "Federales" eased off and stopped searching backyards and rooftops, **they still maintained** possession of TVRO equipment in hotels, apartments, and condos was a crime.

Of course, you could **apply** for a "radio" license; the problem was, no license could be or would be **granted** for TVROs used at hotels/apts/condos. In fact, there probably isn't a class of license which they would grant for a TVRO at a hotel or apartment, and I have never even seen any forms for those licenses. (By way of a humorous anecdote, in 1977 and 1978 a number of TVRO owners applied to the D.O.C. and CRTC for permission to operate TVROs. I remember seeing those applications on **FCC** forms, because there were no Canadian forms!!!) And even if you made an application, the Department of Communications would always run to an obscure agreement with the U.S. government and contend that you couldn't receive U.S. Domsat Signals, even if Ted Turner or Pat Robertson, or Jim Baker or Dr. Gene Scott personally gave you permission.

Concerning the Radio Act, the Judge found that the Plaintiffs had established a "Radio Station" according to the definition. However, the issue, as the Judge understood it, was not in the **nature** of the hardware but rather it is the intention of those whose radio apparatus receives signals. He stated: "It is not only their expressed intention, but also their conduct, the capabilities of their equipment, and the foreseeable consequences which must be examined and evaluated. The plaintiffs certainly say that they intend to receive only 'broadcasting' and their expression of intention is utterly consonant with their conduct and the capabilities of their equipment . . . thus the plaintiffs, not being engaged in a broadcasting receiving undertaking, qualify for the exemption accorded in subsection 3.(3) of the Radio Act."

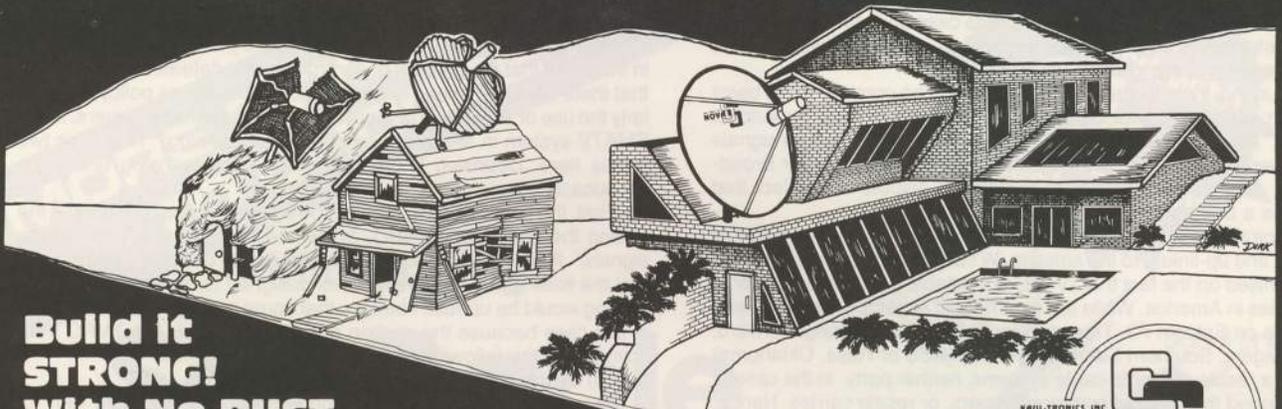
The following declaration was issued:

"... neither system of the said radio apparatus, comprising a radio station on the premises of the said Holiday Inn in Winnipeg, within the meaning of sections 2 and 3 of the Radio Act, fails to qualify for the exemption provided in subsection 3.(3) of that Act; and that both of the plaintiffs' TVRO and MATV radio apparatus and radio stations, including all of their connected parts, wiring or systems from antennae to television sets in the rooms of said Holiday Inn **are exempt** from the requirements of a license and a technical construction and operating certificate, pursuant to subsection 3.(3) of the Radio Act."

#### WHAT IS THE CANADIAN LAW CONCERNING USE OF TVRO AT HOTELS AND APARTMENTS?

1) Are the signals broadcasting? Judge Muldoon found that despite the fact that HBO and Showtime did not **intend** their signals to be intercepted by non-paying viewers, the signals were nevertheless, broadcasting signals, "intended for direct reception by members of the general public." It is conceivable that this finding could be overturned on appeal for several reasons. First, I did not find the cases which he relied upon as particularly persuasive on the point. Also the overwhelming evidence was that these signals were **not intended** for the general public. Broadcasting has always been distinguished (in Canada, and the U.S., for that matter) in the past, from "point-to-point" transmissions or radiocommunications. HBO and Showtime-like signals have always been considered in U.S. jurisprudence to be point-to-point. U.S. law is rather persuasive on the point. There are U.S. cases which concern interception of pay-tv (including HBO) by means of MDS (multipoint microwave) and STV (the ON-TV/Chartwell WXON-TV-20 case in Michigan). In the case of STV, although encoded, the same transmitter is used during other parts of the day. In the Chartwell/ON-TV case, the court did not find that there was "broadcasting" during the hours devoted to pay-TV, despite the fact that the same transmitter was used for broadcasting on the same channel during other parts of the day. Apparently, Mr. Justice Muldoon either did not consider these cases, or find them persuasive. Also there are Sections of the U.S. Communications Act, and parallel sections in the Radio Act concerning divulging intercepted point-to-point communications to third parties. Apparently, there is no consideration of those issues in the judgement. Apparently these very crucial issues were not argued very well by the defense. In fact, the argument presented was very confusing. The CRTC instructed its counsel not to argue these issues, leaving the matter to the other government de-

# The three little pigs found it out years ago

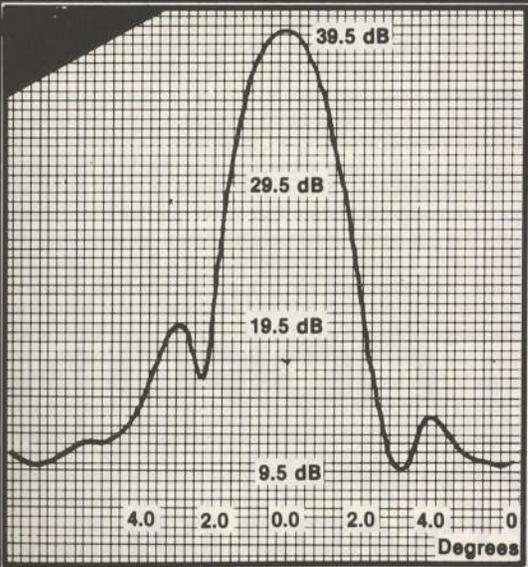


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*Arthur W. Epley, P.E.*  
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partments. Small wonder why Justice Muldoon did not rule in favor of the defendants, they literally blew their strongest argument! Given the fact that the defense did not really base its case on these issues, there is a question whether at appeal they can argue that there was an error of law in the findings of Mr. Justice Muldoon.

Assuming, then, that leave to appeal could be granted on the basis of an error of law, the finding that HBO and Showtime were "broadcast signals," the defendants may still have a major obstacle. The signals which were intercepted by the Hotel included WTBS. Turner Broadcasting, Atlanta Georgia. There can be no dispute of the fact that WTBS is a broadcast signal in its original form.

In point of fact, at one time it was received "off-air" outside of Atlanta, and up-linked to the satellite. WTBS actively solicits advertising premised on the fact that WTBS is available to nearly a quarter of the homes in America. While the commercial aspects of how and why WTBS is on Satcom F3, Transponder 6, may not be straightforward, i.e., an agent, Southern Satellite Systems (SSS of Tulsa, Oklahoma) acts as a resale carrier to cable systems, neither party, in the case at hand argued the issue of common carriers, or resale carries. Hence, on appeal the court would look at the intention of the originator of the communication. That would have to be Turner Broadcasting, rather than SSS, because SSS does not originate the programming or the intellectual content of WTBS, but merely acts as a passive agent, providing the up-link facilities, with an implicit agreement that it may resell the WTBS signal to cable companies.

The question arises, even if the appeal court were to rule HBO and Showtime as non-broadcasting, would they be forced to rule that WTBS is broadcasting? Obviously the intent of Turner is to have as many people as possible view the service, and furthermore the WTBS service is freely transmitted to millions of residents in the greater Atlanta area via a UHF transmitter on Channel 17. Following the judge's reasoning, if the intent of WTBS is to broadcast the programs of a general nature, to all of the people living in Georgia, can the court deduce that the intention of the originator of WTBS changed merely because it was up-linked on a satellite? Highly unlikely. But there is a problem. The issue of the status of WTBS was not actually argued at trial although it was mentioned in the pleadings. One of the ironies or idiocies of our system of justice in Canada is that on appeal, the court may not be able to deal with WTBS even though the status of that signal is crucial to the issues at hand. That means while the appeal court might find that HBO and Showtime are not broadcasting, it could take another case where WTBS and other broadcast-type signals were intercepted, before a court would make a parallel ruling concerning that other category of satellite signals.

Accordingly, while the defendants **might** be successful in appealing the case on the issue of HBO or Showtime, they are almost certain to lose on the same issue when extrapolated to WTBS or other services cited above, but it would take an entirely new case to decide that issue.

The strongest card in the TVRO user's deck stems from the fact that the Broadcasting Act was almost negligently drafted in terms of the words "broadcasting receiving undertaking." The simple statement "broadcasting means broadcasting transmitting undertaking and broadcasting receiving undertaking" is deficient of specific definition concerning what constitutes a broadcasting receiving undertaking. It is almost as if this was included as an afterthought. There are no other specific references to the broadcasting receiving undertaking or reception of signals in the Broadcasting Act, except for the words which talk about the "unquestioned right of persons to receive programs." This unquestioned right to receive programs, coupled with the lack of specific definitions in the existing act **may prove fatal** to any court appeal of this case by the government.

However, it is clear that Parliament can amend the Act. Therefore it is possible that satellite systems on hotels and apartments could be brought into the Act with specific definitions. The legislative process could take months, or possibly years, given the fact that there must be an election by April 1985. **This case will be appealed**, and while it slowly plods along through the appeal process the revisions to the Broadcasting Act will in all probability be delayed until after all avenues of appeal are exhausted.

**Until** appeals are exhausted or the law is revised, whichever

occurs first, **it is highly likely that operators of MATV systems could continue with their operation of TVROs.** How long? We will take an educated guess in a moment.

We mentioned that an election must take place before April 1985; in the event that the present government were defeated, it is possible that there could be a total change in communications policy, particularly the use of TVROs, in favor of hotels and apartment owners. Is the SMATV system in any event exempt from licensing? There are two issues here: Licensing under the Radio Act; Licensing under the Broadcasting Act.

First, the Radio Act. On appeal, the court would have to uphold the finding that the signals (HBO, Showtime, etc.) were "broadcasting signals." If the issue of Broadcasting Signals is upheld it seems likely that the finding that this system was designed to receive only broadcasting would be upheld. I believe that some new ground was broken in this case because the section of the act exempts the TVRO from licensing in the following instance:

#### **S.3.(3) of the Radio Act:**

"Any radio station or radio apparatus that is capable only of receiving radiocommunications and that is not a broadcasting receiving undertaking is exempt from the requirements of subsection (1) if it is intended only for the reception of (a) broadcasting."

The judge applied the test on the basis of **the intention of the user**, i.e. intended only for the reception of broadcasting. Again, if the equipment was intended for the reception of broadcasting **and** non-broadcasting, it might be subject to regulation and licensing. In other words, on appeal, the court must agree that (1) the signals received are only broadcasting; (2) the TVRO system is not a broadcasting receiving undertaking.

If the appeal court finds that the TVRO when connected to a MATV system **is** a broadcasting receiving undertaking, it could potentially rule that the TVRO is not exempt from D.O.C. licensing. To be blunt, the exemption from licensing at various levels, (CRTC, and DOC) is like a house of cards, and if some of the trial court's findings are overturned, some of the regulations could apply. Again, one must take into account the time it would take for an appeal to be heard, judgement rendered, and if necessary any new regulations put into place.

#### **THE BOTTOM LINE:**

For the time being, a TVRO system feeding a hotel or motel in Canada, or a SMATV system feeding an apartment complex or condo **will not be seized** by the feds providing it is feeding broadcast signals, that it is not operated for direct commercial gain; i.e. **no direct charge** or room surcharge **is levied**. But, that could all change with new legislation. The appeal will probably be heard no later than the summer of 1984, with a decision sometime in the fall of 1984. It is unlikely that new legislation will be brought in **pending** the final appeal. The appeal judgement will provide the government with some direction concerning the deficiency (if any) in the present set of laws. Under Canadian law there must be an election every 5 years. Five years is up in early February 1985. That means, that between next summer and spring of 1985, there will be an election. Assuming that the election will take place no later than April 1985 (it has to!!) means that Canada will not have a sitting government any later than February 1985. That means, (reading between the lines) that this case must be finished in the courts by Fall of 1985, otherwise, the law won't be amended (no Parliament, no amendment). The last variable is . . . who will be the government of the day when the court battles are over? The Gallup polls for the last 6 months indicate it won't be the people now in power . . . that is, if you believe in Gallup polls. Oh yes, just so you don't say I didn't warn you, **this case did not deal with copyright in any satellite signal**, so don't take any false security from Justice Muldoon's statements re: HBO and Showtime as Broadcast Signals. That issue is not related to any copyright counsel that Time Inc., and Viacom may have sought. A word to the wise, the Copyright Law in Canada is under revision and the new law may be in force before the next election. Of course, if you believe the trade press, HBO et al, may be scrambled by then. As the oriental philosophers say, we live in interesting times.

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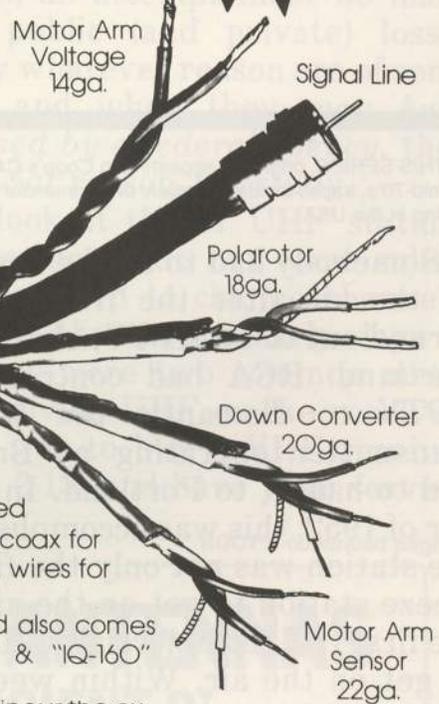
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## THE ROOTS OF TVRO (Part 11)

THIS SERIES, originally appearing in Coop's CATJ magazine in the mid-70's, traces the development of commercial television broadcasting in the USA.

Somebody had to be the first station on the air after the freeze lifted. It turned out to be KPTV, channel 27, in Portland. RCA had contracted with KPTV to dismantle the test UHF transmitter operating at Bridgeport and to haul it to Portland. In September of 1952, this was accomplished, and the station was not only the first post-freeze station to get on the air, it was the first real (commercial) UHF station to get on the air. Within weeks, over 5,000 UHF-equipped receivers had been delivered to Portland for its first experience with television.

So, after nearly four years to the day, when the FCC stopped granting new TV applications, the television boom was back in business. It would continue that way through the balance of 1952 and into the first half of 1953.

This would be an appropriate place to analyze just what happened to those stations (or permittees) who received the "green light" from the Commission in that first year. Perhaps the best way to measure the effectiveness of the Commission's allocations plan and the way in which the FCC granted new permits, is to analyze the *sum* of the successes and failures of these early

permittees. We judge a man by his accomplishments, so let's extend the same courtesy to the Commission.

### In The First Year

During approximately the first year of applications and grants:

Total VHF Stations Approved . . . . 102

Total UHF Stations Approved . . . . 199

Virtually all of these grants were to applicants who were exclusive; that is, they were the only applicants for the particular channel. In this situation, there were no hearings on their applications and because of the rapid processing of the applications, there is some logic to the conclusion that not all of the permittees were financially qualified for what lay ahead.

Now filing for a construction permit to build a new television station is one thing; actually building it and putting it on the air is quite another! So the measure of the success of the Commission's program is best found by looking at the track record of the 102 early VHF and 199 early UHF grantees.

Look first at the station permittees who actually got on the air:

VHF-102 granted . . . . 102 Went on Air (100%)

UHF-199 granted . . . . 107 Went on Air (51.2%)

So nearly 50% of the grantees for new stations, in UHF, *never did build* those stations. Now what about those stations that did eventually start telecasting? How many of them made it and are on the air (*still*) today?

We have selected the first 90 stations (VHF and UHF) to *actually* go on the air for our study. To try to get a handle on the potential market area of each of these stations, we have as-

signed them to present-day markets based upon the station location and on present-day market classifications.

	<u>Markets 1-50</u>	<u>Markets 51-100</u>	<u>Markets 101 Up</u>
VHF — made it	6	11	30
VHF — went off	0	0	2
UHF — made it	4	6	7
UHF — went off	6	6	12
VHF — made it	100%	100%	94%
VHF — went off	0%	0%	6%
UHF — made it	40%	50%	37%
UHF — went off	60%	50%	63%

Clearly, UHF was a risky business.

The Losses Incurred

There is probably no accurate way to estimate the losses to the licensees and the public for the early UHF failures. Still, an attempt must be made because public (and private) losses caused by whatever reason are of some concern; and when they *may have been caused by a federal agency*, they have *special* reason for study.

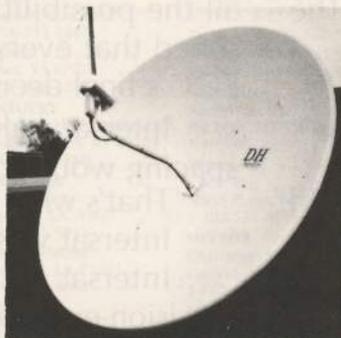
First, look at the 11 UHF stations that made the grade but were subsequently required to change channels. Understand that in the early days of UHF, there were two common methods of receiving UHF on the receiver. The first was to buy a VHF receiver (channels 2-13) and have your service-

ROOTS/ continued page 40

## DH SPUN PARABOLIC ANTENNAS NOW WITH A SUPER EFFICIENT 9'

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The Russians launched the first earth satellite back in 1957. They called it Sputnik. It excited the world and jarred America into response. Sometimes an external influence can cause positive results.

It happened to us. America wasn't the first in space, but within a few years, no one could touch our Apollo moon program.

Remember the thrill when we heard, "The Eagle has landed?"

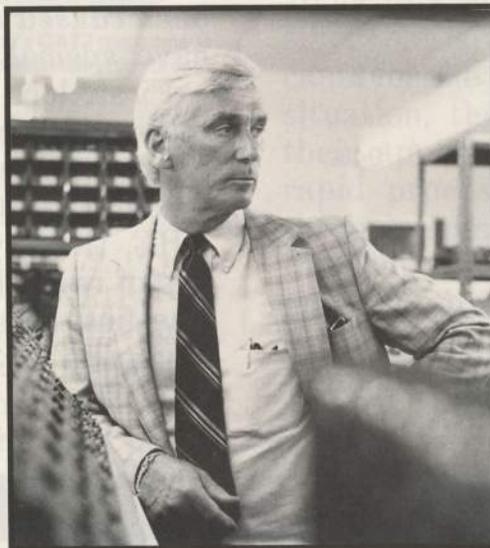
Man on the moon.

Once Neil Armstrong stood on the moon, things would never again be the same.

You could offer me anything in this world but if I had to give up my experiences in the Apollo moon program, I'd say, **NO!**

Since those days we have even broken through the external regions of the solar system. What an age.

It's a wonderful feeling if you can write



*Gene Cernan, Commander of Apollo XVII, who left man's last footprint on the moon.*

"astronaut" on your resume—but it's not a skill that every company can use.

When you find a company that is dedicated to goals and standards that you hold dear—that's exciting!

Intersat is that kind of company. It's why I joined them. At Intersat, second-best won't do.

When satellite television became a big thing, everybody seemed to jump in fast. Dish antennas proliferated. All

sizes: Six feet, nine feet, ten feet. . . Sort of like Sputnik.

At Intersat we were taking a closer look at all the possibilities. The people at Intersat reasoned that everything would depend upon the F.C.C.'s final decision regulating satellite spacing.

Intersat calculated that 2-degree satellite spacing would be the most likely decision.

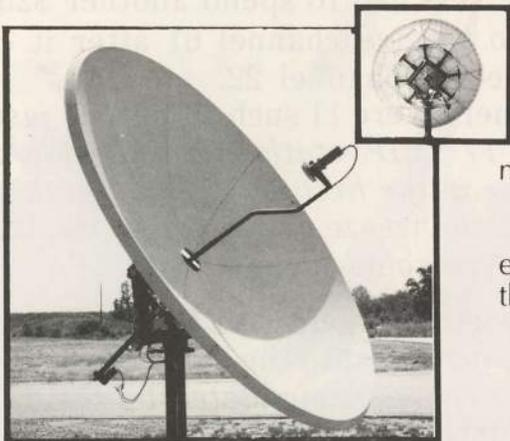
That's what happened on April 27, 1983.

Intersat was right.

Intersat had designed the system and the precision-engineered Challenger XI dish antenna to meet this decision.

Other companies may need to completely replace earlier antennas. Expensive.

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Great name . . . because it really is ingenious.

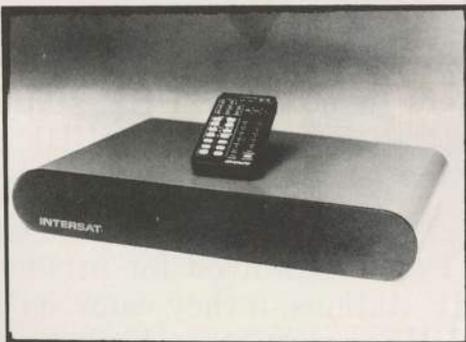
It does about everything including turning your dish antenna to the exact desired location by remote control. You won't have to go outside unless you want to.

It utilizes a video display that turns your TV screen into a satellite information center, yet its simple to use.

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\*It's so easy.



\*IQ 160 Receiver

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— Gene Cernan

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ROOTS/ continued from page 37

man go into the receiver and take out one of the VHF channel strips (say 3) and replace that strip with a new UHF channel strip (say 61). This cost the average home viewer about \$25, plus the money that he would put out for his UHF antenna and, of course, the basic receiver. The second most popular method required the viewer to purchase a VHF receiver (2-13) and a UHF converter (a separate set top box with a separate UHF tuning knob). This cost the average home viewer \$40-50 *above the cost* of his VHF receiver. As the early years wore on, receivers came from the factory with built-in UHF tuners, although they typically cost \$30-60 *more* than standard VHF receivers. So the cost worked out about the same, regardless of which approach the home viewer took.

When a UHF station changed channels, at FCC instructions (or for any reason), here is what happened:

- (1) If the viewer had a UHF set top converter, he merely tuned his converter to the new spot on the UHF tuner dial and continued watching the station;
- (2) If the viewer had a UHF tuner built into his receiver, he did the same thing: simply retune his receiver to the new channel;
- (3) However, if the viewer had a VHF set with a single channel UHF strip installed in it, *the viewer had to throw out that strip and install a new strip for the new channel.*

So when the original channel 61 in Springfield changed to channel 22, approximately 40,000 home viewers had to make one of the three adjustments. Those who had UHF strips in their

VHF sets had to spend another \$25 or so to receive channel 61 after it converted to channel 22.

There were 11 such situations *just in the 17 UHF stations that made the grade in the first 90 stations on the air* after the freeze ended. This cost these viewers some money!

Based upon our CATJ study, the approximate cost to the home viewers for these changes, *mandated by the FCC*, was in excess of \$2,657,000!

Now what about the losses incurred by the 24 stations that went on the air on their new UHF assignments but subsequently left the air? Again, there are at least two areas of losses: (1) The cost of the TV station facility, less whatever salvage value there was in the equipment, *plus* whatever operating losses were run up while the station was on the air; (2) The losses to the public for UHF tuner strips, UHF converters (if no other UHF stations were on the air in the area), UHF antennas and so on.

Converters and antennas could (and would) later be utilized for other (later) UHF stations, if they came on the air. If UHF *never* came back to the area (such as Little Rock, Arkansas, where channel 17 was the first station on the air in Little Rock, and after the UHF channel left the air, no other UHF stations ever came on the air), the public investment in UHF receiving equipment *was simply a write-off.*

The total loss to the American public and the UHF broadcasters *may have totaled as much as 150 million dollars in the 1950's.* Clearly, there are so many factors involved, it is probably *beyond* the study capabilities of this publication.

Still, we can study with a high de-



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gree of accuracy the losses sustained by the public and the telecasters *in those 24 situations* where of the original 41 UHF stations to go on the air, 24 eventually (some very quickly) folded up.

The 24 stations involved cities as large as St. Louis (market number 12 today) and as small as Atlantic City (no market number today). *For the 24 stations*, there were *direct reportable losses in excess* of \$7,200,000. Some, like WCAN-25, Milwaukee, held on far beyond the point where they should have abandoned the ship.

There were no fewer than 610,834 home receivers equipped (totally) to receive the signals of these 24 stations that did *not* make it. This ranged from as many as 300,000 UHF-equipped receivers in Milwaukee to as few as under 5,000 in Atlantic City. Allowing the tuner strips, set top converters, built-in UHF tuners; allowing for markets where UHF came back (and we limited *our come-back period* to five years, assuming after that period the UHF equipment was useless or lost), we have a total loss for 610,834 UHF-equipped sets of \$15,270,850. Thus, in just the first 24 UHF failures, between the losses to the stations and the losses to the public, there was a combined loss of investment totaling more than \$22,470,800. Add to this the loss of \$2,657,000 estimated for the 11 UHF stations which did make it but that later required their viewers to re-equip for new FCC assigned channels, the total public loss for this short period was in excess of \$25,000,000!

And as we noted, the *probable* loss for all of the UHF-equipped receivers that went dark when later UHF tele-

casters went dark, would run, we estimate, to in excess of \$150,000,000. Of that vast sum, CATJ estimates that *the loss to the home viewer* was as high as 77% or \$115,500,000. It is almost beyond comprehension that a federal agency could get that far into the American pocket book over something so mundane in our lives as television broadcasting and reception.

### So Hearings Began Again

The failure of UHF was a disaster for the FCC. *If there was ever a period in FCC history where the desire to cover up the facts was paramount, this would have been the time.* No matter who you talked to, UHF was a fiasco. The reasons were not nearly as important as the fact that it had happened and was happening. And seemingly, as they would demonstrate over a two-year-plus period, the FCC was about as capable of finding a solution to the UHF fiasco as they were capable of selecting the proper color TV system for this country.

**"WTAC-TV in Flint, Michigan reported it was forced to suspend operations because ad agencies and advertisers refused to accept the station. The station reported Flint had a 62% conversion rate (to UHF). The Flint station reported it had begun operating from a new \$125,000 building on Thanksgiving Day in 1953 and had been losing \$10,000 per month since that time. WTAC was an affiliate of ABC, but market encroachment of low-band (VHF) signals from Detroit, Lansing and Bay City had driven it off the air.**

**In Atlantic City, N.J., WFPG-TV suspended operations until Washington and others could find a satisfactory solution to its problems. The station lost 33 half-hour segments of network programming from the network when Philadelphia VHF stations were permitted to increase their power levels. The**

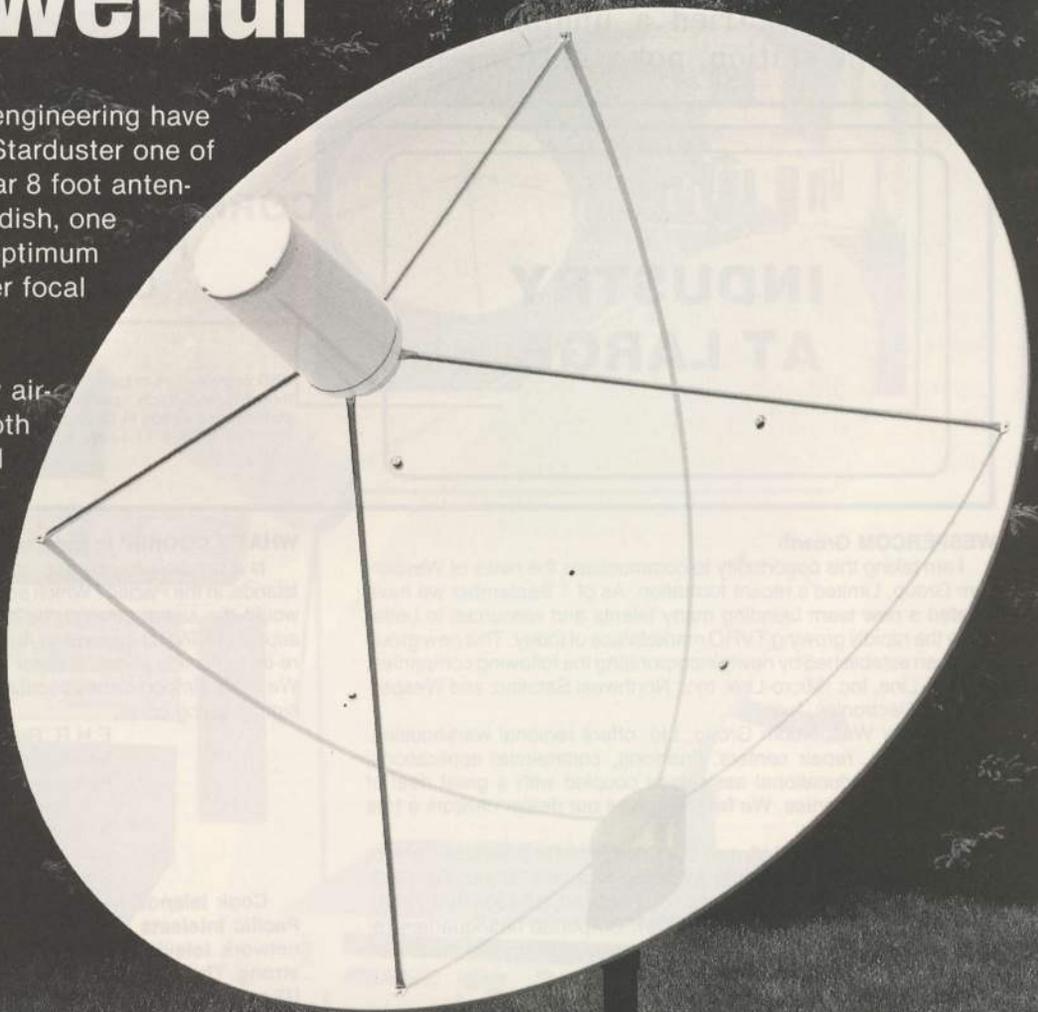
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60-mile distant Philadelphia signals had established a concept of coverage which advertising agencies bought, and Atlantic City was no longer considered a distinct market apart from Philadelphia. Therefore, extreme audience and economic loss compels suspension of WFBG operations because the station can no longer render a service of pride to South New Jersey, the premise on which the station was planned, built and dedicated."

In that same era, a UHF station in New England tried a unique experiment. The station, not a network affil-

iate and stuck with very old movies, wanted to see just *how bad off* it was. So for one full evening, at each station break, the station offered \$1,000 to any viewer who would call in to the station. The announcements ran all evening, and the station received no phone calls. Plainly, *nobody was watching them*, at all! The station promptly suspended operations.

This series will continue in CSD, tracing the present commercial TV structure through the developing years of American commercial broadcasting.

## INDUSTRY AT LARGE

## CORRESPONDENCE, NOTES, REBUTTALS AND CHARGES . . .

CSD provides this industry Forum with the understanding that opinions, thoughts and "facts" published are from the writers, no liability for statements extends to the publishers. Address letters to CSD/Industry, P.O. Box 100R58, Ft. Lauderdale, FL 33310.

### WESPERCOM Growth

I am taking this opportunity to communicate the news of Wespercom Group, Limited's recent formation. As of 1 September we have created a new team blending many talents and resources to better serve the rapidly growing TVRO marketplace of today. This new group has been established by newly incorporating the following companies: Mac-Line, Inc.; Micro-Link, Inc.; Northwest Satelinc; and Wespercom Electronics, Inc.

The new Wespercom Group, Ltd. offers regional warehousing, sales centers, repair centers, financing, commercial applications, SMATV, plus educational assistance coupled with a great deal of management expertise. We feel this gives our dealer network a true marketing advantage.

Wespercom Group, Ltd. now operates Sales and Service Centers in the US and Canada at the following locations: Bend, Or. (503/389-0996), Kent, Wa, (206/251-0616), Penticon, BC (604/493-7228), and Couer d'Alene, Id (208/765-0909). Corporate headquarters remain at the Bend, Oregon location. Anyone desiring information on this new alignment may contact me directly.

Rod C. Neff  
Vice President, Marketing  
Wespercom Group, Ltd.  
P.O. Box 7226  
Bend, Or. 97708

When Cliff put together Wespercom many years ago, he was a pioneer in our then young industry. With the growth that has followed, a few have been survivors, many more have disappeared while but a handful have hung on and met the challenges. Wespercom is one of the last group and the industry is better for their presence.

### WHAT'S COOKIN' In the Cooks

Is it possible to obtain a copy of the footprints around the Cook Islands, in the Pacific? Which satellite can be received there and what would the signal strength be? We are also interested in finding a supplier of TVRO systems in Australia as we are directly involved with re-transmission of satellites for small communities all over Australia. We cannot import dishes because there is a 35% import duty plus very high shipping costs.

E.H.R. Reimann  
Managing Director  
Electronic Developments  
& Service Pty., Ltd.  
27 Buckley Street  
Marrickville, NSW/2204  
Sidney, Australia

Cook Islands reception would consist of Intelsat from the Pacific Intelsats located around 175 degrees west. Australian network television is available in the 18-20 dBw region; not strong. There is the possibility that reception from a far western US satellite, such as Galaxy I at 134 west, might also be possible. This statement is based upon sketchy reports from islands south and west of Hawaii which are now receiving HBO and other services from F3R off of the Hawaiian spot beam. Only testing will sort it out. Keith Anderson of Anderson Scientific (P.O. Box 800, Black Hawk, SD 57718) has done extensive work throughout the Pacific using locally built 'spherical antennas' and his own electronics. Rebroadcasting systems, following the format outlined in CSD for December (re-transmitting the block down converted spectrum from 450-950 MHz), have been widely employed in the Anderson installations.

### ROB Receiver Tests

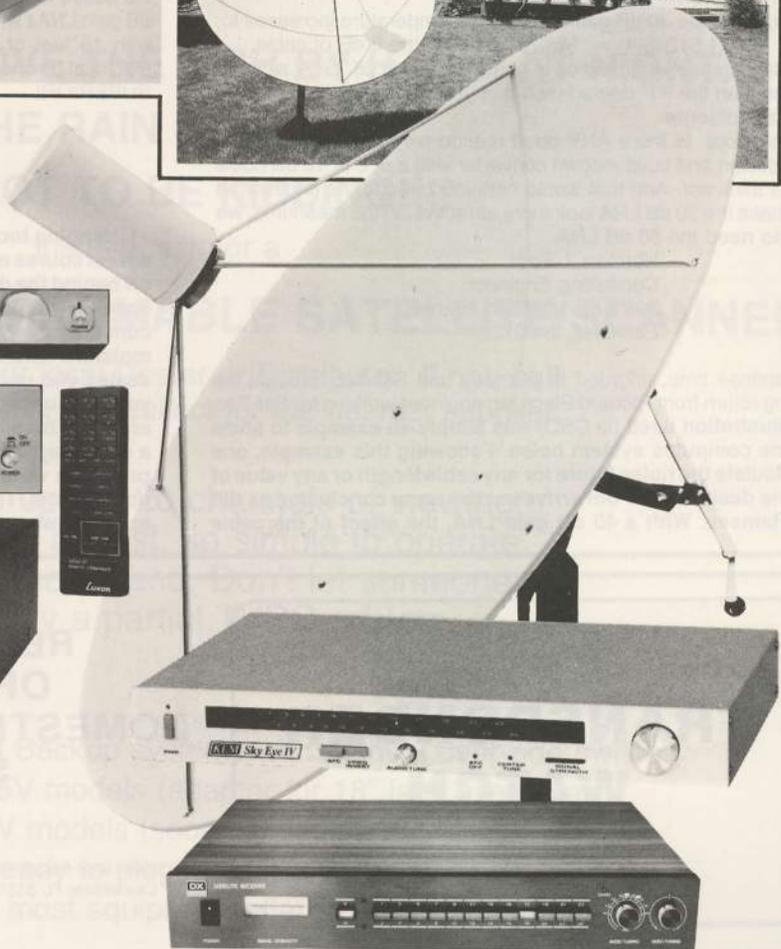
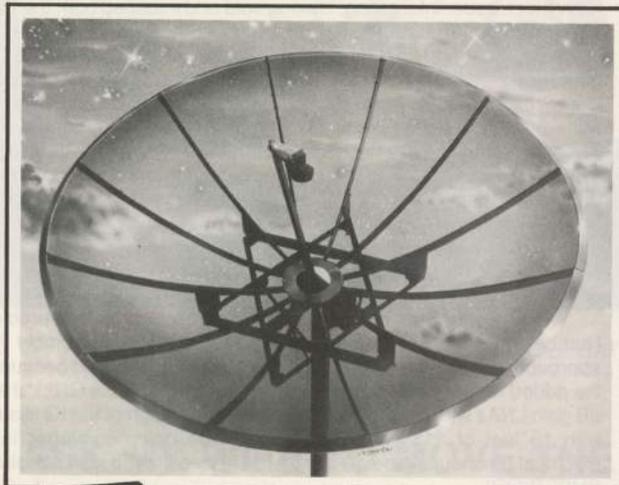
Of the many TVRO magazines I subscribe to, I especially look



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forward to receiving CSD each month. I won't comment on the ROBS receiver testing reported in CSD, but if that was not 'bad enough' along comes John Ramsey's September CSD piece titled "Calculations Revisited." I believe the increase in noise from a 50 dB gain LNA to a 30 dB gain LNA was misleading as stated. I believe he is comparing 'apples' and 'oranges.' If he had not decided to 'make it interesting' by doubling the length of the RG-8 type cable from the down converter to the LNA, his illustration would have been very instructive.

When you keep the 5 dB cable loss,  $F_t = 1.512$  compared to 1.414 with the 40 dB LNA. The difference is 0.291 dB, not the 0.875 dB that he shows. Note that his two numbers are correct but only if you make two changes at the same time; something which most engineers generally like to avoid!

If I am overly critical, perhaps I can make up for it by adding something constructive. I like to deal with noise temperature, not noise figure, because you can add temperature without first having to take logs. And, the numbers don't get all jammed together at the low end of the scale. Let's illustrate by using Ramsey's numbers in terms of noise temperature:

Noise factor and noise temperature are related by the following:

$$T = 290 (F-1)$$

290 is generally the accepted temperature for making noise measurements; it is 17° C or 62.6° F. For the 40 dB LNA:

$$T = 290 (1.431379-1) = 119.9999^\circ \text{K, by itself}$$

$$T = 290 (1.41478-1) = 120.287, \text{ with the cable.}$$

This is a degradation of 0.288 degrees, almost a vanishingly small number. Is it overkill?

Now, using the 30 dB gain LNA, noise temperature increases to:

$$T = 290 (1.51286-1) = 148.729^\circ \text{K, with the 5 dB of cable.}$$

This is an increase (degradation in performance) of 28.73° K, which is a lot less than the 91° degradation that you get when you compare apples and oranges.

A final note. Is there ANY good reason why we, as engineers, cannot design and build a down converter with a 6, 8 or 10 dB noise figure? I think not. And that would certainly change the situation. It would make the 30 dB LNA look more attractive. In the meantime, we really do need the 50 dB LNA.

Norman J. Foot  
Consulting Engineer  
293 East Madison Avenue  
Elmhurst, Il. 60126

Response time, afforded to Ramsey and Sat-Tec, brought the following return from Richard Place, an engineer working for Sat-Tec. "The illustration used (in CSD) was simply an example to show how one computes system noise. Following this example, one can calculate the noise figure for any cable length or any value of LNA one desires. Mr. Foot arrives at the same conclusion as did John Ramsey. With a 40 dB gain LNA, the effect of the cable

length can be insignificant; but, with a lower gain LNA, that effect can be dramatic. As for designing a lower noise down converter, perhaps it is simply a matter of where you place the gain in the system. You have the choice of placing gain in the LNA or in the down converter. It is presently considered better practice to put the gain up front (in the LNA) to maintain a high signal to noise ratio."

#### ANOTHER LNA Gain View

I found CSD's update on 30 dB gain LNAs, appearing in the November issue, interesting. Having sold and installed both the Intersat and General Instrument systems in some quantities I have a couple of thoughts. First, I have been told by one of the leading LNA manufacturers that LNAs on the average lose around 1 dB of gain for every year of use. So if you start out with a full 30 dB of gain, how long will it be before disaster strikes? If you have 'no gain margin' at all when the LNA is new, what happens after the system has been in the field for a few years? Second, I agree that the Intersat downconverter is excellent electronically, but it certainly does not 'look' weatherproof; especially at the mounting angle required when you hang it directly to the LNA at the feed point. Since a dealer is required to purchase a 30 dB gain MSE LNA along with the Intersat system, is this not inviting problems down the road?

We at Earth Star have tried two approaches to this problem. Number one, we now supply 'covers' for the feed assembly (this approach requires that we install two guy wires on the feed because of the added weight of the cover). And number two, we use ONLY the 40 dB gain LNAs with the General Instrument's version of the IQ system, with 15 feet of 213 cable and placing the down converter in an electrical box housing below the dish. The results are now absolutely SUPERIOR!

James R. Munger  
President  
Earth Star Video Systems  
P.O. Box 2701  
Sioux City, Iowa 51106

Hanging too much electronics at the feed is certainly not the wisest course of action. We, too, prefer to get the down converter off behind the dish in a weatherproof container with a 213 jumper between the LNA and the down converter. The Intersat down converters we have in use in the Caribbean have held up without moisture failure provided they were properly installed with the sealed end up. Instructions stamped all over the container tell you in no uncertain terms which way is up! However, the box can and does breathe and if moisture laden air does get inside before a cold snap, and then it freezes, you could possibly have some problems with ice inside of the container if the air was exceptionally cold. This is not a problem we face on Provo and cannot speak to what 'might' happen given those circumstances!

## TRANSPONDER WATCH

## RECENT REPORTS OF ACTIVITY ON DOMESTIC / INTERNATIONAL SATELLITES

Send your reports to CSD Transponder Watch, P.O. Box 100858, Ft. Lauderdale, FL 33310. For late news, call (305) 771-0505.

#### WORLD PREMIERE

A one hour video tape production, "Coop's TVRO Tour To Arthur C. Clarke" highlighting the trip to Sri Lanka, will make its public debut February 3/4/5 in Vancouver, British Columbia at the 'First Canadian Satellite Exposition.' In this program attendees will follow

the trials and tribulations of hauling massive amounts of hardware half way around the world, attend the formal opening ceremonies of the Arthur C. Clarke Centre for Modern Technologies, and visit with Clarke in his office as he talks about his youth, his development as the world's most renowned science fiction writer, and his life in Sri Lanka.



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This one hour all-industry program has been made possible by funding from SFPC/Satellite Financial Planning Corporation.

The February issue of **CSD** will contain 'air date' listings for the same program, 'on a satellite near you.'

**AT LEAST** one federal group, NTIA is on record as favoring (with 'restrictions') allowing controversial ORION and ISI 'privately owned' international satellites to operate. Both firms have applied to US FCC seeking permission to build and operate 'private' international birds, to compete with Intelsat. Intelsat of course is opposed.

**STC**, the Comsat DBS program, is changing Hughes with 'early building' a trio of Ku band satellites. Under FCC regulations, construction on satellites is **not allowed** to begin until FCC approves satellite applications. Hughes apparently admits to starting construction of 3 birds prior to FCC approval.

**ABCI**, a privately operated 12 GHz satellite firm, meanwhile, has signed a contract with Hughes for 16 transponder (36 MHz wide), 50 dBw coverage level, pair of Ku band satellites. Birds are scheduled for 1986 launch to 83 and 130 west.

**PREPARING** for 1984 election year, Democrats have started 'DEMSAT', a ten minute per day feed to television stations and cable outlets on Westar IV at 4:40 PM ET, TR4. Carrier is Bonneville International.

**SCIENTIFIC ATLANTA** has met with HBO officials to discuss HBO plans for 'CBD'/DBS. S-A in past has been unable to meet competition from firms such as Birdview and others specializing in low cost 4 GHz terminals; but will try again.

**PBS**, already 'owning' a trio of transponders on Westar IV, has negotiated with Western Union for three more. Last three will be used by PBS certain hours each day, sub-let to others for balance of day.

**WOR** will appear on Galaxy I bird at 134 west (TR15) as you read this. Feed on W5 will continue for some time but ultimately will be dropped in favor of G1 feed.

**LATEST** speech compression technology demonstrated by Scott Instruments of Denton, TX; firm showed system that compresses human speech by a factor of 24 to 1 allowing 24 times as much information to be transmitted using a given bandwidth.

**THE American Network**, sometimes on F4 and sometimes on W5, is in for more uncertain changes. Firm owning service, American Medical Buildings, has sold off money-losing TAN service which has provided in-hospital-room movies via satellite for more than a year, losing large sums in the process.

**DISNEY** Network has signed agreement for pair of Galaxy I transponders, plans 16 hour per day service, dual feeding W5 and G1 initially, eventually dropping W5 feed altogether.

**LATEST** and last foreseeable batch of new applications for 4 and 12 GHz orbital spots now getting careful study at FCC. Number of applications outnumbered the total number of un-assigned 4 and 12 GHz spots remaining indicating not every applicant will get what he asked for. First 20 GHz downlink application was also mixed in the bunch.

**IN LAST** round of filings, RCA broke new ground by specifically requesting permission to launch trio of 'hybrid' (4 and 12 GHz) birds with one primary use being service to **Caribbean** area. RCA explained that both voice and cable TV programming, for Caribbean, would be possible using new birds.

**DETAILS** of apparent plans to turn NASA's TRDS satellite 4 GHz capacity into direct beam to serve Europe also came out; firm that acts as consultant to NASA asked for permission to locate TRDS services with spotbeam on Europe at 41 and 61 west. Plan provided sketchy details, would apparent limit users to 'government agencies' (such as VOA) initially.

**ABC** has finally signed agreement with AT&T for satellite distribution to affiliates primarily in Central and Mountain time zones. Andrew corporation will provide downlink terminals to affiliates for C band service; 7.3 meter 'primary' dish with 4.6 meter 'back-up' dish.

**CBS** still not announcing its **final** decision, has 8 separate 'proposals' under consideration for complex C band delivery system. CBS plans to convert much of terrestrial network to satellite, excepting northeast corridor and portions of west coast.

**CONSIDERABLE** confusion followed in wake of Radio Shack

admission that it will serve as 'exclusive selling agent' for 12 GHz USCI early-entrant DBS program. Radio Shack managers, outside of initial Indiana service area, were unable to answer questions from customers who read about pact in Wall Street Journal and other media outlets. USCI program currently in Indiana only, will expand to Ohio and Michigan next; testing in 22 different states from Rockies east to east coast.

**BIG EXCITEMENT** in U.K. and Europe over apparent 'ease of reception' from Intelsat V bird that will, shortly after first of year, offer up to three 12 GHz channels of 'cable programming' into Europe using spotbeam. Tests of 12 GHz service from Intelsat bird has exceeded results predicted.

**ABC's GMA** will be doing week-long uplink of program inserts from Nassau, in the Bahamas early in January. Government of Bahamas picking up some of the costs to create 'excitement for winter tourist season' there, and to counteract generally unpleasant feeling many people have concerning attractions of islands under present government.

**ESPN** will join rest of cable group making massive 'dual-feed' move to Galaxy I; with a difference. ESPN will initially use TR9 on G1 for blacked out coverage events and not offer full schedule there for some time yet.

**POSSIBLE GREATER** freedom for Australian domestic satellite system following decision to alter original make-up of system which had Australian Telecom owning 50% of new system. Under latest plan, system will have no more than 25% controlled by intensely labor-union-dominated Telecom.

**RCA Astro** will shortly be able to 'test' satellite structures up to 15 feet in diameter and 65 feet in length. New \$20,000,000 test chamber, said to be largest in 'free' world, increases RCA's ability to simulate in-space conditions for birds prior to orbit. Presently only segments of birds can be tested in smaller chambers and full birds are never tested until in space.

**OTHER** massive new facilities planned include \$160,000,000 test and assembly complex by Hughes in Florida.

**DOLBY** has developed digital stereo system for two channel sound; plan is included in some of the pending DBS formats.

**THREE** transponders for data transmission have been purchased by Equatorial communications on new Hughes Galaxy III bird. Equatorial operates small dish spread spectrum (C-100) systems using TR18 on F3R and elsewhere. Galaxy III is not intended to have any video on it; will launch to 93.5 west this coming June.

**BIG** news for European would-be TVRO system sellers. Eutelsat is dropping requirement that TV signals sent via **Eutelsat I bird** be scrambled. **CSD** discussed this in recent November issue at some length, came to conclusion continuation of scrambling requirement would badly slow down cable and private terminal growth in Europe.

**NBC** got caught lifting news tape from CBS, apparently (claimed CBS) from satellite feeds originating at CBS. NBC admitted it had 'pirated' news stories, agreed not to do it again.

**WESTERN** Union may be changing mind about best way to sell transponder space. Firm's sales results with Westar 4 and 5 look impressive but WU now says it will try to limit video transponders on a single bird to 10 and retain remainder (14) for backup and non-video services.

**BATTLE** in US Senate before end of session between Canadians and US over cross-border copyright liabilities. Senate Copyright Hearing group heard two stories, decided that government is going to have to step in or depend upon Department of State to settle. Dragged into it were applications for WTBS/WGN/WOR and others to be carried not only into Canada but Caribbean and Latin America as well.

**FCC** decision that states such as New Jersey cannot regulate SMATV systems got mixed reviews. SPACE opted for court decision in matter stating that if FCC pre-empts SMATV regulation at state level, federal regulation by FCC will follow. In SPACE view, only thing worse than 50 states individually regulating SMATV is 'one FCC' regulating SMATV.

**MUDDOCH SKYBAND** system, planned as early entry 'low power' DBS system to compete with USCI was canceled in November leaving USCI as the only viable DBS programmer for the majority of 1984. Murdoch cited technical problems with birds and non-availability for programming as reasons for pulling plug.

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**WESTAR VII**, to be shuttle launched in 1985, will have 9.6 watt transponders on board; an upgrade from the present 7.5 watters on Westar V and the shortly-to-be-launched Westar VI bird.

**LOOK** for PR campaign on behalf of SPACE directed at general public during 1984. Industry trade association has repeatedly taken it 'on the chin' in past when opposition groups such as MPAA have gotten headlines.

**EUTELSAT I** satellite, originally scheduled for 10 degrees east has been re-assigned to permanent location of 13 east.

**JAPANESE** have announced a new 'organic film' as a replacement for silicon cells in solar arrays. Biggest promise of new technology is high speed, automated, mass production.

**FLORIDA** Network, Inc. a statewide radio network with 50 affiliates, getting Westar III (later VI) two-audio-channel system with Microdyne supplying hardware for receive only audio terminals (AROs).

**FINANCIAL NEWS NETWORK** feeding dual on Satcom F4 and Westar V with much success; availability to cable subscribers on Westar V has added more than a million homes to FNN reach.

**IRELAND** is 'selling' off its 5 DBS channels to highest bidder' accepting bids from interested parties, who need **not be** Irish firms or citizens. Ireland wants a system that makes money for country, suggests 'pay movies and other fare for distribution in Europe'.

**DELAYS.** Next TDRS satellite, including any that might ultimately be used for spot beam C band coverage to Europe, will now not fly until sometime in 1985. Also delayed, Arabsat will delay from pre-planned October '84 to May '85 launch.

**1989** launch of Japanese BS-3 will mark first private commercial use of satellites for Japanese entertainment industry. Of three high power channels on board, one will be made available for lease by entertainment firm(s).

**PERU** talking with Brazil about sharing use of Brazilian DOMSAT bird, suggesting another entry into 'regional DOMSAT' arena.

#### DANGEROUS GAMES/ continued from page 5

HBO usually wins because it has more muscle but Showtime keeps getting back up off the ground to have its block knocked off in yet another battle. After being 'bullied' by HBO for many years, Showtime saw the wisdom of 'putting some more weight on' and by joining forces with The Movie Channel, the size of their muscle got about 50% bigger. HBO is still the heavyweight and the new combination pair is still the lightweight, but the 'weight advantage' between the two has narrowed. Now heavyweight HBO is up against a lightweight rather than a fly weight.

Size in the premium industry is determined by subscriber count. Subscriber count, in turn, translates to bucks; bucks coming in, bucks in the bank, bucks to hire and buy your way into virtually any confrontation on the terms you choose. After nearly five years of trying to outbuck HBO in the cable industry, it may well be that Showtime now realizes that it has two choices; accept being the weak kid on the beach and resign itself to a lifetime of having sand kicked in its face, or, it goes and finds another beach to play on. A beach where it is the big kid.

The SMATV/ private cable beach, totally left alone by HBO to date, probably looks less frightening now to Showtime/ TMC than it did 18 months or so ago. Way back then, Showtime and The Movie Channel were fearful that if they went to play on the SMATV beach, the cable guys might put up signs on the cable beach advising the two 'never to come back.' Not willing to take a chance on losing their cable beach rights, they elected to stay put. But times have changed; SMATV is not as frightening as it once was, and the cable people are not as concerned today as they were 18 months back. Plus, after another 18 months of getting cable beach sand kicked in their face, the SMATV beach is looking better and better to Showtime/ TMC all of the time.

Picking up a million or two SMATV connections, from the SMATV beach, over the next three years or so, seems like a pretty appealing thing right now. It is, afterall, a 'virgin beach' and not that much is to be lost by wandering down there every now and again to see how the reception is. Following all of this in 1984 will be interesting.

#### HBO's CBD Efforts

If Showtime is no longer afraid to play on the 'SMATV beach,' it

may be because HBO is no longer afraid to play on the 'home TVRO beach.' As our look at 1984, appearing in this issue (starts on page 8) suggests, the HBO 4 GHz DBS plan is coming along nicely although there are a number of legal and mechanical hurdles to cross as we write this.

For five years now there have been two firm rules at HBO.

- 1) You don't sell service to non-franchised 'cable' TV systems. In other words, don't put your pickle into the SMATV jar.
- 2) You don't sell service to private, individual, stand-alone TVRO terminals. In other words, you don't compete against your cable industry base by offering the same service to potential cable subscriber homes, direct.

**The first caveat was sacred.** When you are enjoying 12,500,000 plus homes watching your service through the 'kindness' of the local cable operator, you don't try an end run around the cable operator and go into his side yard just because he forgot to shut and lock the gate. SMATV operators are generally regarded as gate crashers by the cable folks and if you are HBO you can't support gate crashers. Even if there are a few million bucks a month to be made that way.

The second caveat seemed less sacred. It is one thing to support gate crashers who are operating inside the 'territory' of your legitimate customers, but what about those **distant** gates which surround areas **where you have no customers?** The typical home TVRO owner profile, HBO feels, suggests a home owner who resides out in the countryside, far from the nearest cable TV service lines. A fellow who is willing to put down \$2000 to \$5000 to enjoy HBO and other programming. Is he not a distinctly different market from the SMATV market-place?

It turns out that he is, isolated examples of in-town folks buying TVROs aside. It also turns out that somebody, whether it will be HBO or USCI or Comsat, **will end selling premium programs** to this 'distant market' anyhow; so why shouldn't that somebody be HBO?

As this issue's 'Look At '84' reports, there are of course some very definite moves and strategies underway to 'launch' an HBO "C Band Direct" service during 1984. Some of the strategies being played out in this move are interesting to observe.

One of the problems we saw coming, back in our September 1983 look at the HBO planning, was the programming. HBO has been salting away its own self-created programming for quite some time. Add to that its recent ownership participation in new movies now being produced, and you have the nucleus for a substantially self-controlled programming schedule. **Still**, there are major movies being released each month by others and to afford HBO maximum flexibility with its programming, it would be best for HBO to have complete **approval** from the studios to offer **any** of its programming (as in, 'all of its programming') to CBD/DBS. The studios, or at least some of the studios, have not been anxious to accord HBO their permission.

Remember that the studios license HBO to show certain movie products a certain number of times under contract. The studios also attempt to restrict the 'type' of theater in which the movies will be shown; cable theaters are one type approved. 'Home Theaters' are one type **not approved**.

So HBO made the rounds during late November and December of the major studios. **"We want you to expand our authorization to 'DBS',"** HBO said to the studios. Reportedly, four of the 6 'major' studios agreed. Two balked, preferring to retain 'DBS Rights' for some future release when they thought the price would be right. This prompted HBO to take on a 'tough guy stance.'

**"If you will not grant us (HBO) DBS rights,"** they said, **"then we won't scramble the cable TV feeds on F3R."** That may seem like a strange statement for HBO to make. It is not.

HBO wants the movie companies to 'give in' on this issue. They want it badly. The movie companies want HBO to scramble their cable feeds (as well, of course, as their CBD/DBS feeds). They want that badly. HBO is saying, in effect, **if you won't give us 'DBS Rights' to the movies, we won't scramble HBO cable feeds.** "There is no reason for us to scramble the cable feeds if we cannot translate that scrambling into bucks by offering the people we are scrambling to get away from an alternate service over on Galaxy." HBO is sincere. The movie firms know this.

HBO 'CBD' / continued page 54



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## HBO 'CBD' / continued from page 50

I will be surprised if HBO doesn't win this one. They have a way of getting what they want. The movie folks are outmatched when they tangle with HBO.

Until this is settled, HBO's scrambling plans for cable, on F3R, will remain 'confused.' At least that's what they want you to think. Here are a few fearless forecasts for the next 90 days of 1984:

- 1) **HBO will NOT be scrambling on F3R;** not on TR13, not on TR24.

You should not read anything into this except that HBO is withholding their ability to scramble the cable feeds to force the movie firms into line on the DBS program authorization rights.

- 2) **HBO will be feeding a scrambled feed** to ultimately as many as 500 affiliates. This will be a 'test' to work out the bugs in the field.

Actually, this is a less-than-fearless forecast. As I write this, HBO is scrambling their east coast feed by taking it out on F4, TR1. They are doing this most days of the week between 9 AM and 5 PM, and they will expand this to more hours per day over the next few weeks. Sometime in January or February (the latter is more likely) they will move this to a Galaxy vertical transponder and go to 24 hours a day, parallel to their F3R, TR24 feed.

- 3) **HBO will seriously consider** creating a 'central time zone feed,' scrambled from day-one, on Galaxy. This CT zone, scrambled feed, will be announced as an expansion of their cable service. The truth is that it will be the HBO basic service, ready and in place as the 'first of 9' services for CBD/DBS later this year.

When (or if) they do this, not even their regional offices will be told that this 'CT zone feed' is really a CBD/DBS feed in disguise. That will all come out later this (new) year.

It is in HBO's best interests to keep this entire scrambling issue very complicated and very confused over the next 90 to 120 days. They cannot 'spring' any surprises on the various 'cultures' involved in all of this if everything looks cut and dried from the outset. So on purpose it will be 'confusion time' and 'what are they going to do next?' time at HBO. And that will be 'on purpose,' a very clever ploy to draw fire away from the real targets as they are themselves developing the first battle of the CBD/DBS war.

If all of this is confusing to follow, and too complicated to understand, take heart. I have a chart on a chalk board that helps me keep track of the 'wheat' and the 'chaff' on this one. I study it daily, making changes as changes occur. If keeping track of the 'details' bores you and dulls your senses, just concentrate on the bottom line. Which is?

**That HBO wants into the CBD/DBS business.** They are making all of these moves to position themselves in the posture they deem necessary to be in the 4 GHz DBS biz. All of this is costing them big bucks and plenty of top management time. They are spending these big bucks, this top management time, and putting their corporate neck on the line at some risk because they want to serve 'our customers' with a DBS program package. If the details confuse you, just keep the bottom line in mind.

We'll undoubtedly revisit the subject again next month, just so I can 'clear' my blackboard and start fresh once again!

## USCI'S 12 GHz Fiasco

If HBO is 'making moves' go get into the 4 GHz DBS business, the people at USCI are possibly making every possible mistake to STAY in the 12 GHz DBS business. I thought I detected a sense of confusion about USCI some six months or so ago. Now that I see them up on ANIK C and I spend some time studying how they got there and what they are doing, I am more convinced than ever that they are well on the way to blowing tens of millions of investor dollars on the DBS sham of the century.

DBS is a very precarious commodity right now. Murdoch has already backed out, saying he will not 'chance' starting up his much-publicized 'Skyband' service using the low power interim 12 GHz birds. He will wait for some medium power (next generation) 12 GHz birds to come along before he jumps in. I have a better suggestion for Murdoch; he should simply 'buy out' the entire 4 GHz home TVRO business and enter DBS as a terminal supplier to HBO's 'CBD'

service!

Murdoch, now that he has gotten out of the line before the gates opened, is not the topic for discussion here. USCI is.

Let's review what they have done to date. This could be tricky since I only have around 1,000 words of space remaining and they have been very busy fellows!

- 1) They announced early and signed on with Canada's ANIK to get the jump on Murdoch, Comsat and the other dozen or so who want to send between five and ten channels to private homes.
- 2) They got jumped on by their competition, first for trying to use the wrong kind of satellite for DBS, then for trying to con the Canadians into making a major orbital change with ANIK C to serve them. It all turned out all right; ANIK C is now operating in an orbit position assigned to the US G-STAR bird, with a 'US tilt' of 5 degrees, which means the signal that should be blowing into Canada is now blowing into places like Indiana-polis.

Getting ANIK to occupy the G-STAR position in the sky was brilliant. Before they figured that one out, USCI was faced with having all of their home terminal subscribers moving their home antennas sometime around the middle of 1984, after G-STAR went up and USCI was ready to shift from ANIK to G-STAR for 'permanent' service. They figured out it was going to be cheaper to move one satellite than it was going to be to move 10,000 (or whatever number they hoped to have) dishes by mid 1984. If you can't take the mountain to Mohammed . . .

- 3) They got up, and operational, this past mid-November and they established a test market in Indianapolis. They signed a contract with RCA Service Company to install their 4 foot dishes (Prodelin standard 4 footers) and their electronics (GI down converters and receivers).
- 4) They put up five channels of service. Well, let's correct that. They put up five channels of video; two movie channels, ESPN, a 'news service' channel, and a character generator guide channel which on occasion breaks into a children's movie or some special event. On occasion.
- 5) They publish a fancy, four color program guide which is a total overkill for their marketplace.
- 6) They occupy one entire floor in a first class neighborhood in New York City. The chief wheel there has an office that is 40 feet by 40 feet or so, and he is presently remodeling his office with new paneling. It 'appears' they have around one employee for each of their present subscribers; an unusual approach to a start-up operation!

Let's stop there for a moment and analyze what all of this really means.

Many people have pondered why USCI selected Indianapolis for a test market. I was one of those wondering people. I am still wondering.

Indianapolis is not your television deprived area. Cable is all over. MDS is there. SMATV is there; in fact it headquarters there. This is one of the hot beds of 4 GHz terminals with many big time operators moving thousands of 4 GHz terminals per month there. It is difficult to build a case for tackling Indianapolis as a test market for 12 GHz DBS unless perhaps you are a decision maker for USCI and you might have a girl friend tucked away there that you like to visit several times a month. Nonetheless, USCI has begun there.

USCI has been telling people that you MUST have a 4 or even 6 foot dish to make their pictures play. They are totally convinced that this is the truth. Naturally people believe them and if you are thinking about DBS but you can't hack a 4 to 6 foot dish, for whatever reason, you are immediately turned off by the size of the 'whopper dish.'

Well, I know some people who didn't believe that story. These people went out and put in a 2.5 foot dish near New York City, and looked at and measured the pictures from ANIK C. They did this with a pair of dishes; one of 4 foot size and one of 2.5 foot size. They found perfectly high quality pictures on the 2.5 footer even when it was raining to beat hell.

Then these people decided to go down further; to 2.0 feet in size. The pictures stayed good. These people then took this information to the guy with the 40 by 40 foot office and he tossed them out on their ear. He didn't want to hear such nonsense! He had it on good authority, from GI no less, that a four foot dish was required. "Get out

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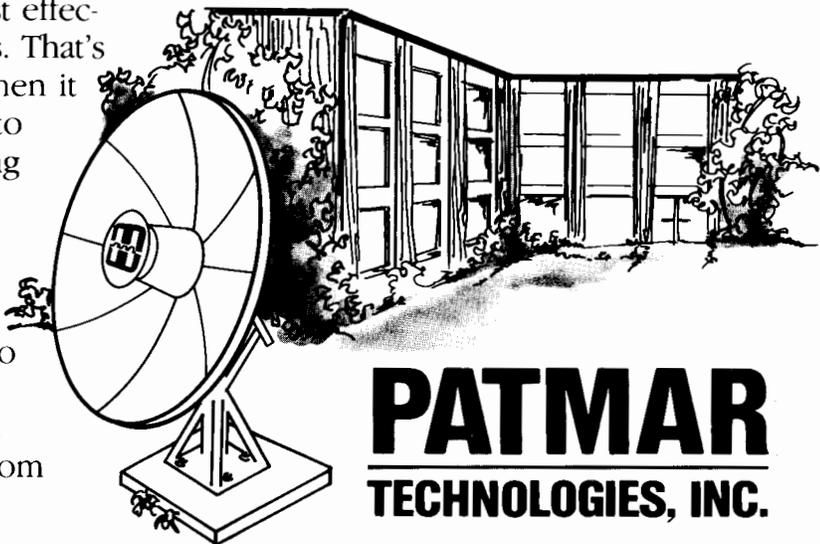
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of here with your 2 foot dishes," was the cry.

It didn't matter that by investigating the claims and finding them true the 40 by 40 footer could save his company millions of bucks; and probably double the size of his market. He had spent big bucks to be told by the best of engineers that a 4 or even 6 foot dish would be required. Two feet? "Lunatic!" The door slammed.

The five channels of video. This one is a show stopper. Straight out of Hollywood. First the two movie channels. One is trying to pretend it is HBO; all of the latest releases, just like the big time. The other one is trying to pretend it is Cinemax; "Guys and Dolls" and stuff like that. We'll come back to the way the movie channel services are packaged.

Then there is ESPN. No big deal here; it is the same ESPN we know and love on F3R, TR7. they don't seem to be bothering with the ESPN 'blackouts' but that is a minor part of a minor segment of the story. And now we have three channels.

Their 'news channel.' Originally, the head of USCI 'sealed' a deal with Ted Turner for CNN. They met, agreed to the terms, and shook hands on it. Then a person with slightly lower stature at USCI took over and totally screwed up the CNN deal. **How did he do this?** He went to Satellite News Channels (SNC) and opened his own, private, negotiations concerning SNC. He did this **AFTER** it had been announced that SNC was going to fold. Well, word got back to Turner who saw this end run as a behind the back insult and Turner then told USCI what they could do with their 'news channel.' End of CNN on USCI. Today SCI has the UPI 'text crawl' on one channel. They call this their news channel. Shades of cable TV in 1968! And now we have four operating channels.

Their 'special events channel'; this is a euphemism for 'we don't know what to put here.' They run a simplistic character generated display listing the schedule. That's bright since they are probaby spending around \$50 for each of their customers to print them a funtastic four color program guide anyhow, every month. I am told that every now and again (or should that be every again and again) USCI will slip a special movie for the kids in here just to let people know they have some button other than a character generator to push this channel.

Oh yes, their advertised price for all of this entertainment and information is \$39.95 a month. That is on top of \$300 installation fee and a contract which might run to five years or so. In other words, they want to collect \$300 plus \$39.95 x 60 for each of the 4 foot dishes plus GI electronics out there; and some programming thrown in on the side. Since the programming they are offering is worth **no more than \$10** a month, wholesale cost, at a cable TV headend, let's see how those numbers work out.

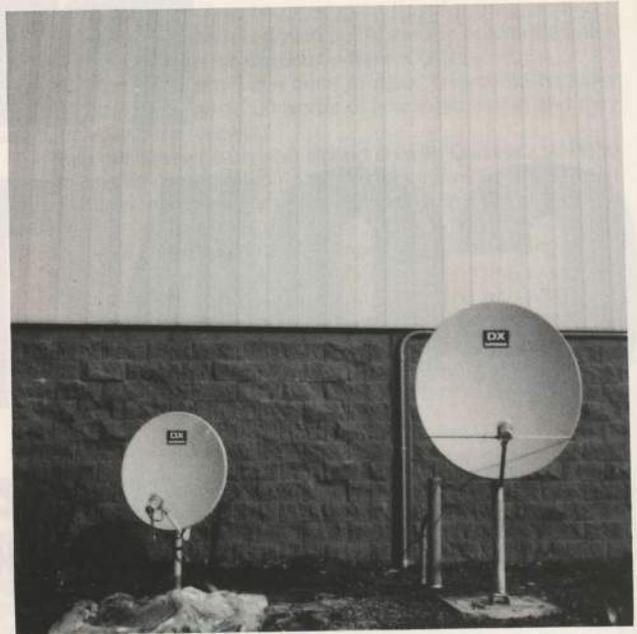
- 1) Total amount paid in 60 months = \$2697.
- 2) Cost per channel for sixty months = \$539.40.
- 3) Approximate wholesale value of two movie channels plus ESPN in sixty months = \$600.
- 4) Approximate 'gross profit' for 60 months per subscriber = \$2097 (\*).

\* — Applied against cost of equipment, cost of operations, and what is left becomes 'net' profit.

If all of this sounds a tad trite, the evidence suggests strongly that what we have here is the perfect example of people spending money like drunken sailors, acting for the world like they are running the most profitable business in the world. The word I hear in the entertainment circies is that the present top management is arrogant, unwilling to listen to anyone outside their paneled offices, self-centered and not overly bright. I am bothered by all of this since they only have around \$45,000,000 to blow before they go broke.

In fact, one source advises me that an investment company is trying to get them another \$70,000,000 to tide them over. I think that is wise; they probably need to panel another office or two and they would probably do well to issue an Easter bonus equal to their 1984 salaries.

The crime here is that USCI has a big, fat jump on Comsat and Murdoch and everyone else with 12 GHz DBS. They have a much better signal over North America than they know about, or are willing to learn about. Their marketplace with two foot dishes would be several times as large as it is with their self-imposed four foot dishes, and if they really wanted to move those four footers, they should try going south and west to see just how far out their fringe area really goes.



FOUR FOOT and 2.5 foot dish antennas, tested by DX Antenna Company at Port Chester, New York on the USCI feed revealed no need for the 'monster 4 footer.'

The next crime is that USCI has a total blindspot towards SMATV. Their two movie services are not bad, if you measure the services by the movies and specials offered. But they refuse, just flatly refuse, to talk with any SMATV folks. They would rather struggle along allowing RCA Service Company to battle with with four foot monster dishes on snow covered Indiana roofs picking up a single subscriber at a time than do the intelligent thing; which is to let the SMATV operators put in the 4 foot dishes and in the process they pick up subscribers at 50 to 500 a whack.

I have talked with quite a few MDS/SMATV folks who have **tried to talk** with USCI about making their service available to SMATV. Everyone I talked with told me the same story; identical stories which initially made me suspect collusion between the parties, except that few of them even know one another. Each told me of an arrogance of the two top guys at USCI and several used the word 'dumb' or 'dumb blind' in describing their conversations with these guys. One of the pet problems USCI presents to SMATV is that they refuse to 'divide up' their present service. They tell the SMATV guys 'you must take the full five channel service.' The SMATV guys respond that they have little demand for ESPN all over again (most have it from C band), and even less demand for a UPI news crawl and a schedule channel filled with character generator nonsense. "Take it or leave it," is the response. The SMATV people are leaving it.

With two to four foot dishes, the USCI service, less the three junk channels, is a natural for a two-channel (or ultimately three channel when they get back on line with a real news service) 'MDS In The Sky.' There are thousands of condos and small apartments and trailer parks all over the 'real' USCI coverage area that could be plugged into the USCI 'network' in a month's time; if USCI was smart enough to deal with the SMATV operators who could make this happen. Sadly, they seem more pre-occupied with repaneling offices, snubbing Ted Turner and publishing guides that rival the National Geographic than they do in making their service a success.

Naturally my observations will be dismissed as unknowledgeable, inaccurate and perhaps self serving. How could I know more about what they are doing than they themselves? Well, it wouldn't take much experience to top what is there.

The mechanics of the USCI sale and package raise further doubts about the intelligence of the present management. A viewer can



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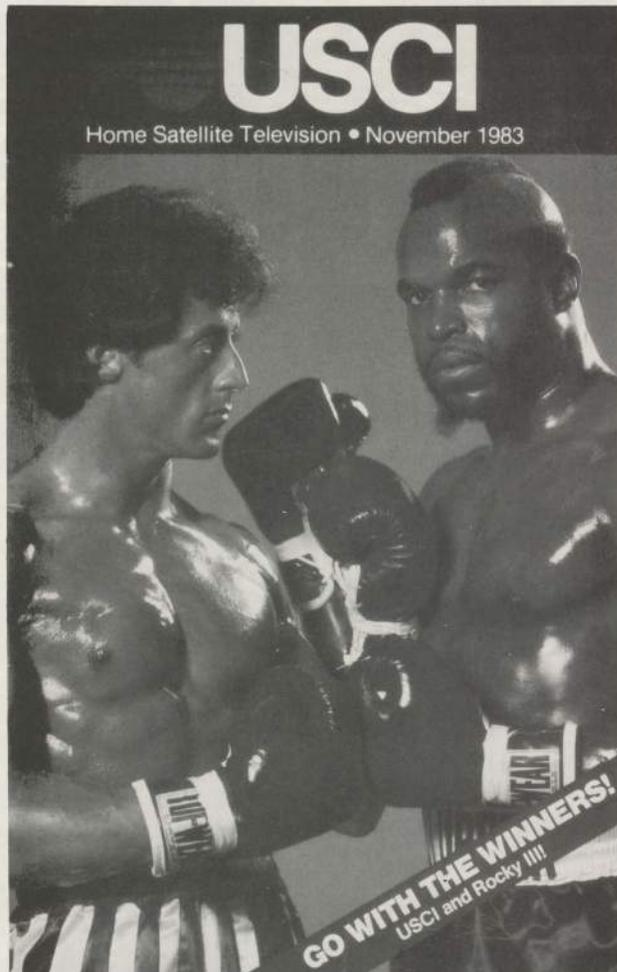
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## USCI/ continued from page 56

purchase the full 12 GHz terminal system for a price of \$750. That price reportedly includes the installation fee. If you elect to do this, you pay \$24.95 per month for the service. You have another option; you can 'lease' the package for one year by putting down \$300 and paying \$39.95 a month. The USCI package is not addressable; that is, there is no security for the system. The transmissions are not scrambled, and there is no hardware inside of the receiver which allows the transmissions, if one day scrambled, to be unscrambled. **USCI is very vague about security.** They claim they will scramble it, someday. Suppose for the interim period a person elects either plan; to outright purchase the system for \$750, or to lease for a year with an agreement to pay \$300 for the installation. Now, what happens if the buyer decides **not to pay for the service** after say one month, or, 12 months? If the signal is not scrambled and the terminal cannot be addressed, how does USCI insure that the customer continues to pay for the service? How does USCI 'cut off' those who do not pay? If the subscriber bought the terminal outright, takes the service for 30 days and then tells USCI he doesn't want it anymore, how does USCI cut him off? The answer is there is no answer. The answer also is that USCI had better be prepared to scramble with a working, addressable, scrambling system before the end of 1984 or they are in big trouble in cash flow city.

The bottom line throughout everything one sees in the USCI operation is that they do not seem to care about the bottom line. Their internal operation has all of the earmarks of being purposefully geared to spending and losing money, to missing one legitimate marketing



USCI PROGRAM GUIDE/ elaborate without reason?

opportunity after another, to almost consciously making the wrong hardware and systems and programming decisions.

USCI was put together by a fellow named Galesi. He is a real estate baron who generally gets 'high marks' for being both a good promoter and a good businessman. To make this one fly he got Prudential Insurance to drop in \$45,000,000 or so to add to his own (considerable) resources. Then he worked out some sort of sweetheart deal with General Instruments where GI is supplying the receiver packages. GI made a big deal about getting a \$600,000,000 plus 'order' from USCI for 12 GHz receiving packages. The packages are apparently not actually being built by GI; they consist of Prodelin standard 4 foot dishes, some electronics that GI farms out and not much else.

To run the operation, Galesi got a pair of guys from Hollywood to head it up. The operation is governed by a seven man board consisting of Galesi and the two Hollywood types, a pair of executives representing Prudential and another pair representing GI. On the Prudential money the operation has run amuck. **I think Galesi has lost control of what is happening.** Talk on Wall Street concerning floating another \$70,000,000 in interim financing is frightening because it looks like the guys running the show are digging in for a long siege of mis-management.

The investment community is presently very high on DBS and satellite investments. This positive attitude is good for all of us since that 'attitude' trickles down to our own bankers through the banking trade press. If my own fact finding is on the mark, it won't be very long before the first, big, effort at DBS begins getting 'bad marks' in the financial papers. Naturally the guys responsible for the fiasco are going to look to blame their mistakes on everyone but themselves. DBS, any type of DBS, and the satellite industry is going to get a black mark because of their failures. And that's not good.

Finally there is the likelihood that the USCI program is sucking Radio Shack into their fiasco. In our look at 1984 appearing in this issue, we suggest that **when Radio Shack enters the satellite TV field at any level**, it will be good for the industry as a whole because of the increased visibility RS will bring to TVRO terminals. Maybe our 1984 analysis is overly zealous on this one point; **maybe Radio Shack has found the one alliance which cannot possibly succeed** and which ultimately can do us far more damage than good. Only time will tell.

## WICHITA Battleground

We had been 'warned' that what we were doing might not be 'legal.' We went ahead and did it anyhow. Now we have done it perhaps 400,000 times or so, and we are threatening to do 'it' another 600,000 times or so during 1984. It was inevitable that 'they' would finally take 'us' to court.

The 'they' in this case are the cable firms of America. And the 'us' is you and me, the guys who are taking 6 or 10 or 15 foot dishes into the front, back and side yards of America and plugging hundreds of thousands of homes into that international satellite grid some 22,300 miles above the equator. Wichita is the location.

Big newspaper advertisements, spread throughout central Kansas newspapers offered what we have for sale. **"80 Channels Of Television/ \$29.95 per month for sixty months"** read the advertisement headlines. The fine print said that if you could come up with \$570 down, **Starlink Communications** of Derby (Wichita) would come to your home and install a satellite TV system in your yard. Competitors in the TVRO business reacted with their own financing and monthly payment programs (see **J&J Pattern** advertisement page 64 here). The TVRO marketing world had moved into the big time, offering easy-to-handle credit-purchase TVRO systems to America. And America loved it. Well, most of America loved it. The exceptions in this case were a couple of stick-in-the-muds called Air Capital Cable Corporation, and Multimedia Cablevision, Inc. They operate extensive cable TV systems in the greater Wichita area and their muscle includes ownership of a half dozen television stations, 12 radio stations, some 25 newspapers, one of the largest regional concentrations of cable TV systems, and, they produce the 'Donahue' show.

These 'little' guys claim they are suffering irreparable (if, indeed, not irreparable) harm because a littler guy named **Jeffrey Manion** is running around central Kansas offering to stick an 8 foot dish in your yard for \$29.95 a month. It is the classic case of Davey and Goliath.

We are Davey.

**Manion knows how to sell TVROs.** He has an equipment package and a marketing plan that works. He is not the only one who knows how, of course, but Manion happens to be located in Air Capital's backyard and they are tired of seeing his 8 foot dishes popping up on suburban streets. Air Capital claims, among 18 total charges, that Starlink is selling TVRO terminals to 'their customers' and as a result of this action 'their customers' are having cable service disconnected. Air Capital worries that Starlink is starting to be so successful doing all of this that their entire corporate structure is threatened by two guys named Manion and one named Lanham. And so they have brought a 'Monster Lawsuit' against Starlink and its owners and they allege in 18 causes for action that Starlink must be stopped, quickly, before any greater damage is done to 'their' market.

Air Capital/ Multimedia is obviously no lightweight. Conservatively, their capital resources come very close to approximating the capital resources of our entire industry. They have engaged a pair of legal firms to represent them; a pair of firms which rate at the very top of the legal profession. Their 22 page Civil Action filed in the United States District Court for the District of Kansas is extremely well researched, carefully documented, and straight on the target they perceive. The bottom line first.

**If Air Capital/ Multimedia wins this suit, every dealer in the United States will be out of business the next day. That's no hype. This is the BIG one we have all been expecting for years.**

Starlink, wisely, is a member of SPACE. It is likely, given the unhappy consequences of this case going 'down' against us, that even if they had not been a SPACE member that their plight would have attracted the SPACE legal folks anyhow. SPACE, plainly, is very worried, and well they (and we all) should be. SPACE acted promptly, dispatching a pair of lawyers including Rick Brown, to Wichita to survey the situation and to engage local, Wichita counsel. Finding counsel, to adequately defend Starlink, was not a big deal; this case has all of the earmarks of going a long, long ways; probably to the Supreme Court of the land before it is over. Lawyers like to be a part of the big time stuff; this is big time stuff.

Air Capital starts off by charging that Starlink is 'illegally receiving, in a public forum, a wide range of private microwave delivered (satellite) program sources.' Or to be more specific, it is charged that when you operate a retail store (selling TVROs) and you have a display in your showroom of satellite reception (i.e. one or more TV sets or monitors operating), **you are violating various laws.** If that sounds strange to you, some background may clear it up.

Way back (way-way back) in 1975 or so, the first satellite TV reception we ever saw was from ANIK and Scientific Atlanta and Hughes were operating the down link at a California cable show; the lawyers had a ball. First of all, this first-ever showing was a 'private transmission'; originated in Washington and received in California. But this 'private' showing was going to be seen in a public forum. All sorts of special permits were required.

In 1976 and 1977, as the cable industry climbed aboard the satellite TV bandwagon, we began to see satellite TV terminals displaying at cable shows (the cable industry, believe it or not, actually has more shows per year than we do!). The people demonstrating in their booths and in the parking lots, S-A, Microdyne, Microwave Associates and so on, were concerned that they were violating the law. The law, Section 605 to be specific, states that satellite transmissions are 'private,' that they are not intended for members of the public. It has been feared that a court of law might interpret 'demonstrations in a public place' as a 'public performance' of private works; works which Section 605 singles out and works which the U.S. Copyright law singles out as 'private.'

When this writer obtained the only FCC license apparently ever granted for a private TVRO (1978) to be used on a 'public basis,' we very specifically spelled out in our application that we intended to use the license to demonstrate TVRO reception in public places. The Commission granted us that license contingent upon our obtaining the necessary written approvals from the various satellite program suppliers that we would be 'tuning in.'

Air Capital charges that Starlink has no such license, no such permission, and when they allow you into their (public) showrooms to show off how a TVRO works, they are engaging in public display of a

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private works; and further, that display is being conducted without the owner's permission (i.e. HBO et al). The Air Capital suit lists a long group of program suppliers which it alleges have had their private programming rights 'violated' by Starlink.

There is more. Air Capital also charges that Starlink is "... willfully selling, renting and otherwise distributing dishes to customers with the knowledge and intent that the dishes will be used to engage in public performances . . . without authorization of the copyright owners or authorized agents or licenses."

That means? It means that Air Capital suggests that when you sell (or rent) a TVRO, you are an accomplice to a 'crime'; that the dish you sell or install is (with your knowledge) going to be used for 'illegal reception' and that you are 'guilty' of aiding and abetting a 'crime.' Serious stuff.

And Air Capital is just warming up (there are 18 different 'charges' in the suit, in all). They allege that there are contracts between themselves and the various program suppliers (HBO et al) and that these contracts grant to Air Capital certain 'exclusive' rights in the Wichita area. The dishes, which allow reception of the same programs without benefit of contract, are violating their exclusive 'rights'; or so they claim. Air Capital alleges that **their** subscribers are buying dishes, disconnecting **their** cable connection, **and that is costing Air Capital lost revenues.** Air Capital also alleges that when subscribers to cable buy terminals and disconnect, the 'city franchising authority' loses revenues since all revenues paid to the city are based upon revenues received by the cable company. In effect, Air Capital wants to 'suck' the City (of Wichita) into the case as well.

**This is the first suit** brought against a TVRO dealer alleging that the mere demonstration of satellite signals is a violation of law.

**This is the first suit** brought against a TVRO dealer alleging that the sale of satellite TV equipment is a violation of law.

**This is the first suit** to allege that an individual homeowner, the user of a TVRO, violates both Section 605 and copyright law by using the terminal.

Air Capital wants \$1,000,000 in damages, or, \$50,000 'per infringement of the law' for **EACH** of the 18 alleged violation categories. We are talking big dollars here, for Starlink, if Air Capital prevails. Tens of millions of dollars in damages.

SPACE reacted swiftly. In addition to dispatching the attorneys to Wichita, the SPACE board approved the emergency implementation of the monies to cover the initial costs of defending Starlink. SPACE also rushed into print in Wichita area newspapers public statements which attempted to cool down the Wichita area market. As you can imagine, TVRO sales would drop off very rapidly when the announcement is made that people who sell **OR** use TVROs are being charged with 18 charges that carry millions of dollars in damages. By going to the newspapers with (paid) advertisements setting forth the SPACE side of the story (including an FCC statement that TVROs are not illegal, quotes from various Washington officials about the benefits of home TVROs, etc.), the trade association hoped to salvage the Wichita and Kansas market for the dealers. Kansas has long been a 'good' TVRO marketplace; former SPACE Chairman-of-the-Board Bud Ross's Birdview is close to Wichita and that brought the depressed market 'close to home' for the SPACE upper echelon.

The Wichita action aside, there is a legitimate fear that the cable industry will 'wall paper' the US press with reports on this case. Any publicity the case receives will be 'negative' for the TVRO industry, and that will cause 'bubbles' in the distribution of equipment for quite some time.

My view is that this case, considering the lengthy document filed in the District Court, and substantial resources of the plaintiffs, has all of the earmarks of being a 'Disney/Beta' confrontation. You may recall that a group of Hollywood film producers led by Disney brought suit several years ago against Sony (Beta) and others for building a machine (the home VCR) which had the capability of violating the Disney interpretation of the US copyright laws. **This landmark case** is presently before the US Supreme Court and it has been running (on legal calendars) for more than five years now. When the suit was filed, the TV networks and others gave it plenty of publicity. Sales for VCRs slowed, almost halted, and then began back up again as the market

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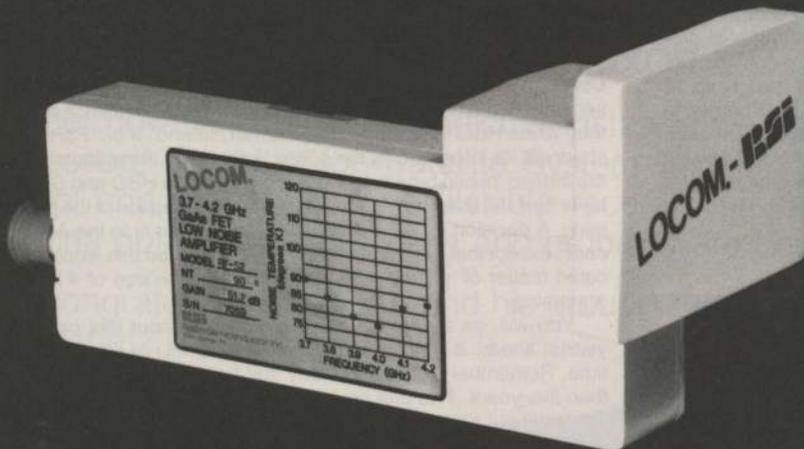


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'adjusted.' All of the instruction books issued by Sony and others quickly adopted certain language 'warning' VCR users that certain types of recording 'might' be in violation of existing copyright laws. Like the warning on cigarette packs, it did affect some consumers.

It will take another month or more for both sides in this case to seek their 'level.' During this present period charges will fly, trade press will dig into the allegations, and some of what is spoken about and written about will find its way into the general media. There will be secondary knee-jerk reactions. Perhaps, **just as an example**, the recently conducted tests by Montgomery Ward in the midwest (including Kansas) with Winegard will be halted (the two firms have been test marketing 8 foot TVROs at 150 Wards stores). Big corporations, such as our Wards example, are going to 'knee jerk' react when they think they see some short or long term legal liabilities associated with a (new) product area such as TVROs. Others, **RCA for example**, planning massive entry into the home TVRO marketplace over the next 12 to 18 months, might react by shifting the TVRO project to the back burner, to await some settling of this issue. In short, the mere **filing** of a substantial case such as this is going to have ripple effects on the industry we now know, and the industry that might be in 1984 and beyond, for some time to come.

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There are other dangers as well. The cable industry is exceedingly well organized. And while the Air Capital case may be isolated, and an example of a 'big-boy' cable operator going-it alone, there is some evidence to suggest that similar suits are being prepared and will be filed in other 'US District Courts' throughout the USA. A torrent of such cases, filed throughout the USA, would certainly tax the legal defense resources of our industry and stretch our legal abilities.

There are some unusual ramifications to the suit. Notice that the suit has been brought by a cable **operator**, not a program owner. **HBO is not a plaintiff**. We all are aware that HBO is in the process of attempting to create a 4 GHz 'DBS' service over on Galaxy. A suit such as this, if Air Capital prevails, will benefit HBO because if a court rules (or if there is **the threat** that a court might rule) home reception of the existing 4 GHz services is illegal because the users do not have the permission of the program suppliers, an HBO program created specifically for home TVRO viewers would suddenly become very 'market-attractive' to the stunned TVRO industry. If a court knocked us 'out' with the present services, and the 9 channel HBO created package on Galaxy was one of the few remaining 'legal' program services around, HBO would be in the driver's seat.

This issue of **CSD** contains a lengthy report relating on a recent Canadian high court decision dealing with TVROs. **Barrister Mark Lewis**, in preparing the report published in this issue, zeroes in on one segment of the presiding judge's decision. The Canadian judge finds that while HBO and Showtime did not 'intend' their F3R service channels for 'reception by the public,' in his view those transmissions are indeed 'public broadcasting' simply because HBO and Showtime have (to date) done nothing to prevent home reception of the programming. A decision by a Canadian court is not relevant to the Air Capital case, except that it provides another legal view on this whole complicated matter of 'private' versus 'public' transmission of 4 GHz programming.

You will, as a dealer, hear a great deal about this case in the year(s) ahead. It is not a traffic summons; it will not dissolve in short time. Remember the Disney/Sony suit has been dragging on more than five years. This one could too. Also remember that the Disney/Sony suit put a severe crimp in the sale of VCRs for a period of time, and then as everyone sought their respective 'levels' the business picked back up again. If we see massive, national publicity for this case over the next several months, we can expect our own sales to drop and business to slow.

As a dealer, you will be called upon to defend your continued business activities in the face of this suit. You will be called upon to explain how you can continue to sell TVROs, or demonstrate TVRO reception in your store, when such a suit is underway. Here are the answers.

- 1) **Regulation** of all matters relating to communications in the United States is handled by the Federal Communications Commission. Congress has delegated this responsibility to the FCC. The FCC is on record as ruling that manufacture, sale, demonstration or ownership and use of a TVRO is not illegal.
- 2) **The Wichita suit** is the result of competition; a TVRO dealer there has been so successful in selling his product that some of the cable system subscribers in the area have discontinued cable in favor of owning a TVRO. The cable operator, apparently unable to compete in the marketplace with the TVRO dealer, is seeking a court decision to improve the cable firm's competitive position.
- 3) **Viewing in a private home**, of a privately owned TVRO, has never been ruled illegal; and, in fact, the Wichita suit is against a TVRO **dealer**, not a TVRO **viewer**, further amplifying the position that this suit is motivated for competitive reasons, not 'statutory' reasons.

Keep us advised of how this impacts on you, and we'll keep you up to date as the case progresses.

**SRI LANKA/ continued from page 5**

of November 16th and morning of November 17th. After months of planning, we were booked on a Pan American 'Around The World' trip package which would take us from San Francisco to Tokyo (11 hours scheduled), subsequently from Tokyo to Hong Kong (4.5 hours scheduled), then from Hong Kong to Bombay, India via Bangkok, Thailand (8.5 hours scheduled). From Bombay we would fly to Madras (India) or directly to Sri Lanka. There we would be joined by nine additional participants who would be arriving directly in Sri Lanka from points such as Nepal, Tokyo, Miami, New York City and Omaha. After a six day stay in Sri Lanka, the group would go back to approximately 20 in size and return to Bombay, India where we were to catch a 15.5 hour

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flight to London, England via intermediate stops in the United Arab Emirates and Frankfurt, Germany. Finally, after a brief stay in London, each would return to the USA and the city from whence they came. It all seemed quite straightforward, reasonably simple, and after much bartering with Pan Am and various support groups, surprisingly inexpensive considering we would average 60 to 64 hours in 747 type aircraft as "guests" of Pan Am, plus spend 19 nights and 18 days on the road sleeping in nice places and eating good food. And since very few people actually travel around the complete world, in one trip, there was just a tad of class attached to the act!

Between the initial announcement of the trip (February 1983 issue of CSD) and the departure date, it quickly became evident that many equipment suppliers in the industry were anxious to have their equipment installed at Clarke's home. Since the suburban style home would only support one 'large' antenna, and within reason only a couple of satellite receivers were required at the home of Clarke, we arranged with Clarke for the new Sri Lanka technical college, the **University of Moratuwa**, to benefit from the 'extra' or added equipment. It turned out that some years ago the University had recognized the wisdom of naming a new section of the University after Arthur C. Clarke; the **Arthur C. Clarke Centre For Modern Technologies**. The University had also recognized the wisdom of naming Clarke as Chancellor of the University, a post he obviously relishes but equally dismisses as a 'figurehead post.'

And so a 16 foot **Paraclipse** antenna (the second in the world; the first went to NASA at Cape Kennedy) would be installed on the patio deck of Clarke's Barnes Place home. A twenty-five foot (7.5 meter) **Hero Super Tenna** would be installed in the front yard of the new Arthur C. Clarke Centre while an **ADM 20 foot** (6.0 meter) would go in atop the third floor of the University's Electrical Engineering department. All of the equipment was donated to Clarke/the University and with the trio of **AVCOM** international grade receivers, an **Intersat** international grade receiver, a **Maspro/USS** receiver and a variety of support units including an **SCPC** grade receiver from **Hero**, racks of power conversion and stabilizing equipment and a wide range of motor drives and accessories the total value of the donated equip-

ment, installed, exceeded \$100,000 US. Add to that the normally charged time and expenses of the contingent traveling to Sri Lanka to make the three terminals go together and play, and the value-benefit to the University of Moratuwa and Clarke was considerably more than the \$100,000 figure.

The original spark for all of this was simply the wish to accord Clarke recognition for his creative genius. As the project grew, and as the correspondence and telephone calls criss-crossed back and forth over 50% of the world's globe, it became apparent that the new Arthur C. Clarke Centre at the University of Moratuwa was perhaps an even more deserving recipient for the donated equipment and technology than Clarke himself.

When Clarke received the Marconi Award in 1982, he turned around and gave \$25,000 from the award to the University. That started the University moving to build the long-on-paper Arthur C. Clarke Centre. When the center began to rise out of the ground, more funds were donated and before long the University had a worldwide campaign underway to bootstrap itself into the 21st century. Out of the University, in the next decade, will come thousands of four and five year trained engineers who will be badly needed not only in Sri Lanka and India and throughout the Indian Ocean region, but throughout the Pacific and Middle East as well. Clarke's vision, never limited to narrow confines, was creating a structure for an important 'Third World' school designed to turn out the kind of working technologies which the developing nations of that region of the world needed most. And with the infusion of American satellite hardware, and the infusion of American and Canadian technology, the University would also boast one of the best equipped 'Satellite Engineering Training Courses' outside of the United States. All of those participating could not help but feel the pride, the enthusiasm and the desire to learn that we found ourselves surrounded with as we worked those six days in Sri Lanka.

But, alas, I am getting ahead of the story.

By careful planning and Pan Am scheduling, our first 'long leg' to Tokyo was scheduled to have us arrive in the Narita airport one day and approximately four hours after departing San Francisco. We 'lost'

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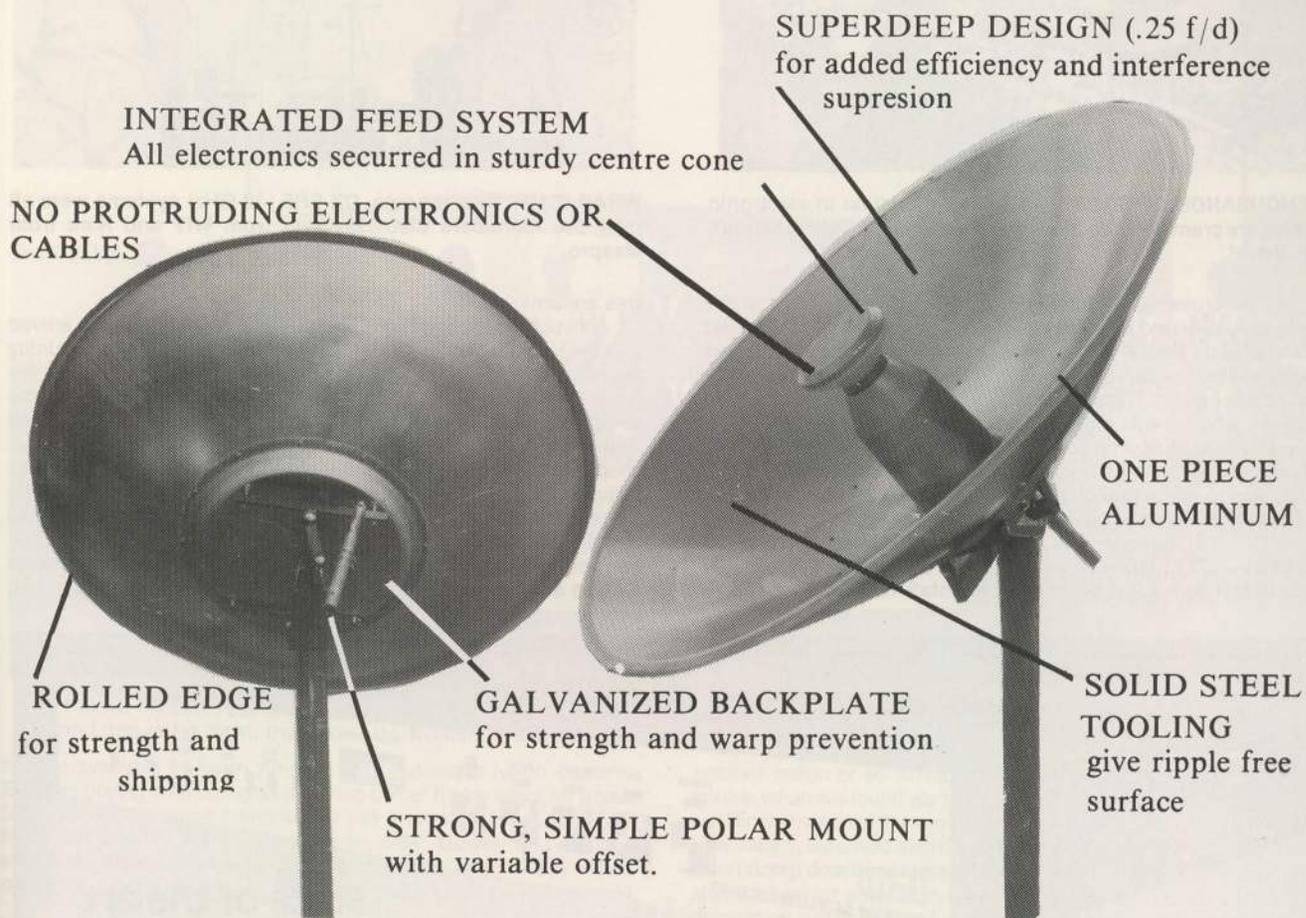
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the day by crossing the International dateline someplace off the coasts of Alaska and Siberia. We found Japanese immigration and custom officials kind, if somewhat slow, and a weary group tumbled into the waiting tour bus at 1AM (San Francisco time) heading for the Grand Palace Hotel. Those who had come to San Francisco from the east coast, where it was now 4AM, were beginning to feel the pangs associated with rapid time zone crossings and sitting through nearly 12 hours of 747 flight time. It was an adjustment each in the group would have to adapt to repeatedly over the next 20 days or so.

The Grand Palace Hotel is worthy of its name, and, surprise; there on the TV set in the room was a special English Language channel operated by JCTV; Japan Cable Television. Say, what is this??? **CNN in our hotel room 9,000 miles from Atlanta?** You bet! Those satel-



**WRAP IT UP/** Take it home. DX SHF (12 GHz) systems were all over the Akihabara district. Kevin from WIV and Nick from Maspro.

lites are amazing.

Although we left San Francisco on Thursday afternoon, we arrived with the loss of a day at the dateline Friday evening. When Saturday morning dawned the group split into a pair of sexist divisions; the females went shopping in one direction while the males, with the assistance of a representative from Maspro, headed for the famed **Akihabara** district. This is where literally thousands of small electronic shops are shoved together in a several square block area. It is just like dying and going to an electronics heaven. Anything in the world, made with electronics inside, can be bought here. For less. Although we had only three hours to shop at our first outing, we managed to split up and see perhaps 10% of the shops in the amazing district. ADM's **Jamie Gowen** and **Ed Randall** started something by locating a brand new,



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**OFFICIAL Uniden Tour group photo at the Uniden plant. That's Mr. Fujimoto between Kevin and I (center, front row) and Uniden's John Lane at far right, front row. Dr. Konishi is between Frank Ogden and I in front row.**

not yet available in North America fully automatic Nikon camera. Selfishly buying both cameras the shop owner had in stock for about 50% of what the same cameras will sell for in the USA, when they finally become available sometime in 1984, Gowen and Randall started the famous 'Sri Lanka Camera Shoot Out' which finally ended only after other members of the group had located and purchased



**AMERICANS/ left; Japanese right. Mr. H. Fujimoto, President of Uniden welcomes Roy Orvis of Dryden, Ontario to the Uniden plant in the suburbs of Tokyo during the TVRO industry group tour.**

another dozen or so similar model cameras. We knew we were in trouble when we found we had shot 40 rolls of 36 exposure film with our Ricoh version of the same camera about half way through the trip. Fortunately, we would also discover another Far Eastern innovation in Hong Kong; dozens of street corner located one hour film processing shops where for about 60% of what you pay in the US for 8 or 24 hour developing you have your full rolls back in 4 by 6 print form 60 minutes after dropping the film off. Almost as good as videotape!

At 1PM we were ready to be picked up at the Grand Palace by a special bus sent to get us from the **Uniden Corporation**. Uniden is located about 45 minutes drive from downtown Tokyo in an industrial suburb called Ichikawa City. The group had been invited to tour Uniden, to meet with **Dr. Konishi**, the recently appointed President of **Uniden Satellite Technology** and the former director of research and development for NHK; the Japanese national television network. As recounted in our 1984 report starting on page 8 of this issue of **CSD**, Uniden is in the process of entering the 4 GHz receiver world with a 'frightening array' of technology and resources. They had not only invited us to tour their plant and meet with all of their top engineering and management people, they were also hosting a special reception for us at the **Hotel Okura** that evening. We found the Ichikawa City facility clean and modern, and dedicated to high level engineering development, some exciting UHF band two-way radio products, marketing and sales. Uniden has more than 4,000 employees in specialized plants located in Taiwan and Hong Kong and their market is worldwide. After the traditional group photograph (you can tell the tour group; we were the folks dressed like we were going to a Saturday college football game!) and tour we had a few minutes to talk with the

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SRI LANKA/ continued from page 69

engineers working on their 4 GHz project. Atop the building, installed only the day prior to our arrival, was a popular American (Prodelin) fiberglass dish. We wished them well with the dish since all the way to the plant we had marveled at the hundreds (literally) of 3, 4 and 5 GHz terrestrial dishes we saw. Getting a signal down from the sky in that environment would be the ultimate test of Glyn Bostick's (Microwave Filter Company) abilities!

Late in the afternoon we reboarded the Uniden bus and took a short drive to the Tozai-Line subway station. Because rush hour traffic in Tokyo is sufficient to make the initial 30 minute trip to Uniden turn into a 90 minute return, and we had big 'evening plans,' Uniden turned us loose in the subway along with a group of Uniden junior executives (male and female no less) who served the function of insuring that we got back to the Grand Palace without mishap. The Tokyo subway system is a marvel; you don't see any graffiti, litter, dirt or messes. No drunks. No unruly crowds. You can go anywhere in Tokyo in the subway and it is an enjoyable trip.

"At tonight's reception, we would like you to make a few remarks in response to our welcome." Tom Kawada was briefing me on what was expected of the group for the evening. "Can you write out your remarks for me so we can translate them to Japanese before time? I will then translate after you for the non-English speaking people." So I sat in the subway and wrote three pages of remarks. A trio of Uniden staffers went to work translating them to Japanese before we reached the Grand Palace.

Those who know me well are aware that I never wear a tie, my sandals are replaced with socks and real shoes that lace up only



**SUBWAY TRAVELERS/** Utah's Lyman, Minnesota's Dehnert criss-crossing under Tokyo.

under duress and a suit or sport jacket is unheard of; sheer lunacy. I had been warned of the 'high social level' of the reception, by Uniden, before we left the states and thus broke all tradition and actually bought a shirt and tie to match plus a sport jacket. The first time in five years of the TVRO industry.

It was the wise thing to do as you can see here. The Uniden reception at the South Wing of Hotel Okura had presidential class. The Okura, I understand, is the number three rated hotel in the world. I was



**WATCH THOSE EYEBALLS ROY/** Roy Orvis, a pair of hostesses, Brent Gale, Kevin Cooper, and a third hostess. The ratios were good; 1 to 1.



**HAPPY COATS** make happy people!

amused to learn that this annual, traditional, hotel rating program hasn't had an American hotel in the top 10 for several decades. Elegant would be a badly underrated word in this instance. When the Uniden bus deposited us at the entrance to the Okura, we were whisked to an ante room where a staff of Japanese hostesses had their instructions. Each of us was outfitted with a special Uniden 'Happy Coat' for the party. Doug Dehnert of USS told me this was both an honor and a way of 'marking' the guests of honor from the milling throng inside. We were royally greeted, introduced to various dignitaries from Japanese banking, the communications industry, the electronic manufacturing industry and the government. More than 200 in all. And the food. There were 'stalls' set up around the perimeter of the room, each featuring different Japanese delicacies. The center of the room was dominated by the largest ice carving I have seen outside of the olympics; two gigantic swans on either end as 'book ends' with 'UST' carved into ice in the center. And more food; more food than an army of 2,000 could have consumed after a forced five day march! Traditionally garbed Japanese hostesses, and some not so traditionally attired hovered nearby ready to bring you more food and drink. A round of speeches by the likes of Dr. Konishi, **Mr. Fujimoto**, **Mr. T. Amishima** (head of the Japanese FCC) and others. And my prepared remarks thanking them for the hospitality and welcoming the Japanese in general and the Uniden folks in particular to the 4 GHz technology world.

And fun time. The traditional Sake Barrel Opening Ceremony. Sake is a Japanese rice wine and it is traditional at an event such as this for the guest of honor and a local representative to take oversized wooden mallets and on cue both swing at the barrel to cause the top of



**THERE IT FLIES!** Sake barrel lid (center) flies loose and heads into orbit.



**UNIDEN UST-1000** (top) is firm's low-cost 4 GHz receiver entry; **model UST-3000** (below) is 'step-up' model. Coming is the **UST-5000** top of the line receiver with infra-red controls.

the barrel to fly loose. Sort of a 'swing the bottle a the bow of the ship' exercise in reverse. A **Mr. Wakai** and I were given instructions (actually Wakai probably knew what to expect; I certainly did not and David Johnson warned me to watch out for the Japanese lady that would pop out of the barrel right after the top flew loose!) and we swung in unison. The top flew loose and floated across the dias. Then using some traditional wooden, square Sake Cups we all sampled the wine. Some of us did more than sample it.

**Uniden was a ball.** We learned a great deal about where they had come from and where they were headed and the reception was even televised by the NHK network. Our first day of the tour would be hard to top, or so we thought.

While the old folks did the wise thing and retired, a sizeable (male) contingent from our group accepted an invitation after the reception to go with Kawada to a nightclub. When Jamie Gowen, Ed Randall (ADM), **Brent Gale** (Echosphere), **Henri Guerin** (Santa Fe Satellite) and **David Lyman** (Utah) got to the nightclub the entire place rose on their feet to greet the American delegation with thunderous applause. "I had the best time of my life," remembered Randall the next morning; "there was nothing, absolutely nothing which we didn't see or do that night." Including a Japanese lady with no teeth who had a most unusual talent.

Leaving the Grand Palace on Sunday to Nagoya, the group rode the fabled Japanese Bullet Train. The large speed indication dial told us we were breaking 200 kilometers per hour in the straight stretches as we raced across Japan to the southwest. I have never seen so many cable TV systems as we saw after leaving Tokyo proper. Every village and town had cable; lots of cable. The Japanese are unusually 'mum' about the statistics of cable in Japan. They 'admit' that ten percent of the homes are connected to cable, but characterize these systems as 'rural' in nature and refer to them as 'Mom and Pop' systems. I suspect their admission is deliberately understated since in the two hour ride to Nagoya I saw no towns without cable on every street we zipped by. If the Japanese cable systems are owned by small entrepreneurs as they claim, there is a tremendous opportunity here for some Japanese communications conglomerate to go around buying up the systems and turning them into an ATC package. My perception of the high penetration of cable in Japan was strengthened by our observations at the Maspro plant; in addition to building the USS satellite receivers, Maspro looks like a Jerrold or Blonder Tongue

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with huge warehouses filled with finished off-air TV antennas, signal splitters, signal amplifiers and traditional cable trunk and bridger units.

While Susan and I, Polly and Doug Dehnert went to a private strategy mapping dinner meeting with **Mr. Hashiyama**, the owner and President of Maspro, the rest of the crowd discovered the wonders of Nagoya. Immediately below our hotel was a small corner of the "World's Largest Underground Shopping Center." Can you even imagine an underground shopping center so huge that it is a world totally to itself, covering 40 square blocks with nothing but pristine-clean shops and walkways? Since shopping had become a fetish for all of the group at this point discovery of the shopping center immediately below the hotel was like David Johnson falling into the Sake Barrel at Uniden; close to pure heaven. The Japanese people are the most gracious, hospitable and 'sane' people any of us had ever met. Example. My 11 year old daughter Tasha, with something of an iron will, threw caution to the winds and headed straight into the inner sanctums of the shopping center. It took her about an hour to realize that she was hopelessly lost in the maze of walkways and shops. But she was already 'trip-savvy' having learned that the first thing you do when you check into a new and strange hotel is stick one of the abundant match books with the hotel's name on it into your pocket or purse. Brazenly, she walked up to the nearest Japanese person and showed him the match book cover. Somehow the guy got the idea he had another lost American on his hands and patiently he walked her back the 20 minutes to the doorstep to the hotel. He refused any 'yen' for the task and graciously thanked her for the 'honor' of accompanying her back to the hotel. Pretty neat.

Meanwhile the Dehnerts and senior Coopers were locked in mortal combat with Mr. Hashiyama. "**He is a lover of high quality steaks,**" Doug had warned. And we were led by this unusually bright and active man through a network of back Nagoya streets and alleyways to an obscure Japanese steak house. When we entered, the whole place came unglued as if Mr. Hashiyama was President Reagan. To say they were pleased to see him was an understatement.

Our host ordered the steaks. The largest, best steaks, I have ever seen or attempted to consume in my life. Now Mr. Hashiyama is about average size for a Japanese man, but considerably shorter than I. I watched in utter amazement as he consumed steak after steak, several baked potatoes, a round of salads and a massive plate of goodies before I even got half way through my own steak.

"**Do you like Oysters?**", he asked. This seemed like a harmless question at the time since nobody but Hashiyama had even found the bottom of their steak plate. I thought the question was in the same league as "Do you like the Dodgers"? Dehnert knew better since he'd dined with Hashiyama before.

The next thing I knew the table was covered with oysters. Dozens and dozens and dozens of oysters. Raw oysters in the half shell. Hashiyama immediately consumed a couple of dozen which naturally provoked a comment from me that I had never seen anyone (or ten anyone) consume that many oysters in one brief (perhaps four minute) sitting before. He smiled and beckoned to the hovering head waiter.

"**What is my record?**", he asked of the man. Some haggling in Japanese and then in pointed English the man told me. "**Mr. Hashiyama once sat in this very seat and ate 48 oysters in five minutes.**" Hashiyama beamed. I glanced at Susan and Polly who had been unusually quiet through all of this. One had two empty half shells and the other had three. Neither had made a dent in the plate full.

"**Susan, you are ahead of me by one oyster,**" giggled Polly Dehnert. Susan was wrestling with something in her mouth at the time and graciously answered Polly in sign language, indicating that two of her empty shell's contents were in her stomach. The location of the third oyster was lost in translation. Minutes later Polly figured out what Susan had been trying to tell her; the oyster, the raw oyster which an unskilled western stomach might rebel against, had taken up residence in a linen napkin in her lap. It simply would not go down!

Not to worry. The uneaten, stiff shell lodged oysters would go into a 'doggy bag' and return home with Hashiyama for a midnight snack. We then followed Hashiyama to his parked car for a trip to his home. Hashiyama is a very unusual man. He is a cross between **Ike Blonder**

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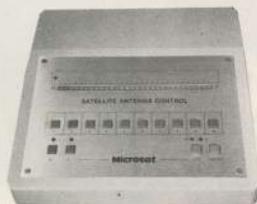
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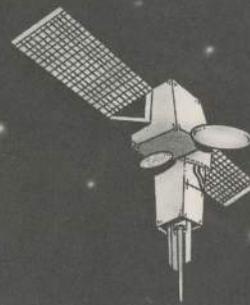
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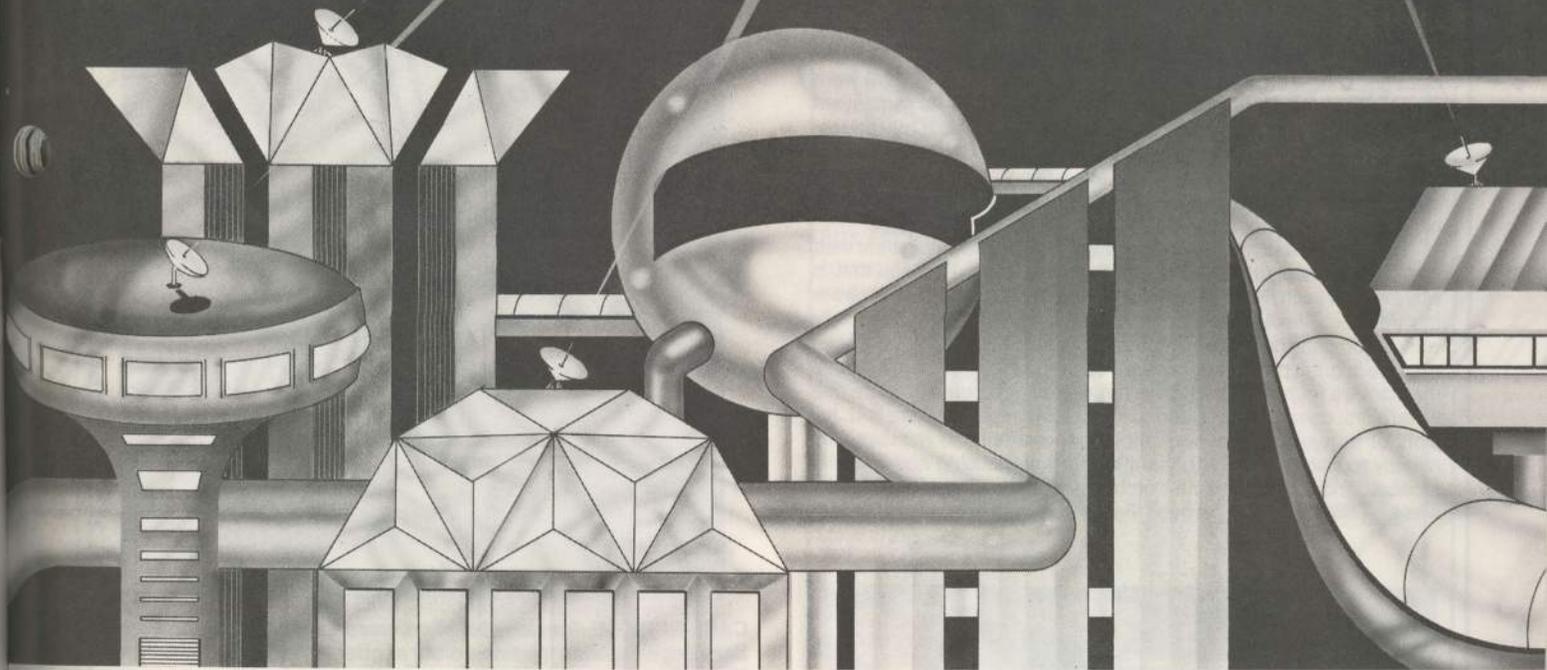




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**T. Hashiyama, founder and President of Maspro (right) and Coop discuss the firm's huge antenna test range on the roof above them.**

of Blonder Tongue and **Howard Hughes**; wherever Howard is these days. Hashiyama is a bit eccentric, an admitted 'Playboy' who dragged out a pile of photograph albums to show off his photography skills during a tour of South America some years ago. He likes pretty girls and his photographic tour of South America suggested he only missed one or two of the thousands there. His wife and daughter served us a second Japanese feast and we talked about satellites, electronics, how he started Maspro in a 'loft' 30 years ago. We were sitting in the home of one of Japan's most successful, and flamboyant electronic industry businessmen and we knew it. It was a real education, especially for Susan and Polly who discovered that not all toilets are created equal, in Japan. They are writing a book on how you escape from a Japanese bathroom after you push the wrong buttons by mistake; watch for it at your local health food store.

The Maspro tour started off on a bus. Now the Japanese treat their employees entirely differently than the Americans. Perhaps that is why they are such fierce competitors in the world market. First there is the 'traditional' fleet of buses. Employees are given a ride to and from work in company buses. Each company has at least one 'VIP Bus' and we rode in great comfort (television, bar, etc.) to the Maspro plant. At the plant we toured their antenna range testing program system (the world's first computer operated antenna test range, we were told; full plots of an antenna's performance, automatically, in minutes with nobody touching anything!), the massive warehousing and R and D facilities, and Mr. Hashiyama's orchid greenhouse. I said Hashiyama was a bit different. He is perhaps the top cultivator of orchids in Japan,



**UTAH'S DAVID LYMAN (right) studies Maspro technician performing final check out on an USS/Maspro 4 GHz receiver in the Nagoya plant.**

perhaps in the world. It started out as a hobby (roses, actually, first) that has gone amuck. There are \$400 orchids and \$4000 orchids and \$40,000 orchids and so on all over massive greenhouses at two locations; his home and the plant. He is a fierce competitor for 'best of show' awards at orchid competitions all over the world. This may seem interesting but not important in satellite electronics. It is important however because in Japan you need to take 'measure of the man' to evaluate properly how stiff he might be as a competitor. Maspro, through USS, has been an interesting sidelight to the US satellite scene for about 18 months. But not a major competitor.

Hashiyama is a patient, methodical man. Anyone who will patiently wait for four years to see how a new orchid variety will mature is patient. Anyone who can look ahead five to seven years to plan new cross-cultivation programs for orchid varieties yet not created is



**CARL GRINDLE, President of Microwave Specialty Corporation, San Diego explains the fine points of offset-fed Ku dish to fellow North American tour participants in Maspro plant.**

methodical. Maspro has the same approach to the C (and Ku) band TVRO industry. Careful planning, very detailed engineering, and plenty of patience. When the market is ready, Maspro will be ready. It is just that simple.

Well, almost that simple. Hashiyama has what must routinely be described as unlimited resources. I would not even attempt to estimate the wealth of the man. It is so substantial, however, that virtually nothing in this world is out of his reach. Given those kinds of resources, and given the **proper competitive situation**, he could and would turn the TVRO world upside down by snapping his fingers. Intriguing.

Back in Tokyo that (Monday) evening we ended up in sub groups having a last look at the city. Utah's Lyman was incensed about missing the delightful Japanese lady with no teeth after the Uniden reception and was determined that he was going to find her 'act' at any

price. He disappeared in a taxi waving a fistful of yen. Paradigm's Dave Johnson and Laurie, the Dehnerts and Coopers and that irascible tour guide **Frank Ogden of 21st Century Media** in Vancouver ended up at a Japanese traditional restaurant. After removing our shoes we sat down on mats on the floor while a chorus line of Japanese beauties saw to it that every imaginable Japanese delight was heaped on our table in front of us. Johnson got smashed, again, and embarrassed us all by constantly whipping out his new Nikon camera and attempting to photograph the south end of the hostess while she was going north. By now we had been in Japan long enough that Polly Dehnert was Porry Dehnert (the Japanese have a particular problem with the letter 'l') and the group had become a family. We were even making excuses to our Japanese hosts, as a family, for Johnson's behavior. If the 'family' was close in Tokyo, after three days together, we had some real eye openers ahead however.

**The next stop was Hong Kong.** There was only limited satellite business there for us; we scheduled it as a rest and relaxation stop and other than a series of interviews with **'Asian Broadcasting'** Magazine, we were left alone. Good thing. Hong Kong is the most fabulous city, ever. The British govern it but the lease they have from China for most of the territory 'runs out' in 1997. You may have caught something on the evening news about the concerns that the Chinese will throw the British out in 14 years.

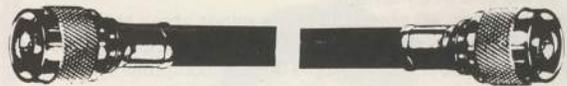
If the community (nearly 3,000,000 people) are concerned, they



**WAKE WHEN IT'S TIME TO GO/ Dehnert pulls down the shades at Hong Kong airport and awaits plane boarding time.**

don't show it with their pocketbooks. I have never seen so much big buck construction in one city in my life; huge 40/50/60 story office buildings are rising all over the city. There is massive construction of surface roadways, boat harbors, apartment buildings, resort hotels; you name it. Uniden's **John Lane**, who lives there, told me that most of this was long term construction started **before** anyone figured out that the Chinese might pull the plug in 1997. I prefer to believe that behind closed doors the managers of the city know there is little to fear from the Chinese and that come 1997, Hong Kong will still be Hong Kong.

Local television is excellent. Our in-hotel cable system had first run movies for a pittance of what we paid elsewhere plus four local channels. Movies. There is a high level MPAA directed action going on in the Far East to control bootleg movies. They about have a lid on it in Japan but from Hong Kong on around the circuit anything goes. A two year old movie in a hotel in London costs around \$10 for a single showing. In Hong Kong you get two or four movies, shown repeatedly through the day, for \$2.50. And they are this year's movies. No, I have no way of knowing if the movie owners are paid for the movies shown in Hong Kong hotels. And while it is getting ahead of the sequence, we found movies in India being hawked in street peddler carts for the equivalent of \$1 American and in Sri Lanka for even less. Our Holiday Inn in Bombay (a story to itself) proudly told you that they were the first hotel in India to have in-room movies. No charge. The movies were about five years old, on VHS tape (and the fifth or sixth generation dub



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at that with no time base correction). Strange; wasn't that an HBO logo I saw at the end of a movie!!!

Several things will stand out in our minds about Hong Kong. It is THE BEST place to shop, in the world. Lyman and Roy Orvis from Dryden, Ontario both bought Apple IIe 'like' computer systems. For a pittance.

"Do you have any of the Apple IIe computer copies," Kevin asked the shop keeper. It was a rhetorical question since the front window was crammed full.

"Copies!" responded the man indignantly; "We have the original Apple, we have the Pineapple and we have the Banana computers." We were glad he told us this since to the untrained eye, all three looked exactly identical. The Pineapple is actually a street-lingo brand now; a Hong Kong copy of the popular Apple. The Banana is a copy of next year's Apple; they took the original Apple IIe, copied it, and then



**JET SETTER GOWEN/ ADM's boy Jamie outfitted in booty including new sunglasses, miniature stereo system, new camera and bag and a tube filled with genuine Hong Kong oil-originals.**

improved it. Lyman loaded up on a Pineapple, dual disk drives, modem, printer, joy sticks, a slug of programs and what have you for about \$1,000 US.

We found cameras, made in Japan and wholesaled to the world in special camera districts in Tokyo, about 20% cheaper in Hong Kong. We found electronics, also made in Japan (or Taiwan or Hong Kong) 20 to 40% less in Hong Kong. The electronic shops group together, the camera shops group together, the silk shops group together and so on. In two blocks, shop to shop visiting, you can comparison shop the same product a dozen times or two. My son Kevin spent an afternoon going from shop to shop working the shop keepers down on a Canon AE-1 package that had been best priced in Tokyo at around \$400. He ended up with it in Hong Kong for under \$150. The same package in the states would have cost \$700.



**THE SURF IS UP? Canadian Jan Spisar spent some of his 64 plus hours on an airplane catching up on the latest rock sounds.**

It was hard to leave Hong Kong; had we known what Bombay held in store, we probably would have stayed in Hong Kong! Hong Kong has tremendous everything, from food and hotel accommodations at excellent pricing, to fantastic shopping and a world of sights to see. We will return to Hong Kong. Before 1997.

The leg to Bombay took us through Bangkok, Thailand for a brief stop and refueling. Thailand is tense. After the smiling, pleasant faces of the immigration and custom's people in Tokyo and Hong Kong, it was something of a shock to see the fully armed, somber, teeth gnashing types at the airport in Thailand. Somebody pointed out that between Hong Kong and Bangkok the Cathay Pacific plane flew directly over North Vietnam. Thailand is next door to the "nams" and it shows. We didn't get out of the airport, in our brief stop, but we talked with some Americans who had been there a month. I'd prefer not to repeat what they told us since it was probably an emotional outburst created by their leaving.

It was dark when the 747 settled down on the run way at Bombay. The streets of Bombay, from the air, had an eerie yellow light glow, flickering yellow and brownish lights. We found out why as the plane taxied from the run way to the main terminal. All those funny lights were fires; small, little fires. What on earth were they burning, and why were there hundreds of thousands of them all over? We would find out.

If the tense gun toting guards at Bangkok had been a revelation, the brown uniforms of the British trained personnel at the Bombay airport was a shocker. The airport had an unusual smell; acid like, it



**ARE YOU GOING TO EAT THAT! Porry Dehnert urges Susan Cooper to avoid the vegetable in her hand "if you know what's good for you." All airplane food is NOT created equal!**

stung your nose and eyes. The airport tiled hallways looked like a public bathroom in the New York City subway and there was that strange smell all over.

All of the signs in the immigration area read backwards. That is, if you were outside looking in, you could read that they said 'Commonwealth Nationals/Here' or 'Indian Citizens/Here.' From our side, approaching from the airplane, you had to guess which line was appropriate. Henry Guerin of Santa Fe, New Mexico guessed wrong.

Henri is a French citizen, living in the states for six years, operating a successful TVRO dealership in New Mexico pumping out around 25 home systems a month now with a couple of installation crews. He is married to a US citizen and they have children. Henri almost never had any more children.

Henri has a certain devil-may-care attitude about him. He is terribly bright, and perhaps a little too quick to 'mouth off.' His smile and French accent usually gets him out of trouble after his mouth has gotten him into trouble. Not in Bombay.

In the wrong line, the heavily accented Indian immigration man told Henri to go someplace else. Henri promptly told the Indian where he could go and the next thing anyone knew Henri was up against a wall with a huge piece of wood under his chin and a knee in his stomach. From 50 feet away, the rest of the group, already sombered by the dismal appearance of the Bombay airport and the wretched smell in the air, watched helplessly as Henri was 'dressed down.' Henri's problems were just starting.

Meanwhile in another line Doug Dehnert and David Johnson were getting lesson one in a 200 part course entitled 'Dealing With Indian Bureaucrats.' Both Dehnert and Johnson had purchased large, aluminum, steamer trunks in Hong Kong to haul the growing booty home. To spread the load we had consolidated a new tri-standards video monitor I bought in Hong Kong (for use in Sri Lanka), an Intersat TVRO receiver and a Maspro TVRO receiver with some of Doug's personal acquisitions in the Dehnert trunk. In the Johnson trunk we had more electronics, a telescope David had found in Hong Kong and a hundred pounds of who knows what.

"You cannot take those trunks into Bombay," the man said. We wanted to know why. "Videos; they have video equipment inside." The problem was that the Indians are so unbelievably uptight over video that anything that says video on it is immediately grabbed by the customs people. You can pay an outrageous duty (plus some bribes) and get it into the country, or if you are in transit (just going through India) you can 'check it' with them. Checking it made sense, but there was a horrible suspicion that once checked, never again seen. The single customs man handling our 'problem' had now grown to a trio. Dehnert and Johnson were losing ground while I was up to my own armpits trying to explain why they should not charge me several grand US as a hostage payment for my JVC KY-1900 ENG color camera which I had lovingly lugged all the way from San Francisco to be able to do some professional video in Sri Lanka. Henri, meanwhile, had disappeared with armed guards into the inner sanctum of the immigration department. Carl Grindle had his own home style video camera and VCR holding up a long line in another customs entry point



MAY PEACE BE WITH YOU/ rough translation of Indian national TV service 'good night' message after typical 4-hour TV broadcast day.

and we had now been standing in line, smelling the 'unusual air,' for more than two hours. It didn't look good. Plus, allowing for the long flight and time changes, we were now well past midnight 'body time.' Unknown to us at the time, Roy Orvis had his new Banana computer all apart in another customs line trying to find a serial number(!); they were not going to let it in until they got the serial number down on a piece of paper. No, when the Hong Kong types 'copy' Apple IIe computers, they don't put serial numbers on them!

After another hour, we stumbled out of the customs control area. We had Henri with us but the Bombay 'feds' had his passport. Henri was a man without a country. We also left behind the two huge aluminum crates; Dehnert and Johnson each had a piece of paper that was a 'receipt.' I had my JVC KY-1900 plus tape deck; they had been so intrigued with the color camera and the fact that it did not show up on their printed list of video cameras that they overlooked the VCR and support gear. Orvis had finally read them a number off of a capacitor for a serial number. Both he and I had notations in our passports which said that we had brought certain pieces of equipment into the country. Death, or something equally permanent, awaited us if we lost possession of that equipment before we left India!

Outside the airport building, we found our tour bus waiting. It was a good thing because we were instantly mobbed by a sea of Indians of every possible age and sex (including some sexes that we haven't found yet in North America). One kid grabbed one of my bags and ran off with it. I yelled at Kevin to guard the rest of my stuff and I took off after him into the darkened parking lot. He finally stopped at a waiting cab and the cab driver asked me where I wanted to go. I muttered something about Fort Lauderdale and wrestled, with some difficulty, my bag out of the grasp of the kid. It seems a favorite ploy is to hire a small Indian kid to grab an unsuspecting tourist's bag and run

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like hell. The kid leads you to a parked cab where the driver 'rescues' you and then takes you where you want to go for a fee. I tried to explain that I had a bus waiting, with the cab driver and the kid grabbing at the bag tucked under my arm, all the way back to the group which by now was trying to hide from the shoving Indian masses in the bus. The kid, seeing that I was not going to ride in the cab he worked for then resorted to kicking me in the shins and alternately yelling that I should give him a dollar. **The tour guide finally rescued me from this attack.**

The ride to the Holiday Inn Hotel was the frosting on the Indian cake. Although the Holiday Inn is but two miles from the airport it took nearly 30 minutes to make the trip. The bus had to drive quite slowly, maneuvering around bodies lying in the street, cows that have the right of way over everything else, cars that were stopped in the middle of the road with their hoods up and an army of Indian rear ends sticking out from the engine area, and another army of people who seemed to just wander about the streets aimlessly.

The smell. We found out what it was.

**"The poor people (are there any other kind in India?) collect**



as well. **Most of us decided the best thing we could do was retire. Two decided otherwise.**

ADM's Ed Randall and the man without a passport, Henri Guerin, decided they wanted to see something of the Bombay 'nightlife.' Actually, there was a perfectly decent (all things are relative, remember) Disco in the Holiday Inn. Not for Randall and not for Guerin. They climbed into an Indian cab (a small, Morris Minor type vehicle which typically is minus a hood, one or two doors, and probably a fender or two) and off they went into the night. Now in Bombay, because everything is so impoverished, vehicles typically drive **without their lights on.** Even at midnight. You get around by the flickering light of the Dung fires. About 30 minutes into their cab ride a massive flash occurred directly in front of the darkened cab and the cab jerked to a halt. The one working door on the cab flew open and bathed in a few thousand watts of searing floodlights Randall and Guerin were yanked from the cab by **a team of guys dressed with ski masks over their faces** and brandishing rubber billy clubs. Henri felt a club against his throat and Randall and he were man-handled against the cab.

**"Passports,"** came the demand. Randall fumbled. Henri's heart stopped beating; the airport feds had his passport! It looked glum, and it would be several days later before either of the two would relate the details of the story. After the incident both beat it back to the comparative safety of the Holiday Inn.

The morning dawned. Not terribly bright nor clear. The palor of hundreds of thousands of dung fires hung over the area like the worst case of Los Angeles smog imaginable. The day was not starting off well.

**"Your tickets to Sri Lanka are no good,"** reported the tour guide. **"We have arranged for 19 of you to travel to Madras** (another city in India, about halfway to Sri Lanka) **but two of you will have to stay."** Stay? "For how long?". He shrugged his shoulders. "You have two hours to get to the airport and check in," he warned. There followed a mad scramble to get checked out of the rooms, bags loaded into an



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**CAN YOU BELIEVE THIS/ a fellow has a TVRO business 'going' in the midst of the poverty. This is his advertisement from Bombay newspaper.**

the cow dung," explained the tour guide, choking through his handkerchief in the front of the bus. **"Then it is burned for cooking."**

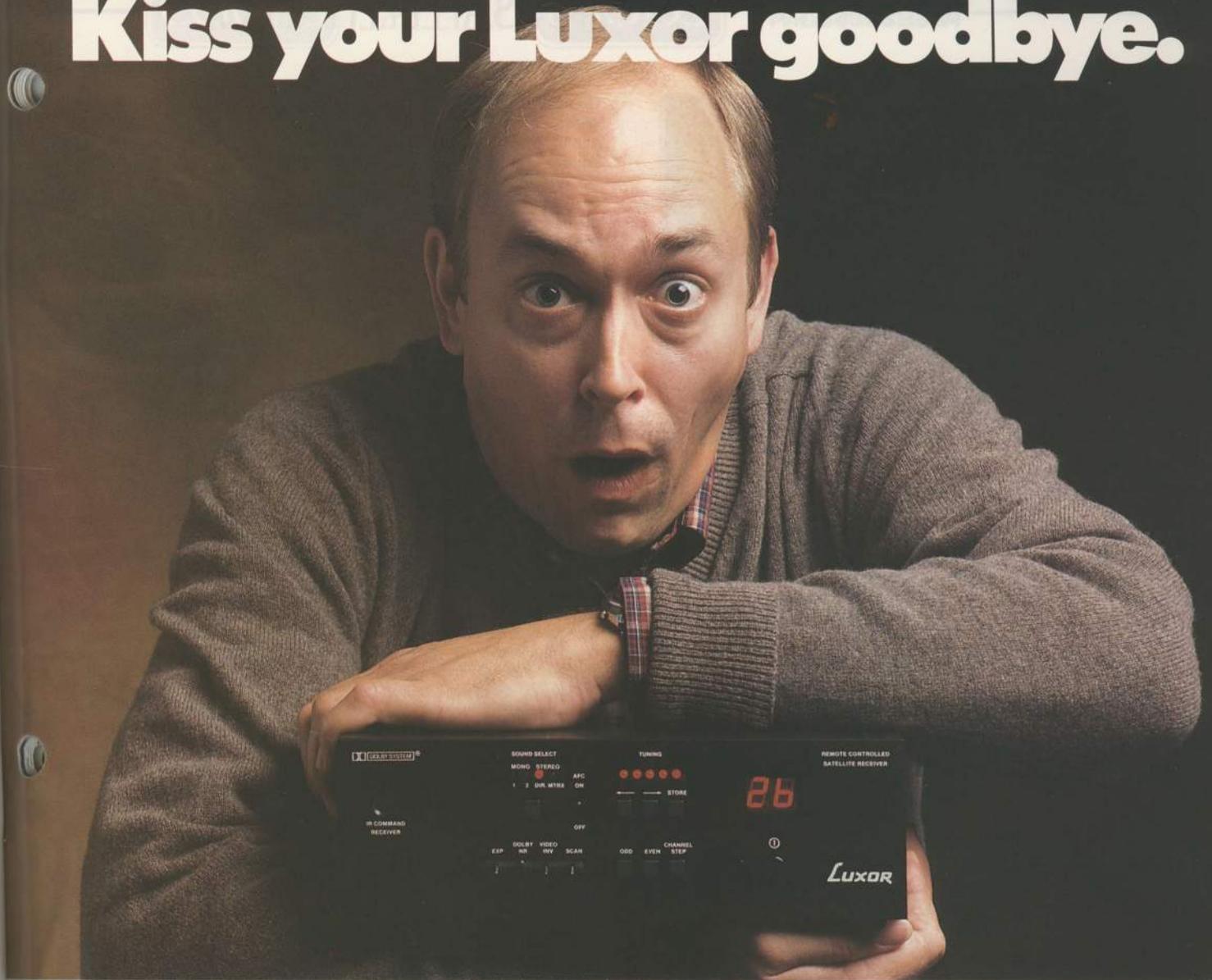
Mercy. Thousands, hundreds of thousands of burning fires, all over the sprawling 11,000,000 population Bombay. All burning cow dung. I imagined that the Indians used the world famous curry to cover up the taste left behind by the unusual source of heat they cooked with. I couldn't wait to 'see' the Holiday Inn!

**"We cannot accept your travel voucher,"** smiled the immaculately attired young man behind the desk of the Jung Beach Holiday Inn. I was in no mood to be told that our months-ago prepaid reservations were no good. I asked what his solution to this was. **"Everyone pay me . . . now,"** was the response. He meant a second time.

Digging deep for an inner reserve, I totally avoided my first inclination which was to see if Jung and Dung rhymed when you took the face of a hotel manager and rubbed the face in the Dung. I have no idea what I said in 30 seconds time, but suddenly he was accepting the travel voucher and couldn't do enough to make us comfortable.

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**ARE YOU GOING TO EAT THAT!** Porry Dehnert suggests that Kevin Cooper stay away from any food that is still moving on the spoon after you scoop it up.

army of small cabs, and somehow down the road to the Bombay airport. Johnson, Dehnert and Henri Guerin had gone on ahead; Johnson and Dehnert to get the aluminum crates released, Henri to get his passport back. All three were doomed to failure.



"We cannot release the video electronics (the crates) unless you are leaving the country," the man told Dehnert. "You are going to Madras, that is still inside of India, and we cannot let you have them back until you are ready to leave India." That we could not leave



**I CAN'T BELIEVE I ATE ANYTHING HERE/** Doug Dehnert, partially victimized by the fish eye lens, on the beach in Bombay.

Bombay directly for Sri Lanka made no difference. "And, you must give us 72 hours notice, before you leave," the man added, rubbing salt in the wound. We had been in India only 16 hours, although to some of us it seemed like 16 days.

**Air India.** Now we had reservations on Air India from Bombay to Sri Lanka (Colombo) and return. But, we had been warned that although the reservations had been made months in front, that they were never properly confirmed. Our stateside tour agent had advised "Air India refuses to verify the seats; they are the only major airline in the world that does not participate in the worldwide computer based reservations network." We learned something else about Air India, while in India. They also refuse to verify or confirm seat reservations for you even when you are standing in their line at the counter with your tickets in your hand.

"Go to the gate and you will get on," said the ticket counter type. "But if we don't get on, you have all 44 pieces of our luggage," we responded, "and it will be in Madras and we will still be here!". He shrugged his shoulders. Being a 'tour group leader' is no fun in India.

Herding 19 of us towards the gate, hand carrying as much as we could because of the uncertain status of our trip, Dehnert and Johnson (off fighting the battle of the crates) ran up. Henri was in tow and the tour guide was hanging around the fringes trying to get us shuffled onto the flight.

"They won't let us have the crates," they told us. "In fact, they can't even find the crates!", reported Johnson. A 30 second caucus and it was decided that Johnson and Dehnert would stay behind, clutching their passports and some fistfuls of Rupees. Henri wasn't going anywhere either; they wouldn't let him travel to Madras at all; he could leave the country, but that was all. And the temporary visa granted to him the night before was now three hours past the due hour. He figured there was a squad of guys with ski masks out combing Bombay for him at that point. With a certain amount of stomach wrenching, 19 of us piled on board Air India headed for an uncertain destination; Madras we hoped.

While Dehnert and Johnson are being 'led' from one desk and official to another all over Bombay in search of the crates, Henri is hiding from the guys with the ski masks, and the other 19 of us are getting a taste of lunch from Air India, someplace over central India, a few more observations about Bombay in particular. The city is one of the least attractive spots in the world. That morning Johnson and Ogden had taken a two hour taxi tour to shoot photographs. Ask them about the street they went to where women are displayed in cages, for sale. Or ask them about how the Indians go about with oxen-pulled-carts in the mornings to pick up dead bodies that litter the streets and alleyways. Don't ask them what they do with the bodies. Ask them about the women, always with a baby in their arms, that literally throw themselves at the cab begging for money. Or ask Dehnert about the gutsy tour guide that stuck with he and Johnson while they tried to sort out their crate problem. And how the tour guide was arrested in the airport for bending some obscure regulation that prohibited him, as a tour guide, from assisting a client with 'cargo problems'; and how they had to follow the guide and the cops to a Bombay detention centre to bail the guy out.

"I never travel to Bombay, if I can help it." Speaking was the assistant manager of the Madras Holiday Inn. He had met our tour group at the Madras airport and turned out to be a prince of a fellow. He went on to explain that you don't travel to Bombay because it is the hell hole of India. Well, almost. "Only Calcutta is worse," he offered. The first thing you notice in Madras is that there is no acid smell in the air. There were no dead bodies in the street either, at least not late in the afternoon, and everything looked more orderly. Not immaculate by any means, but after Bombay it looked very good.

The Madras Holiday Inn wouldn't make the top ten hotels in the world list but it was far superior to Bombay's Holiday. "There are only two Holiday Inns in India," we were told. Yup, we caught them both.

"How long will you be staying?". We had already been told that it had been several months since any 'American groups' had visited. "All we get now are Russians," they added. We knew, the Air India flight was loaded with a Russian tour group, another from Denmark, and us. And a few hundred 'locals.' We explained why we were in Madras at all. "We need to get to Sri Lanka tomorrow," we said. Little did we know, at that very moment, Arthur C. Clarke was



**FEED MY BABY/** before you feel too sorry for this Bombay beach 'beggar,' consider this. More than 800,000 Indian workers in the cigar making industry earn an average of 42 cents American a day. This lady had the fine art of begging down pat and in a typical day takes in more than \$15 American from tourists whom she convinces are saving her baby with their gifts. She is thus better 'paid' by a factor of 35 to 1 than Indian cigar making workers slaving 10 hours a day, six days a week in a dusty cigar factory.

approaching a nervous breakdown because our originally scheduled arrival time had come and gone, a sizeable official government welcoming committee had waited at the airport and when we didn't show up, Clarke had been unable to find out what had happened to us.

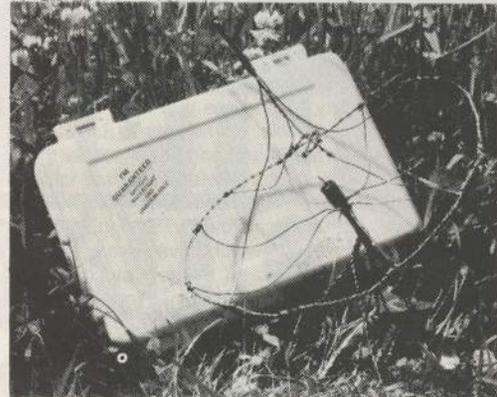
Personnel from the hotel, anxious to have us stay since we were the first Americans in some time, nonetheless went to bat for us to try to get our travel plans unraveled. The hotel's assistant manager, off duty at 6 PM, made it his personal chore to take our tickets to the Air India office at the airport to 'insist' that we have reservations on the morning flight to Colombo. This was after he had been told on the telephone by the always helpful Air India personnel that:

- 1) There was no such morning flight, and,
- 2) They had no reservations for 19 anything; Russian or American.

Always the intrepid shoppers, the ladies in the group headed to the Madras cotton and silk markets. Marianne Grindle found several hundred pounds of material she couldn't live without and while the ladies shopped, the assistant hotel manager battled with Air India for our seats on the morning flight, I joined **John Zelenka** from New York



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City in the bar. I was plainly concerned that we might never see Henri again (the last thing he had said to me at the Bombay airport was, "If I can get a ticket out of here to ANYPLACE, I am leaving!"), that Doug Dehnert and David Johnson might end up having to abandon the crates with much needed electronic equipment, that if the Air India folks persisted in being dirty so-and-sos that we might never get to Colombo. Zelenka explained to me how he puts 10 and 12 foot dishes on top of Manhattan skyscrapers and somehow solves the TI problems there. I recalled, hazily, a story Peter Sutro had told me about John's work in New York City. "He is amazing, a legend in his own time," Peter had said. "That man can find TVRO signals, clean TVRO signals, in the face of interference which drives everyone else off the roofline." Right now Zelenka was off on how much he respected Clarke and how he was looking forward to meeting him. Zelenka had joined us in Bombay, just as we were getting ready to leave, having



**MAN WITHOUT A PASSPORT/ Henri Guerin ponders his fate in Bombay.**

flown in from New York City. He was trying hard to become a part of the 'family' and if he didn't push too hard, he would make it.

Around midnight the telephone rang. "Mr. Johnson has arrived," said the voice. "Alone," the voice continued. Dave, it seems, had left Doug to fend for himself with the crates. Henri, he reported, had disappeared seconds after the Bombay cops had moved in on the Tour Guide. They had not seen him again. Johnson had realized, about 6 PM, that when he came through customs he had a small TRS-100 Personal Computer checked and listed on a sheet with his passport. Now he realized the computer was with his wife Laurie, and she was in Madras. Laurie and the computer would probably get out of India OK but David's passport clearly stated that he had brought a computer into the country. The penalty for not being able to produce the computer when he left was a \$2100 fine and several other nasty uncertainties. This realization prompted him to bail out on Dehnert and



**LET ME OUT! Porry Dehnert shows that Minnesota women are not shy about bailing out of a bus when the front door is blocked.**

catch the last flight of the day between Bombay and Madras.

Porry Dehnert and Raurie Johnson (Polly and Laurie), meanwhile, had decided two things. They were not going to occupy, alone, bedrooms in Madras that night. We had already put Carl Grindle's Secret Service training to work to break into Porry's suitcases since in the rush to leave Bombay she had left the keys with Doug. Without Doug, and David, Porry and Raurie were going to sit up the night in a single room drinking beer and singing. India will get to you eventually; in Porry's case eventually just was happening sooner. **Their singing had attracted some interest.** Three men of uncertain background, staying in the room next to Porry, had become intrigued by the sounds from their room and every few minutes they appeared at the door asking if they could 'come in.' After a few such visits, Porry and Raurie decided to move all of the bags from Porry's room to Raurie's room to escape the next door neighbors. You can draw your own mental picture of two US women lugging 14 suitcases down the hallway of the Madras Holiday Inn at 11 PM at night while three guys with lust on their minds leered at them from an open doorway. David arrived, after a busy day at the Bombay airport, in the middle of all of this.

"I am not leaving your room," stated Porry, flatly. "You two are simply going to have to put up with me until the bus leaves for the airport." Since it was now past midnight, and the bus was scheduled to leave at 5 AM, that didn't seem like such a long time for Porry to sit up in a chair watching David and Raurie in bed.

A bus was to take us to the Madras airport. **It didn't show up.** So a fleet of cabs was quickly rounded up and off we went, about 9 cabs worth, hauling 20 people and perhaps 45 bags or so. We dodged cows, dead bodies and squalor all the way to the airport. Madras was nicer than Bombay but at 5 AM in the morning they both looked the same. Even the rancid burning dung smell was present. The cabs played musical break-down all the way to the airport. First our cab was in the lead and then the engine quit. So off to the side of the road and several of the others passed us. Then our driver would get ours started and off we would zoom again to pass the Grindle cab or the Gowen cab, both aside the road. Somehow we all made it to the airport. Everyone clutched their luggage tightly to avoid having some helpful Indian lad run off with it to gosh knows where.

"You have 12 more bags than you are allowed. And, they weight 600 kilograms over the allowed weight." The Air India man was standing in a cubby hole surrounded by a mountain of baggage from our group. "What do you propose to do about it?", he asked me.

With great skill I avoided several quick responses that Henri would have used. Henri was still paying the price for his 'smart mouth.'

"How much will it cost us to have this extra baggage go with us on the flight to Colombo," I asked, motioning to Frank Ogden to start taking a collection of Rupees. The man thought about it a minute, processed another ticket or two, and then replied "Nothing." And so

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we were off to Colombo, short of Doug and Henri but finally on our way to Paradise Island.

**VIP Status**

In all fairness, after India, almost anyplace that had tall palm trees,

real cars and trucks, electricity, and relatively well off people would have looked like Paradise. Colombo's airport is modern, spic and span, and when we stepped off the Air India flight we knew we had moved ahead several centuries. It is amazing how few people have even heard of Sri Lanka (or Ceylon as it was previously known). This is an island of perhaps 11,000,000 people about the size of Georgia or a tad larger. Because it is some 7 degrees north of the equator, the length of day and night varies only fractionally all year long. Colombo, the capital city, is on the west-central side of the island and perhaps 20% of the population leaves there or nearby.

Arthur C. Clarke moved here in 1958. He lives in a section of Colombo which must generously be described as upper class. The Embassy for Iraq is next door to Clarke and others are around him. The country is in a state of economic transition and if everything progresses as it looks it might, ten years from now you won't recognize Colombo. Massive new construction is widespread (not on the scale of Hong Kong, certainly, but extensive nonetheless). The most important ingredient going for the country right now is the progressive, 'open-market' attitude of government and the spirit and determination of the people.

The life styles, the food, the traditions differ widely from Europe or North America, of course. But the attitude of the people, at all levels, is something most North Americans can identify with and quickly adjust to, if indeed any adjustment is required.

An official welcoming committee was waiting for us. We were accorded 'VIP' status through immigration and customs and we left behind word that a Mr. Doug Dehnert with two large aluminum crates



**SAFELY IN COLOMBO**/and fresh from Madras, the 'Bombay Crew' pose in the VIP reception lounge. Front row, the Orvis girls. Seated, Carol Orvis, University official, John Zelenka, Back row, Ed Randall, Polly Dehnert, John Spisar, Frank Ogden, Laurie Johnson (back row), Susan Cooper, Jamie Gowen (back row), Roy Orvis, Kevin Cooper, David Johnson, Carl Grindle and Marianne Grindle (back row), Tasha Cooper, Brent Gale and second university official. Coop took the photo and Dehnert was still in Bombay. Henri Guerin was safe and sound at the Palm Beach Hotel.



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**MOVE OVER FOR ELEPHANTS/** one of the hazards of driving in Sri Lanka is that you might have to give the right-of-way to an elephant.

might be coming down from Bombay on a direct flight later that day. And that he, too, should be accorded VIP status. Mr. Watson had us on the telephone with Arthur C. Clarke within minutes of our arrival.

"Are you safe?", Arthur wanted to know. We told him that everyone but Dehnert and Henri were present and accounted for. "Henri is here," responded Arthur. "He arrived on a 6 AM flight from Bombay." There was more. "Bob Behar is here also and he is over at the University checking the antenna location." Bob and wife Estrella had flown from Miami to Zurich and Zurich directly to Colombo on Air Lanka. They had missed Bombay of course.

After a long bus ride from the airport during which we sampled the sights of Sri Lanka we found ourselves at the Palm Beach Hotel, virtually on the beach of the Indian Ocean. It had been a long, sometimes painful trek but most of us were now present and safe.

A few hours later Doug Dehnert with his two large aluminum crates would show up and with Lee Lubbers from Creighton University, Omaha also on island to join us, plus Dr. Konishi and Tom Kawada and John Lane from Uniden, we were at the 28 person level mark and ready to go to work. Later that day, **Tim Brewer** from Katmandu, Nepal would step off an airplane and we would be at maximum strength.

**WHERE ARE The Crates?**

"The ADM antenna crates cannot be found." Bob Behar was joining the group at the Palm Beach HQ and not everything he was telling us was good news. We wondered how that was possible since



**BUS RIDE/** The Orvis Family (far left behind Susan) and the crowd learned to appreciate the comfort of taking the bus and leaving the driving to someone else.



the University had confirmed receipt of the crates to us two weeks prior to our leaving the states. He shrugged his shoulders. "There is more bad news," he continued.

"The four boxes of electronics haven't arrived either." That seemed ludicrous since that had been air freighted, by priority one air, from Miami to Zurich where they were to meet up with Air Lanka for the leg to Colombo. We decided to take a small group and visit Arthur C. He was, after all, awaiting our appearance at his home. So Mr. and Mrs. Behar, Mr. and Mrs. Dehnert, Mr. and Mrs. Johnson and Susan and I climbed into vehicles for the 15 minute ride to 25 Barnes Place. It would be a ride we could do blindfolded within a few days.

The Clarke residence is split between Arthur's needs and his dive business (Underwater Safaris) partner and family. The underwater business is mostly for tourist groups; they haul people to the eastern shore of Sri Lanka five months a year, to the western shore another five months and for two months of the year no diving is recommended. We were just coming out of the latter phase but as it would turn out, only 'mad' Jan Spisar of Canada would end up using the water much. The rest of us found ourselves racing from sun up to sun down just trying to keep the projects moving.

A high level discussion of the various problems ensued. Clarke worried most about the missing ADM antenna since he too had been told that it had been off-loaded at the Port of Colombo. The question was, where did it go? The next problem was the missing electronics. Minus the electronics, while we had the Maspro system, we were short of LNAs (none brought with us because of anticipated custom problems in transit). Various options (two day shipments from Japan, three day re-shipment from Miami) were floated with a decision that Behar had plenty of stock in Saudi Arabia and they were but one day away if we really got down to the wire.

"The ADM shipment was on the Hoover, or something like that," recalled Arthur. "This is Saturday and everything is closed (meaning all of the government offices). Let me see if I can get some





ARTHUR C. CLARKE (left), Doctor Konishi (President, Uniden Satellite Technology), Kevin Cooper and John Lane (Senior Advisor, Uniden) on the Clarke Colombo balcony-patio. Clarke recognized Doctor Konishi as "Mr. 12 Gigahertz."

help." He went to the telephone. The rest of us drifted out of his library to ponder the mount that had been installed for the Paraclypse on the second floor patio deck. Johnson had changed his mind, after supplying plans to Clarke, about the mount and there lying on the deck was the new Paradigm supplied heavy duty mount. Johnson wanted all of the work done by the Sri Lankans prior to our arrival ripped out and his new mount installed. Plenty of discussion followed. Clarke returned.

"The Hoover has never been to Colombo," he reported. "There are two stories about it; either that was the ship the Iraqis sank coming through the straits two weeks ago, or, it has been diverted to Singapore." Neither possibility looked good. Later we would recount the two possibilities to Jamie Gowen and he would ask, with a straight face, "can we hire a boat to go to where it sank and dive for the antenna crates?". Jamie probably thought he was still in Poplar Bluff.

Before we left Clarke's house that afternoon, we were treated to a private showing of some of the Clarke videotapes. Arthur's home, as those who view the special satellite TV program being prepared for broadcast in February will see, is something of an electronics fun shop. There are computers and word processors wherever you turn. There are tri-standard VCRs in virtually every room, and monitors to back them up. Walls of videotapes, in all formats, share the same room with walls of Clarke authored books. We sat down to view some of his special favorites on tape.

The BBC did a very interesting piece on 'Arthur C. Clarke's Sri Lanka' not too long ago and from that glimpse of the country, through Arthur's eyes, we saw just how beautiful and unspoiled it all is. Then



'TO ROY ORVIS'/ Arthur C. autographs a copy of 2010.

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SRI LANKA/ continued from page 91



**STANDBY FOR THE LIVESTOCK/** another hazard of driving in Sri Lanka is the unteathered status of farm animals. Oh yes, people raise cattle and goats right in town, not just in the country!

we slid into some footage of the **Marconi Awards Ceremony** (the Marconi Award 'statue' was standing atop the video monitor which the program played on) and finally drifted into his very favorite topic; underwater diving. He slipped in an excerpt from a program which



**GONE NATIVE/** Echosphere's Brent Gale found native Sri Lanka attire comfortable. If it is good enough for Arthur C. . . .



**ADULT jungle gym/** David Lyman at work outfitting the 16 foot Paracclipse.

many of us had seen on **PBS** last season; the story of the undersea salvage of 44 million pounds (perhaps \$70,000,000 US at the time) in gold bars from the HMS Edinburgh. The Edinburgh had been transporting the gold bars from Russia to London during the second world war and the German Navy sank the ship in 1942. It had lain in 840 feet of frigid Barents Sea water since that time.

This was the biggest, most dollar or pound successful undersea salvage of all time and as the tape rolled and you saw the excitement of bringing up that much wealth at a single time, Arthur turned to me and winked. The next day I would find out why he had selected this piece to show, and why he winked at me as it ran.

Satisfied that we knew what the obstacles were, promised by Arthur that every stone would be turned to get the true facts on the missing ADM dish and the missing electronics unearthed, we headed back to the Palm Beach hotel to collapse. For some of us, it had been a very eventful and not altogether settled day. For others, such as the ADM crew, the fun was just beginning.

**Sunday dawned bright and clear** and Behar had a crew rounded up to begin assembly of the 25 foot antenna. David Johnson and David Lyman were off bright and early to tackle the start-up of the 16 foot Paracclipse. By noon Sunday the original mount for the Paracclipse was down and gone and the new tri-sided mount recently created by Paradigm for the production versions of the 16 footer was installed. Now Lee Lubbers from Creighton joined the duo and later on Sunday Frank Ogden of 21st Century Media went to work. In the intense sunshine and relatively high humidity, a man can work for only so long. There is a water shortage (believe it or not!) presently in Colombo and they have to shut down the municipal power system for two hours



**LOCK IT DOWN/** Utah's Lyman and Paradigm's Johnson tighten down the 'Cclipse array.



**BLOODY DEEP!** Some of the nicest people drop in at Arthur's home in Sri Lanka. His name is Keith Jessup and he led a team to recover 44 million pounds (that's an English 'value,' not a weight!) in gold from the World War Two sunk Edinburgh. Jessup and Coop had something in common; he was recently to Provo in the Turks and Caicos islands, and plans an expedition there in 1984.

each day to accommodate the lack of water to cool the power turbines. That forces you to knock off from 12 noon to 2 PM or so, which is quite wise anyhow since that is the heat of the day.

If the Paraclypse was moving along at good speed, the Hero 25 footer was running into problems. A major piece of the antenna, the center support plate, was missing. Behar went on a scavenger hunt to locate 1/4 inch aluminum plate nearly 3 feet across. We wished him luck. Meanwhile the mystery of the missing ADM antenna was coming into clearer focus.

"It was not on the Hooper," reported Arthur. "It was on the Hooper."

Well, they did sound similar! And where was the Hooper?

"It unloaded the cargo here two weeks ago and the antenna came off the ship with the rest of the cargo," he continued. And where was the antenna now?

"That's the mystery," said a concerned Clarke. "It seems that most of the cargo on board was munitions and the General of the Sri Lanka Army forces had all of the cargo taken to a secure spot. Security is so tight we can't find out, today, where the cargo went."

Gowen was not sure whether he should laugh in relief or cry. He



**ARTHUR ON THE TUBE/Cameraman Kevin Cooper shoots some cut-aways of Clarke-at-work for the February release of 'Coop's Satellite Industry Tour To Arthur C. Clarke,' appearing on a satellite near you.**

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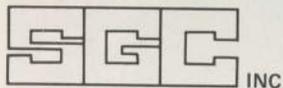
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**LOST?** University of Moratuwa Vice Chancellor Willie Mendis struggles on the telephone with a customs official trying to run down the ADM dish.

was just getting up the spirit to go dive in Iraqi waters for the missing antenna and now he had to go on a 'treasure hunt' to locate the antenna which appeared to have been hauled off by the military along with a shipment of munitions. "I think I would rather tangle with the Iraqi navy," he smiled, "than the Sri Lankan army." Arthur assured him that come Monday morning, neither of the above would be required.

**Monday was not a good day for the group.** All day went by and nobody could locate a piece of aluminum plate for the Behar dish. The



**SETTING UP/** Dehnert inspects the concrete 'pour' for the Hero dish pier.

progress on the Paraclypse dish slowed down, the willing workers suffered sun stroke and Johnson 'died' on Clarke's work-library couch early in the day. The Army General, finally located, did some checking and by nightfall he had located the missing antenna. It was locked up in a 'sealed' barge at the waterfront, surrounded by a 24 hour guard. His first inclination was to **not allow** anyone into the sealed barge for **any reason**. By dusk he had relented and on Tuesday morning he would issue an order to allow Jamie Gowen and Ed Randall to gain access to the munitions barge to extract the 20 foot dish parts. Finally,



**THE FUTURE** of Sri Lanka; kids and 'their' 25 foot satellite terminal.



**FOUND AT LAST/** four boxes containing much needed electronics for the Sri Lanka trio of systems finally turned up in the customs warehouse.

a concrete base for the Hero 25 foot antenna was slowly growing out of the ground but the concrete was being mixed by the quart rather than by the yard and it was going to be a slow process to get the base built to the required five foot height. The missing electronics finally surfaced on Monday. They had been sitting in the Colombo Custom warehouse for nearly two weeks, minus the required paperwork. Arthur C. managed to get it released on an emergency basis but it cost 8400 rupees (about \$350) to grease the skids.

This might be a good point to illustrate the time schedule involved here. Wednesday was 'D Day.' Clarke, on the telephone to me Monday night, observed, "I feel like Dwight Eisenhower preparing for the invasion of Europe and knowing that we will breach the coast in two days. The logistics of all of this is cumbersome." His reference here was that on Wednesday a full day (a very full day) of activities had been planned.

Starting at 9:30 AM, the University was scheduling a three hour technical symposium. Behar, Johnson, Lubbers, Ogden and myself were scheduled to deliver formal 'technical papers' to the crowd. Several Sri Lankans were also on the program. Several hundred students, the Russian Ambassador (as an example) and others were going to attend. Presided over by Vice Chancellor Willie Mendis, this was an important event for our hosts.

Then at 2:45 PM, a procession was planned starting in front of the Arthur C. Clarke Technology Centre ending up with a front door ribbon cutting ceremony, and a series of brief speeches inside the center. We were not the only ones under a deadline schedule; the construction crew putting the finishing touches on the centre would

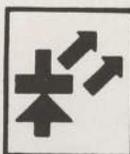


**THE CRANE IS COMING/** workers build a scaffold to allow them to work under the big dish after it is lifted onto the pedestal.

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Weight: 12 ounces



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still be busy with paint brushes and mortar one hour before the ceremony on Wednesday. Then to cap it all off, UNESCO was scheduled to send a special transmission to the University at 4 PM, timed to coincide with the completion of the indoor speeches at the newly opened centre. Bob Behar's dish, adjacent to the centre, was to receive the transmission and display it to the crowd.

Finally, assuming we all got through the day to this point, the University and the Government of Sri Lanka was scheduling a reception and dinner party for the US and Canadian satellite group starting at 7 PM that evening. Considering we were all scheduled to depart Sri Lanka on an airplane at 9:45 AM on Thursday morning, the schedule was beginning to bunch up!

**Tuesday**, then, was 'do or die' day. When we started the day, we figured we were perhaps six hours away from starting to search for



**INAUGURAL SYMPOSIUM/ Arthur C. Clarke Centre.** We urged the students not to be turned off by the apparent 'high cost' of technology, pointing out that garage 'inventors' had created the TVRO industry.

pictures with the 16 footer at Clarke's house. The Hero was still on its back in the yard adjacent to the centre, minus the mesh and strut supports. The concrete post was still being constructed. And the ADM antenna was still on a munitions barge. It would be a busy Tuesday!

**The Paraclipse first.** We had the first pictures around 3 PM that afternoon. Russian pictures actually, and some Indian pictures through a Russian bird. Just enough to know that the system was working before torrential rains hit shutting down the outdoor lashed up equipment.

**The Hero.** It got screened in record time (Henri Guerin proved that it is possible to put down one complete screen mesh section every seven minutes, for a short period of time) and by late in the afternoon we had a crane on site ready to lift the big dish onto the still curing concrete pedestal. Then a new disaster. The crane, maneuvering into



**CEREMONIAL.** Elaborate and colorful opening ceremony leading to the ribbon cutting.

position, broke through the ground and sank into an underground cavern. There followed several hours of trying to dig a large crane out of a hole in the ground. The onslaught of monsoon rains didn't help the exercise and as the videotape shot of the problem will reveal, when the Clarke TV special airs in February, there were times during the incident where people came dangerously close to being badly hurt or killed. Noticing the tape rolling at one point as he scampered for safety behind a concrete wall, Behar quipped, "Keep the camera rolling; you can sell it to the Sri Lankan 11 o'clock news. 'Sixty killed by overturning crane'."

The ADM. The antenna was finally delivered to the University by 7 PM Tuesday evening. Jamie, Ed Randall, Brent Gale, Henri Guerin and John Zalenka were prepared to work through the night. But getting the heavy and large parts from the ground to the third story roof of the electrical engineering building, in a monsoon and in the dark, made that impossible. Oh well, Wednesday would be another day. Jamie learned a lesson about people guarding munitions barges that day. Ask him about what the 'price is' to get an antenna out of a barge loaded with automatic weapons and hand grenades.

#### DAY Of Festivities

With several of us promised to the Seminar Program during the morning, and most of the same several required to get the dishes operating, we found ourselves alternating between comfort designed T shirts plus jeans to work, and, quick changing into more formal attire to make the brief presentations at the symposium. Behar found out he could change from informal to formal, and back again in two minutes



**YOU DID WELL.** Arthur with cup of tea reflecting on the just-over official ceremony, opening the Arthur C. Clarke center.



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**THEY ARE SPEAKING RUSSIAN/** Dehnert (left-center) and Gale study the first, early pictures from the 16 foot 'clipse dish.



**'OK BRENT' down the hole!** ADM's Randall and swimmer Brent Gale open up the cistern top cover so Brent can 'drop in' to shove the ADM mounting bolts back to the top of the rooftop.



**HOW DO YOU** get a Sri Lankan cow to look at the camera? Feed him a coconut. Carefully.



**SRI LANKA 'COKE'/** Locals knock the top off of a coconut for a 'refreshing drink.' Our group record? 12 in one day by Bob Behar. Here, Jamie Gowen 'knocks one off.'



**TUNE — DAMN IT!** Behar (center), Dehnert (to right) and Guerin (far right) struggle to get the AVCOM 3 International receiving 'on channel' under the press of crowd and heat.



**STRAIGHT UP/** ADM dish finally assembled and operational stands on top of the concrete roof of the University of Moratuwa EE building.



**WE DID IT CHANCELLOR Clarke!** Proud Sri Lankans acknowledge salute from Clarke, on ground below, as they make final adjustments to Hero 25 foot motor drive.

time when he had to.

With dignitaries all over the University all day, and a huge crowd gathering, work on the Hero dish came in spurts. The crane got out of the 'hole' by 10 AM and the dish was on the mount minutes later. By 12 noon the electronics was hooked up and they were ready to start looking for pictures. With Johnson barely able to walk, knocked out by a combination of too much sunshine and something he picked up in Bombay (that will teach him to get too close when photographing 'Women In Cages'), Doug Dehnert took over supervising the tweeking on the Paracclipse 16 foot dish. By noon it would be peaked up and operational across the belt.

The ADM crew, meanwhile, was finding out that it takes a long time to get somebody to go after simple tools like wrenches and drill bits and finally they would make their own drill bits by hand filing some steel re-bar rod. They were located on the roof of a building and directly below them was a water catchment or cistern tank. When they finally got the holes drilled through six inches of concrete to shove their bolts through, Brent Gale volunteered to go 'swimming' in the catchment tank to start the bolts from the bottom side. With barely six inches of air left in the virtually filled tank, Brent had an interesting experience inside the university water supply.

In the afternoon, all attention turned to getting the Hero 25 footer operational. Dehnert brought his expertise to the site to assist Behar who by now was also suffering from near sun stroke. The big dish was finding satellites just fine, but the AVCOM receivers had to be field tuned, without benefit of 24 operating transponders, to the full channel spectrum. Not having the receivers set up at the factory for the



**PROUD MOMENT/ Arthur C. Clarke** inspects the Hero 25 footer standing outside the Arthur C. Clarke Centre For Modern Technologies.

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standard 24 channels cost us over an hour as we wrestled with getting the channel tuning slugs in the proper order and slots.

At 2:45 the formal procession started on time and a long line of national, international and university dignitaries filed onto the site, past the huge crowd that was surrounding the 25 foot dish and to the ribbon cutting ceremony. That accomplished, the dignitaries went inside the building for a round of welcomes and speeches. Each thanked the American satellite industry for bringing the equipment and technology to the University of Moratuwa and the country, and Clarke was exceedingly humble through it all. **It was his day!**

By 3:30 PM somebody realized that the information given to us regarding which Intelsat satellite the special UNESCO feed would be on was erroneous. With the scheduled feed only 30 minutes away people scrambled to check and double check the data. Alas, 4 PM came and went and the feed was no place to be found. The Russian Ambassador to Sri Lanka was drawn close to the monitor set up on the antenna pedestal at one point when he heard a Russian newscast coming out of the speaker. After glancing at the screen, he muttered, **"I get the same thing in Moscow and it only costs me 100 rubles per year"**; and he wandered off into the crowd. There is no impressing some people with technology.



**DR. PATRICIA L. SHARPE**, Information Officer for the U.S. Information Service in Sri Lanka questions Coop on the visit's purpose. We did it privately, purposefully avoided any U.S. government involvement, and the US Embassy in Colombo was shocked to find nearly 30 of us in town building three huge satellite dishes!

#### A NIGHT OF Festivity

That we had all survived the day, that the University was pleased, that Arthur C. Clarke was pleased . . . the shortcomings and problems seemed not to matter as the 7 PM official reception and dinner got underway. Following an intriguing 30 minute 'show' displaying native Sri Lankan dancers (CNN should have been there!) we got down to serious eating and drinking.

We found the occasion an excellent opportunity to sit and talk quietly, and seriously, with some of the top level Sri Lankan government officials. Since they instigated the talks, dealing with the future directions of the government's communications policies, we felt there was sincere interest in whatever expertise we could relate. Suffice to say that at this point there is reason for cautious optimism that in the coming year there will be a healthy and productive series of developments in Sri Lanka which will greatly benefit the growth and expansion of TVRO home systems worldwide. That several of us were invited back for a specific function late in the spring is an indication of where a pioneering trip such as this might eventually lead.

#### Post-Log/ Sri Lanka

As it turned out, on Thursday AM only 15 of us left Colombo bound for our second visit in ten days to delightful down-town Bombay. Randall, Gowen, Gale, Guerin and Zalenka would stay on for another day to get the ADM 20 footer operational. Behar and Lyman would stay on to get the Hero 25 footer better tweeked: Jan Spisar, always the maverick, would miss his own scheduled departure because 'one last shot at wind surfing' would find him out at sea when the wind suddenly changed and it would take a rescue boat from the Sri Lankan



'FOR RENT/Split Level condo in downtown Bombay close to airport.'

navy to locate him and bring him and the boat back to safety as he was heading out to open sea and a long trek to Africa!

#### THE Trip Home

Common sense tells me that virtually nobody really cares about the trek home from Sri Lanka since it is quite obvious that in the end everyone made it safe and sound.

Still, there were **some highlights** which deserve at least a **brief mention**. Bombay first.

- 1) Keeping a good thing going, the Dehnerts (Porry and Doug) had their passports lifted by the immigration control folks as we went in. That will teach Doug to wear a beard and Porry to mis-spell her name.
- 2) Roy Orvis got smart and didn't tell the customs folks about his computer this time. He ran the risk of ending up in the Bombay jail for smuggling. He was lucky.
- 3) Frank Ogden insisted that everyone take a taxi ride to the Taj Mahal the afternoon we got in. Nobody told Frank (or anyone else) the Taj was 1200 miles away by New Delphi. **Where** the group of taxis ended up after a 60 minute ride through the Bowels of Bombay is another fun filled story.
- 4) Our plane to London was scheduled for a 4:30 AM departure from Bombay. That required that we arrive at the airport at 1 AM to try to get the Dehnerts' passports back and to arrange for the seats. The plane finally left for London at 11:45 AM, a mere 7 hours and 15 minutes late. We all watched as an inexperienced Indian crew, admitting it had 'never done anything like this



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before,' tore open a wing on the giant jet and proceeded to attempt a fix on a fuel line inside of the wing. Aware of the general skill level of Indian workers, you can be sure we were all very uncomfortable during the 15.5 hour flight to London!

- 5) Arriving in London, David Johnson headed for the first doctor he could find. Doug Dehnert was not far behind. That was on Saturday. The doctor was plainly concerned and urged Johnson to stay in London an extra day so that a culture he had taken could be allowed time to 'mature.' The diagnosis? A rare, 'new' disease called '**Campylabacter.**' Johnson is planning to have lapel buttons printed to hand out to friends; '**I've Been Exposed To Campylabacter.**' His wife Laurie suggests he will only need a few made up because "You won't **have** that many friends **left** when word gets out!"



**ANYBODY GOT SOME TAPE?** A work force that admitted it had never repaired a 747 fuel line wrenched and banged their way inside of the wing on the giant plane, in full view of the anxious passengers. After seven hours they pronounced it fit to fly again. But, we noticed none of them got on for the ride!

#### **FOLLOW-UP Visit**

Of course some of us will be going back. As early as late this spring, a return visit by perhaps a smaller group of 6 to 10 is planned, part of an expansion program now underway for the University satellite packages.

No, none of us plan to book through Bombay! As Clarke pointed out to me during a lull in panic-driven activity, "**I went to India, once.**" It was ten years ago. I had studiously avoided it until that time, but never having been there, I wasn't sure why. Then after I did go, **I knew why!**"

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