



WHERE VHF ISN'T IT ISN'T MISSED

WILL uhf television really work? Is it technically capable of serving a large market, the outlying communities and the farm homes over an 80-100 mile diameter?

Can it start from scratch, with no local vhf competition, and overcome established fringe service from vhf stations?

B•T sent Senior Editor J. Frank Beatty into the field to find out. He toured two of the more active uhf-only markets: South Bend and Elkhart in Michiana (Northern Indiana-Southern Michigan), and, in Northeastern Pennsylvania, the neighboring cities of Wilkes-Barre and Scranton. These markets were picked for their contrast. South

Bend-Elkhart country is flat, the stations are normal power. Wilkes-Barre-Scranton country is mountainous and two stations there are using power at maximum 1 million watts. Power, terrain and antenna height are said by the experts to be primary considerations to a uhf signal.

Editor Beatty talked to the station people, he monitored their signals for miles around, he talked to the set owners and to the servicemen who keep the sets running—and he talked to advertisers and agencies who buy uhf. His findings to all three of the questions above: Yes!

This is Part I of that uhf story. Part II will appear in B•T next week.

THE SCORE at the bottom of the third inning, Dizzy Dean reminded, was:

Yankees 8
Red Sox 0

In the little town of Ligonier, Ind., Old Diz unknowingly was the star of another contest—Uhf vs. Vhf. The electronic box-score on five tv receivers at the showroom of Hire Electric Co. was:

Uhf 5
Vhf 0

Three of the five uhf pictures on five uhf sets lined up against the showroom wall—and all thumping signals driven by three separate transmitters 30 to 40 miles away—offered the Yankees vs. the Red Sox. Two other receivers showed equally satisfactory uhf signals.

Persistent twirling of a dozen dials and rotating of high antennas failed to produce a single usable vhf picture.

Three uhf runs were scored by: Ch. 52 Elkhart (WSJV [TV], 30 miles away); ch. 46 South Bend (WNDU-TV, 40 miles), and ch. 15 Fort Wayne-Auburn (WINT [TV], 29 miles). All three stations offered the CBS *Game of the Week* (Saturday, April 21).

The two other uhf stations offered other

Saturday afternoon programs. They were ch. 34 South Bend (WSBT-TV, 40 miles) and ch. 33 Fort Wayne-Auburn (WKJG-TV, 35 miles).

A B•T reporter, studying the five clear uhf pictures, was reminded of another kind of uhf story which was written when WROV-TV Roanoke, Va., gave up the ghost in June, 1953. A posthumous look into that area showed that the low-powered (18 kw) signal had been leading servicemen a merry chase as they pinned bowties on chimneys and coal bins in search of the elusive picture. Converters drifted, images were often weak and advertisers were loath to endow the infant miseries of an electronic art form when neighboring WSLSTV was pouring powerful vhf signals from a mountain pinnacle ["What Happened in Roanoke," B•T, July 13, 1953].

Since that time KPTV (TV) Portland, Ore., and many other uhf stations have grown and prospered, but the original memories linger on around many of the buyers of television time.

Are the memories out of date? Does uhf succeed where it has no vhf competition? Here are some observations and conclusions gained during a field mission around the South Bend-Elkhart market:

- 99.2% of the South Bend-Elkhart homes in the four-county Pulse survey area have all-wave tuning (four out of five homes are tv-equipped).

- Advertisers can show definite results over more than a 50- to 60-mile diameter.

- Uhf stations deliver the principal tv service to over 100,000 families and 325,000 people in the nation's 64th market, with retail sales of over a half-billion dollars.

- The uhf signals are strong, stable and interference-free over most of a 60-mile diameter. They do not reach as far out as the lower vhf frequencies, everyone concedes, and they hit a ridge a half-hour's drive west out of South Bend.

- Surveys (American Research Bureau, Pulse) show fractional vhf tuning in South Bend and Elkhart, with WKZO-TV Kalamazoo providing increasingly strong competition to the north.

- Tv dealers simply can't sell a vhf-only set in the market.

- Servicemen have no trouble finding a signal within 30 miles of a transmitter when they install uhf sets; 40 miles is 50-50 because the uhf stations lack high towers and 50 miles is partly luck.

- Agencies, like advertisers, are discovering their longtime audience-per-dollar for-

mula works fine in the South Bend-Elkhart market.

WSBT was knocking on the FCC's doors early in 1947 and soon came up with a regulatory lemon—a permit to operate on ch. 1. This short-lived facility disappeared into a Pennsylvania Ave. pigeonhole and WSBT went after ch. 13. Here again the mysteries of bureaucracy interfered and northern Indiana had to be satisfied with snow, white flashes and the other vagaries of distant vhf signals.

And then came the miracle on ch. 34.

WSBT-TV took the uhf air in December 1952, a Christmas gift that caused more home-to-home traffic than anything since the advent of fringe vhf. Here and there brave set-owners invested in bow ties, bulls-eyes and other assorted grids to go with the converters that allowed them to receive a clear television picture that didn't have white flashes or jump out of vertical sync and could be picked up seven days a week, rain or shine. Astonished neighbors came, watched, and decided to convert their own sets. After all, \$50 or \$75 wasn't too much in view of the average \$200-\$300 investment in a rooftop vhf labyrinth.

South Bend was pleased, and so was Elkhart. Elkhart Truth Publishing Co. capital put WSJV (TV) on ch. 52 in the spring of 1954 and last summer Notre Dame U. opened on ch. 46.

By yearend the stations will be feeding possibly 175,000 uhf sets in a market where a vhf-only receiver is a distinct and temporary novelty.

WSBT-TV South Bend is owned by the *South Bend Tribune*, the only local paper in the city and enjoying a comfortable income. WSBT is the am affiliate. WSBT-TV operates on ch. 34 with 204 kw power. When it went on the air Dec. 21, 1952, the station held its rates down for a while and quickly built up a loyal advertiser and viewer following.

WSBT-TV is a CBS-TV basic optional outlet, carrying 82% of the network's night commercial programs, 64% of the daytime and all day-night network sustainers. Paul H. Raymer Co. is national representative. Top hourly rate is \$400.

Intake for 1956 looks like \$800,000, possibly quite a bit more, judging by spring business. The station brings in a substantial profit, which will help pay for the striking new studio-office building dedicated in April [B•T, April 16]. With this new half-million-dollar structure, total investment is well over \$1 million.

Neal B. Welch is general manager of WSBT-TV, Arthur R. O'Neil is assistant manager-chief engineer and Richard H. Holloway is national sales manager. The station claims 182,000 uhf sets in the primary coverage area (10 Indiana, 4 Michigan counties). No beer accounts are carried.

The transmitter is located several miles southeast of the city. WNDU-TV has located its transmitter nearby, greatly simplifying the installation and tuning of uhf receivers. WSBT-TV has network color.

WNDU-TV Notre Dame is owned by Michiana Telecasting Corp., a tax-paying subsidiary of Notre Dame U. The modern

office and studio building is located on the campus, with a score of students working part-time and learning the commercial television business as part of their college work.

An NBC basic optional, WNDU-TV is directed by Rev. Theo M. Hesburgh, CSC, president, and Rev. Edmund P. Joyce, CSC, executive vice president. They hold similar titles with the university. Bernard C. Barth is vice president-general manager of Michiana, which also operates an am outlet, WNDU. Tom Hamilton is commercial manager. The station carries 80% of NBC-TV night commercial programs and 75% in daytime.

With 185 kw power, WNDU-TV operates

National Collegiate Athletic Assn. football tv monopoly and creator of the 1955 Notre Dame closed-circuit football network, is said to have issued two realistic policy directives—keep it clean and make money.

WNDU-TV's Class AA rate is \$500 an hour, with a 20% discount offered retailers. A "Stick-to-It" plan gives retailers another break for longer commitments and is an attraction for co-op money. A new "Summer TAN-dem" inducement covers the April 30-Sept. 3 period and provides seasonal discounts for certain programs and spot announcements.

WSJV in Elkhart is separated from South Bend by 11 mostly built-up miles but the

THREE U SIGNALS OVER MICHIANA



THIS is the Michiana market, where three uhf signals—two from South Bend and one from Elkhart—serve television to over 150,000 sets in the nation's 64th market.

on ch. 46. The service area is described as covering nine counties, being held to more populous centers by an electrical tilt. The station is represented by Meeker Tv Inc., but shifts July 15, its first anniversary, to Edward Petry & Co.

Total investment is around \$750,000. While the first-year program called merely for WNDU-TV to get on its feet, the station was said to have crossed the threshold into the black early last month. Income for calendar 1956 should total \$650,000 to \$700,000, though a good second half could shove it higher. Network color is transmitted and an RCA color camera chain is on order.

Father Joyce, an eloquent opponent of the

two South Bend transmitters are only 10 miles from the Elkhart transmitter. WSJV took the air March 20, 1954, after WSBT-TV had already led to extensive conversion of vhf sets. With NBC-TV programming, the entry of a second primary signal with network service spurred the uhf transition. WSJV now is an ABC-TV affiliate, and operates on ch. 52 with 248 kw power. WTRC is the am affiliate. H-R Television Inc. is representative.

John F. Dille Jr., president-general manager of the stations, publishes and edits the *Elkhart Truth*. He is 35.5% owner of WSJV. A. H. Beardsley Trust No. 3 of the Miles Lab interests owns 49.5%. Paul C. Brines, formerly assistant manager of WGN Chi-

ago and active in Illinois broadcasting more than a decade, is director of broadcasting. WSJV carries 75% of ABC-TV's commercial programming and has all fall network programs on the schedule, including *Omnibus*.

Business is good this spring, with March 15% above a year ago, according to Mr. Brines. The station investment runs over \$500,000. Income for 1956 should exceed \$450,000 and possibly reach \$500,000, despite loss of NBC-TV to WNDU-TV last July. Network income to the station from the ABC-TV affiliation is described as above the NBC-TV take, but national spot has suffered because some prime adjacencies went to WNDU-TV. The slack is being taken up by energetic selling in Elkhart, South Bend and Mishawaka plus such outlying communities as Goshen, Napanee and Warsaw. The top WSJV rate is \$300 an hour. The station is on the brink of profitable operation.

NATIONAL advertisers who buy television time—vhf and uhf—are inclined to count potential customers rather than megacycles when they spend their money. Wesley Nunn, advertising manager of Standard Oil Co. of Indiana, told B•T, "We don't ask whether a station is uhf or vhf. We want the best circulation—the best audience per dollar. We want to know what it costs to tell our story to 1,000 people. Standard Oil will always buy a uhf station if it is the better buy—and it often is."

A local advertiser who is interested in at least a 25-mile spread—Robert Slocum, Sewmatic sewing-machine store, Mishawaka (South Bend contiguous suburb)—can trace every lead because he asks prospects where they heard about his \$39 loss-leader (not bait-switch) offer. Thirty per cent of the store's business comes from out-of-town. His 12 weekly announcements on WNDU-TV bring inquiries as far as 35 miles out, including Niles and Buchanan, Mich., and Culver, Knox, Plymouth and LaPorte, Ind.

"Some agencies and advertisers don't like uhf as well as vhf," Mr. Buchen was told. The astonished businessman could think of only one reply:

"Why?"

He added, "All I know is that around here we feel the other way. We think uhf is wonderful."

And what do some of the other area advertisers say about uhf?

Max I. Seldenright, who has the Nehi-Royal Crown Bottling Co. franchise for four counties (St. Joseph, Elkhart, Marshall, Kosciusko) started on WSBT-TV's *Hoosier Favorite* pantomime-movie program a year ago, promoting only Royal Crown Cola and placing through Compton Adv., New York. Results appeared quickly. As Mr. Seldenright relates the story: "Business was suffering from labor troubles around the area but our sales climbed from an 8% drop to a 12% increase. Of the 12% gain, all but 2% was traced to RC. This year sales are up 20% and nine-tenths of the increase is from RC."

"Royal Crown sales increased on every

route, showing how WSBT-TV's influence extended out 20 to 30 miles. Chicago RC sales dropped while ours kept increasing. Incidentally, I have \$300 worth of antenna sitting on my roof that I don't use any more."

Another advertiser who aims out 30 miles and more is Femco Inc., distributor of Motorola tv sets and a wide line of appliances. Del Carlisle, Femco sales manager, who is sponsoring the *My Little Margie* film series on WNDU-TV for 26 weeks, said the company has 100 Motorola dealers in 11 counties—three in Michigan, eight in Indiana.

Motorola is the second set in the market, he said. In describing the uhf-vhf situation, he said only 7% of receivers in the entire 11-county area are vhf-only and these are in the Michigan City and Benton Harbor areas bordering Lake Michigan. Chicago bangs into these cities with the aid of a water-haul. "As you go west of South Bend into LaPorte and Michigan City," Mr. Carlisle said, "about half the receivers are all-wave models." He said an all-channel Motorola costs \$30 more than a vhf-only set.

The financial business likes South Bend-Elkhart television as served up by the three uhf stations. St. Joseph Valley Bank, Elkhart, is developing community prestige and bringing in new business through a public service program *Living With the Law*, produced by the Elkhart City Bar Assn. on WSJV. "The response in nine weeks has been tremendous," according to Eldon Lundquist, assistant vice president. "The first week opened our eyes; the second week showed continued growth; the third week was amazing."

"We measure advertising on an overall basis. Deposits are growing, contrary to the general trend. Trust activity is increasing, a key index."

The account is placed through Linder-Scott Associates, South Bend. Jack Scott, agency partner, is program moderator. The bank leads all Elkhart banks in rate of growth.

One of the more recent uhf enthusiasts is Joseph Laveno, president of Riverside Motor Sales, Goshen, Ind. (15,000 population, 10 miles southeast of Elkhart). "My television customers come as far as 60 miles away," Mr. Laveno said. "Well over half of them come in because of our Thursday night movie on WSJV. Television really does a job for Riverside. Nearly all our customers mention the program. We don't do much vhf tuning in this part of the country."

While many tv executives of national advertising agencies deny stoutly that they have any prejudice against uhf, many concede that memories linger on from some of the more unfortunate uhf station situations found in intermixed markets. One prominent buyer who preferred not to be quoted said leading agencies buy uhf in uhf markets but conceded they aren't too enthusiastic about some of the intermixed areas. "There is no Madison Avenue complex," this buyer said, mentioning such mixed markets as Portland (Ore.) and Miami. "We want evidence of listenership and conversion," he

declared, adding that many uhf stations are derelict in not providing "accurate and adequate evidence of circulation."

On the other hand, a prominent station representative, who is not interested in the market but insisted on remaining anonymous, said, "There is an agency prejudice against uhf based on the original floundering stations, their weak signals and the bad receivers. If a uhf station is not an NBC or CBS outlet, many of the national agencies don't bother checking any further."

Station brokers, who appraise stations as well as buy and sell them, approach a uhf deal cautiously, one of the leading figures in the field told B•T. "If it's a good, prestige station with a high conversion rate and a good audience, we'll naturally be interested," he said, and then added, "A lot of them don't meet that test, especially in mixed markets."

LOCAL advertising agencies operating in Northern Indiana have no uhf prejudices. If anything, they're dubious about vhf except close to Lake Michigan or to the north. Jack Scott, partner in Linder-Scott Associates, and m.c. of the *Living With the Law* program mentioned earlier, said uhf caught on slowly in 1953 but now is a powerful medium. "Uhf is effective and reaches out well. The station coverage maps are generally accurate. We have all three networks and a lot of homes only need an inside antenna. Not much vhf is tuned around here any more."

Lincoln J. Carter, head of the South Bend agency bearing his name, said he can trace the uhf influence accurately as far as 50 miles—Warsaw, Ind., for example (44 miles). He said a client of the agency, Tower Federal Saving & Loan Assn., has used WSBT-TV to build prestige. "A lot of people thought saving and loan associations were alley bucket shops or small-loan sharks," he said. "Our first year on the air was directed at that fallacy. The second year we showed the soundness of our operation. Then we explained how Tower is a good place to save."

"Total assets have nearly doubled in recent years, after standing still for 20 years."

Clement B. Haines, account executive of Lampert, Fox, Prell & Dole, South Bend agency, gave a single-shot program on WSBT-TV credit for an astonishingly successful boat show held March 2-4 north of South Bend by Bullock Outboard Marine Co. A quarter-hour on the Joe Boland sports show "had a big effect," he said, with space also used in the *South Bend Tribune*. "Nearly everyone mentioned the program. Bullock's sold large numbers of boats, sold out every Arkansas Traveler in the place and had a customer for a \$6,730 Coronado."

Mr. Haines offered this aside, "We think uhf is the greatest. There is no spark plug interference. Maybe you've noticed the flashing that shows up on vhf pictures. Uhf doesn't have airplane interference, like vhf, and it's necessary to remember that we're on the New York-Chicago route. We used to put up with vhf interference, poor fringe pictures and expensive towers, but we don't have to anymore."

WHAT THE SERVICEMAN THINKS ABOUT UHF

IT'S MOSTLY FLAT in the dozen or so Michiana (Northern Indiana, Southern Michigan) counties that depend primarily on the three uhf stations in South Bend-Elkhart for their television service. With a gentle roll and few hills to interfere, and no lofty mountains to throw blocks, the uhf pictures can be picked up 25 miles out with a corner reflector hitched to the chimney. From 25 to 50 miles, the signal may be good or it may be too weak to drive some of the noisier all-wave receivers.

There's an angle that must be emphasized in any mention of the flat Michiana landscape. That's the lack of high television transmitting towers. WNDU-TV Notre Dame (South Bend) has a 538-foot tower just 570 feet above average terrain. WSBT-TV's tower nearby is 479 feet high and 540 feet above average terrain. WSJV Elkhart has a 445-foot tower 410 feet above average terrain. All operate with medium uhf power (under 250 kw.).

Even so, the three stations put out a signal that engineers say is far better than the FCC's curves would indicate. There's little apparent difference in the way the three signals come in though they range from ch. 34 (WSBT-TV) to 46 (WNDU-TV) to 52 (WSJV). The lower frequency tunes a little broader but not sharper on the continuous tuners used in most sets.

Signal strength can be measured by an engineer's meters. It can be measured, too, by a curious reporter in an automobile. The latter procedure, while less scientific, provides answers to the question: How far does the signal go, and how good is it from a viewer's standpoint? By contacting tv dealers in outlying areas, the answers to most of the frequently asked questions about uhf coverage are provided.

Few servicemen or technicians say anything nice about the strip tuners used to adapt older sets. They work up a temperature when the 6AF4 tuner tube is mentioned. That's a critical tube in many tuners. Service people say it boils and puts out almost as much noise as signal. Its life is limited from a few months to a year, depending mostly on luck. The 6AF4 tube starts to fall apart first in the higher frequencies.

What these people say about set manufacturers and the type of engineering in all-wave receivers is often unprintable. Many of them estimate it takes three to 10 times as strong a uhf signal to plant a good picture on the screen as vhf needs. The difference? Noisy tuners, they insist.

"Why," moaned one city dealer, "Why doesn't somebody down there in Washington make these manufacturers answer for their sins? The stations and networks try to put out good programs and we go crazy trying to install the junk the factories give

us. Nobody has ever developed a really decent tuner that can be built into a reasonably priced all-wave set. That new model (6AF4A) might be a little better, but not much. Tell them down there they ought to cut out the excise tax from all-wave sets and investigate the failure of manufacturers to turn out good equipment."

With all their troubles, tv servicemen are keeping all-wave sets operating. A tuner tube costs \$3.50 retail, plus \$5 more or less for the installation.

South Bend, Elkhart, and the outlying towns and farms offer myriads of tall, guyed vhf antennas. Practically all of these were built before reliable three-network service was available from the uhf stations. Often uhf bow ties and corner reflectors were fastened to the masts, usually within easy installation distance from the roof.

Because the two South Bend transmitters are 10 miles from the Elkhart station, some homes have two uhf antennas. Often servicemen split the angle and let one antenna do the job. Going out 30 or more miles, it's necessary once in a while to set up a rotor.

HERE are some typical comments made by dealers in three directions out of South Bend-Elkhart—north-northeast, east-southeast, and south—plus some observations by a metropolitan dealer:

Gene Gage, sales manager, Grant's Furniture & Appliance Store, Lagrange, Ind. (30 miles from Elkhart, 40 from South Bend, 27 from Fort Wayne-Auburn): "Most people get good signals from Elkhart and Auburn. South Bend and Fort Wayne are usually good but may have occasional snow. We start to lose Elkhart after going 10 or 15 miles east of Lagrange (over 40 miles). Kalamazoo comes in pretty good but there is interference. The 6AF4 tuner tube is giving us less trouble than last year. Very few homes don't have tv around here. All sets sold are all-wave, including color. Our new RCA color set brings in a good black-and-white signal from Elkhart."

Mrs. Tom Hire, Hire Electric Co., Ligonier, Ind. (closest uhf transmitter 29 miles): "We get five good uhf signals from Elkhart, South Bend and the Fort Wayne stations, and practically no reliable vhf service. Usually one antenna with a rotor or two corner bow-ties aimed opposite directions will get all five uhf stations. Occasionally we get a little snow from South Bend or Fort Wayne.

"Our new GE portable gets Elkhart on the built-in antenna, and all five stations are pretty fair with an indoor bullseye antenna. They're all hotter than a firecracker on the store's roof antennas. Nobody buys vhf-only sets."

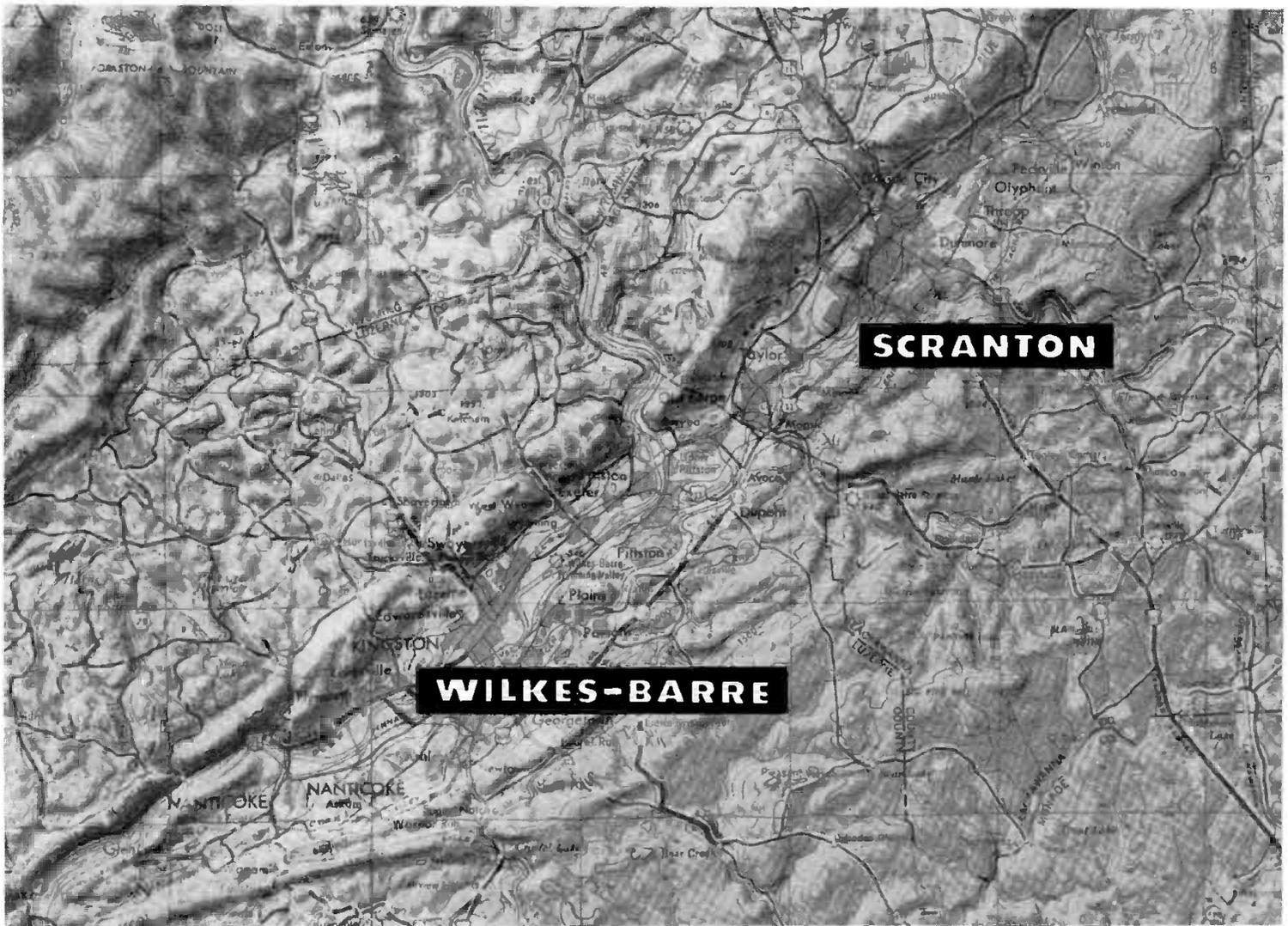
Mrs. Lloyd Beatty, Pi-Rod Tv Sales & Service, Plymouth, Ind. (23 miles from

South Bend, 28 from Elkhart): "We always get South Bend and Elkhart in our area, which goes as far as Rochester (40 miles from South Bend), Culver, and Bourbon. Fort Wayne, 65 miles, comes in very weak. The South Bend-Elkhart stations come in strong and we seldom need a tower except in a real bad spot. We make commercial and home towers and sell only all-wave sets. The 6AF4 tube is short-lived but we have a 1953 Westinghouse on the bench that uses a 6J6 instead, and the original tube is still operating. Some of the Chicago stations (100 miles away) come in with fringe service on a high tower but often we can't get the signals at all." South Bend came in snowy on a receiver's built-in antenna. An indoor corner reflector aimed away from South Bend brought in adequate pictures from the two stations. Outside antennas brought in fine pictures.

George Bucher, Bucher's Appliance Co., South Bend: "We haven't sold a vhf-only set in three years, and less than 1% of buyers want big vhf masts costing \$190 upward. The three local uhf stations work anywhere inside our 15-mile area with bullseye, beercan or bowtie antennas. We run 50-50 indoor and outdoor antennas. Not over 25% of South Bend homes have more than one antenna. The built-in all-wave antennas in receivers don't work. They're only a gimmick." The store sells a \$19.50 converter at a profit for use on trade-ins and old vhf-only sets. "Manufacturers who charge \$40 or \$50 for a tuner are gouging the public," he said. "They're several years late coming out with a tube to replace the 6AF4 in tuners. And why do they make it tough for us by advertising just the vhf-only price in magazines?"

Vincent Ward, of the Vincent Ward Appliance Store, Niles, Mich. (13 mi. from South Bend stations, 18 mi. from Elkhart): "We usually get South Bend and Elkhart on one antenna or an indoor pickup. WKZO-TV Kalamazoo comes in pretty good on a mast but Chicago is snowy. The uhf signals are generally good in Dowagiac (13 miles north) but beyond that it starts to taper off. Before uhf 98% of sales included guyed towers. Now we only sell all-wave sets. The low-priced RCA models pick up the uhf signals. We never sell a vhf-only set but a few people want masts; they like to boast they can get Chicago and the ball games. Once in a while the 6AF4s blow but don't misunderstand me—I don't mean everybody has tuner trouble."

Ernest Shank, Shank Radio Appliances, Cassopolis, Mich. (23 miles from South Bend stations, 20 from Elkhart)—"I never sell a vhf-only RCA or Crosley. Uhf comes in good beyond Vandalia (25 miles from South Bend) but there's a lot of Kalamazoo tuning around here on high towers. Chicago comes in on a tower, if conditions are right. I guarantee everything 90 days so the 6AF4 tubes cost me plenty. The new 6AF4A is a little better. RCA tuning shafts and knobs broke on some models but they corrected it. Out this far we need a \$39.95 converter with two tubes and crystal. Now and then we get Elkhart and South Bend on the receiver's built-in antenna."



HILL COUNTRY UHF

DOES uhf work? Last week Senior Editor J. Frank Beatty assayed the medium in the South Bend-Elkhart, Ind., market, which is mostly flat terrain. He found uhf serving that area capably over an 80-100 mile area. This week B•T presents his findings in an area where uhf has faced a more dramatic challenge—in the tumbled hills and deep valleys of Northeast Pennsylvania.

LAST SUMMER a busy man with sturdy feet and a full notebook wandered up and down the mountains and valleys of Northeast Pennsylvania. From Lewisburg, 55 miles southwest of Wilkes-Barre, and north of Scranton to the New York state line, he knocked on doors and asked questions.

The purpose: To find out what media reach the majority of the people in this extensive market, one of the first 50 in the U. S.

John Green, advertising manager of Fowler, Dick & Walker, The Boston Store (Wilkes-Barre), spent four tough but informative months on his media mission. His knuckles still twitch at an imminent door sill, but his survey led to a conclusion that had a profound impact on the advertising policies of this department store, described as the largest in the market. The conclusion:

"Uhf television is the only medium that covers most of the Wilkes-Barre and Scranton 100-mile trading area."

The twin cities, 15 miles apart, have daily newspapers, as do some of the smaller cities, but The Boston Store could find only one single medium that reaches its metropolitan and outlying market. Now the store is a major television sponsor.

Four uhf stations—two with megawatt (1 million watts) power and two with about a quarter megawatt—push their signals up and down the valleys and around mountainsides. This rugged terrain, engineers predicted years ago, would be a most unlikely spot for uhf. Yet today, people on the blind side of hills and tucked in

curving valleys are getting signals from Wilkes-Barre and Scranton. The laws of allocation aren't being defied; rather, the uhf stations are using height and sheer electronic muscle to provide reliable service to a predominant share of the populace. All four stations have transmitter sites over 2,000 feet above sea level and 1,500 feet above the Susquehanna and Lackawanna River valleys.

Of utmost importance in the Northeast Pennsylvania television market is the fact that around 90% of the people live in valleys, which run in a generally northeast-southwest direction. The four uhf stations sit atop mountains that give them a clean shot up and down these inhabited valleys. Luzerne County, with nearly 400,000 people, and Lackawanna County, with 275,000, depend almost entirely on uhf signals picked off the air. Aside from such smaller places as Shickshinny, victim of a river bend, and the important Hazleton market, for example, direct off-the-air reception prevails.

As uhf signals get out 30 to 100 or more miles from the twin cities, they are picked up at what is often known as "Cable Heaven."

Dozens of cities and towns, such as Williamsport and Sunbury, are served by community antenna systems with their direct cable feeds to subscribing customers. Those living in the deep valleys of mountainous Schuylkill County (South of Luzerne) and many other outlying sections are mostly dependent on cable service.

Scranton and Wilkes-Barre reach directly many towns 50 miles away, with uhf signals obligingly bending down and around to a limited extent, and bounding among the hills to provide refracted and reflected images that alert servicemen are quick to catch. The signals go out 50 to 75 miles and more for the benefit of viewers living on hilltops or favorably sloping hillsides.

Over 90% of the families in Lackawanna and Luzerne counties have tv reception. Conversion is practically 100%. Plenty of

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homes do not have all four uhf signals, but relatively few are totally blind. Uhf's technical advantages such as freedom from man-made and natural interference are offset by a shadow problem that no broadcaster tries to ignore. The shadows are inevitable around this rugged landscape and even a few isolated blocks in the two main cities have signal trouble.

Many engineers insist that vhf, too, would have shadow problems in the market—possibly worse than uhf. They point to the vhf shadowing in areas 20 or more miles from ch. 12 in Binghamton, N. Y.

This conclusion is inevitable after a visit around Northeast Pennsylvania: Wilkes-Barre and Scranton, and the outlying trade areas, totaling 1½ million people, are happy with their uhf service.

The question that keeps popping up most often is this: Is megawatt power the answer to the uhf problem in mountain country?

In general, the answer is affirmative. Signals are stronger, all agree, but the benefits were practical rather than dramatic. Primary areas spread somewhat, but the main benefit came from the solid pictures put into marginal and inaccessible homes within the primary and secondary areas.

No miracles came out of the quadrupled power. Nobody involved in these megawatt operations—WBRE-TV and WILK-TV Wilkes-Barre—expected miracles. They wanted to cut down the shadow areas and overcome the snow, and they attained these goals. This fill-in improvement, most of them agree, meant more viewers than a 20-mile extension of the primary radius could have provided. The other two stations in this uhf market are WGBI-TV and WARM-TV Scranton.

That is a thumbnail and non-technical summary of the Wilkes-Barre and Scranton market—the market that Mr. Green surveyed on behalf of The Boston Store. Having found that uhf television provided the only single medium that could deliver commercial messages to the market, the store started planning. Late last month it opened a major television campaign, starting a five-minute window in the NBC-TV *Today* five mornings a week on WBRE-TV Wilkes-Barre plus 70 announcements and IDs. The *Today* window—and it's a carefully planned production—was telecast the morning of May 4 from "The Little White House" on the second floor of this thoroughly modern department store. Every department has been wired for live tv production.

With uhf, The Boston Store is contacting the trading area residents. The slogan "a great store in a great state" and a Pennsylvania map are identifying devices. Tv sets have been placed around the departments as morale builders and sales stimulants for the staff as well as for public observation.

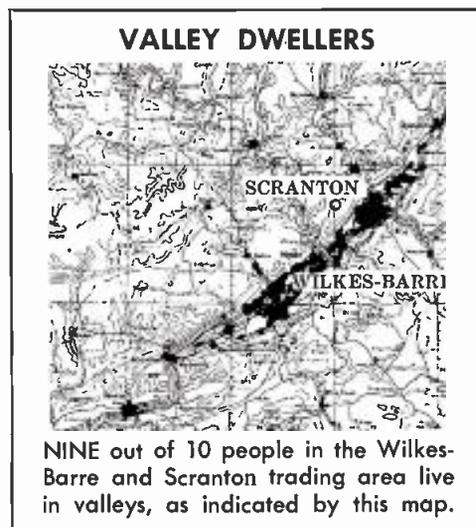
A major retailer's discovery that uhf is the only medium that can serve this corner of Pennsylvania is shared by one of the area's important advertising agencies, Crolly Advertising Agency of Wilkes-Barre. Phil A. O'Neill, president of the agency, joins Mr. Green in feeling that the only way to understand public media habits is to go out into the field and talk to people and

businessmen.

"In Northeast Pennsylvania," Mr. O'Neill said, "Uhf is definitely the medium to buy. Vhf has little coverage that excludes uhf reception. Binghamton puts a vhf signal into northern parts of the market but it is unnecessary to local, regional or national advertising.

"The uhf stations are well engineered and get into the populous areas, with a potential of two million people. They reach 75% to 90½ of the L&L people—Lackawanna County (Scranton) and Luzerne County (Wilkes-Barre).

"I constantly see people in their homes in my field work. If I were a New York, Philadelphia, Chicago or San Francisco agency I would definitely use uhf to reach Northeast Pennsylvania. Some timebuyers still shy from uhf like a scared horse because of the black eye it suffered in some



NINE out of 10 people in the Wilkes-Barre and Scranton trading area live in valleys, as indicated by this map.

other markets. They don't know this market if they don't buy uhf.

"This corner of the state was starved for tv almost six years. People spent big money for vhf sets and antenna or cable facilities. Now they have excellent uhf service and the networks are received all over the market except in some of the severe shadow spots."

WBRE-TV (ch. 28) is wholly owned by Louis G. and David M. Baltimore. The father-son executive team combines engineering and management experience, with the elder as president and the younger as vice president-general manager. Their aggressive operation is reflected in the pioneering of megawatt uhf, the original RCA installation having been set up with this in mind. Charles Sakoski Sr. is chief engineer.

As a basic NBC affiliate, WBRE-TV has a top rate of \$575 an hour for network time and Class A rate of \$450.

Despite the heavy investment in equipment, WBRE-TV is described as a profitable operation. Business is well over last year and is expected to pass \$900,000 in 1956. The NBC-TV service is picked off the air from a relay atop Pimple Hill, in an eastern mountain range.

The Baltimores own WBRE, 250 w on 1340 kc, and WSCR Scranton, 1320 kc regional. Their studio-office building in downtown Wilkes-Barre once was a residen-

tial showplace. The transmitter is located alongside a mountain highway with 2,110-foot elevation. WBRE-TV's national representative is Headley-Reed Tv.

WILK-TV (ch. 34) went on the air Sept. 17, 1953, also setting up its transmitter on Wilkes-Barre Mountain, southeast of the city. It operated with a quarter-million watts before going up to a megawatt early last year. Eight stockholders share equal ownership, including Roy E. Morgan, executive vice president, and Thomas P. Shelburne, tv managing director and treasurer. WILK, regional on 980 kc, is the am affiliate. Vernon and Gerald Wise, owners of the *Butler* (Pa.) *Eagle*, are stockholders in the tv operation. Chief engineer is Theodore French.

Though it cost over \$200,000 to boost the power to a megawatt, and operating costs are up, the station is just returning to the profit column, according to its officials. Income this year is expected to reach \$600,000. The top hourly rate is \$300. The station goes on the air shortly after noon.

The network story, as related by WILK-TV, is roughly this: WARM Scranton and WILK Wilkes-Barre were ABC Radio affiliates, so when the two tv stations started within a five-month period the network let them fight it out. As a result, both stations are ABC-TV optional affiliates and buyers of time can take both or either. WILK-TV, with its megawatt, claims all but two ABC-TV network commercials. WILK-TV's national representative is Avery-Knodel. A direct AT&T network link is used, the only one in the area.

WGBI's roots go back to early radio days when the late Frank Megargee started a pioneer broadcast station in his radio shop. His daughter, Mrs. Douglas Holcomb, is vice president and general manager, with 85% of the stock held by her mother, Mrs. Madge E. Megargee, president. Now WGBI-TV (ch. 22) is planning another pioneering venture as it installs GE transmitting gear capable of operating on 2 megawatts, though the actual permitted power is only half that much under a recent FCC ruling. The transmitter will be a proving ground for radiation experiments.

A three-city television tieup is envisioned by WGBI-TV as a way of adding to uhf coverage in Northeast Pennsylvania. This proposes purchase of 90% interest in the projected WRAK-TV Williamsport (ch. 36), not on the air, and 51% of the projected WKOK-TV Sunbury (ch. 38). The two added cities, now reached on a spotty basis by WGBI-TV, could pick its programs off the air. Both cities have community cable systems. Sunbury, on the Susquehanna River, is about 55 miles southwest of Scranton; Williamsport sits 60 miles west in a saucer and can only get Scranton and Wilkes-Barre reliably in the high spots, aside from cable service.

WGBI-TV is operating in the black and expects to take in possibly \$750,000 this year. An additional \$400,000 item for the new transmitting equipment will challenge the black-ink rating. The station's top hourly rate has been raised from \$250 to \$400. H-R Representatives is national representa-

tive. As a CBS-TV optional, WGBI-TV provides the only CBS network service over an extensive area. While the station feels it is reaching most of its normal market with 250 kw, it isn't going to be left behind in the megawatt race. It will be ready to go on up to 2 megawatts if FCC lifts the permissible power limit. Operating WGBI-TV with Mrs. Holcomb are Vance L. Eckersley, attorney-consultant; George D. Coleman, general manager-national commercial manager, and Kenneth R. Cooke, chief engineer. Douglas M. Holcomb is promotion manager.

The two Scranton stations, with adjacent mountaintop sites west of the city, claim ability to put their uhf signals into the populous valleys, whereas the Wilkes-Barre stations claim their mountain offers the better location.

WARM-TV started in February 1954 on ch. 16. William W. Scranton, treasurer, is 80% owner of stock and President Martin F. Memolo owns the other 20%. William Dawson is general manager and Ross Parker chief engineer. Bolling Co. is national representative. The station is an optional ABC-TV network affiliate. Mr. Memolo said it takes about 50% of the network's commercial programs. Highest rate is \$225 an hour.

Revenues in 1956 are expected to be around \$450,000, judging by winter and spring business. The station is making steady progress, Mr. Memolo said. "Each

quarter has been better than the last one," he explained. "We'll be in the black in the not too distant future."

Mr. Scranton, president of Scranton Lackawanna Trust Co. and director in DL&W railroad and other corporations, holds a minority interest in WTVE (TV) Elmira, N. Y., which returned to the air a week ago after having been blown out of operation by famed Hurricane Hazel. He said Elmira is taking ABC-TV programs from WARM-TV, with a combination sales arrangement. Transmitters are 83 miles apart.

The Elmira service area includes 120,000 people and 42,000 converted receivers, he added. Autumn plans call for strengthened program service where ratings are low. The aural station, WARM, operates with 5 kw on 590 kc. WARM-TV goes on the air daily at 12:45 p.m. Coverage of a 200,000-set uhf area is claimed with 191 kw power.

The megawatt signal is emitted in two different ways by WBRE-TV and WILK-TV, and now WGBI-TV is tooling up to use both of them.

WBRE-TV became the first megawatt tv station at 3 a.m., Dec. 31, 1954, on the eve of its second birthday. It added two RCA 12½ kw amplifiers to the 12½ unit that had been putting one-fourth megawatt off the antenna, using the older unit as a 5 kw driver. The megawatt signal is radiated with a 46-gain pylon antenna.

Three weeks later WILK-TV joined the megawatt ranks, adding a 45 kw GE amplifier to its 100 w exciter and 1 kw driver. The antenna gain is around 25, half that of the WBRE-TV antenna.

Which is the better system? WGBI-TV hopes to find out when it jumps to a megawatt this summer. Using GE equipment, WGBI-TV will operate a 45 kw amplifier split into two sections. It will have a 50-gain antenna split in the center.

With this flexible setup, WGBI-TV will attain a megawatt by (1) using high antenna gain on half power and (2) by using half the antenna gain and the full 45 kw amplification. According to Mr. Eckersley, the station will measure the signal at a number of points in search of a solution to the megawatt controversy. FCC permission to use this ambidextrous combination was granted May 4. WGBI-TV originally had sought permission to operate the whole combination at 2 megawatts power but this petition was withdrawn when Wilkes-Barre stations indicated their opposition.

What happens when a uhf station ups its power from one-fourth megawatt to a full megawatt?

John Creutz, of the consulting firm of Page, Creutz, Steel & Waldschmitt, summed it up this way: "Megawatt operation made it easier to get a good signal over the whole service area and helped substantially to fill in the shadows and dead spots. The stations

WILL GE'S 6BY4 DO THE TRICK?

AROUND the hills of Northeast Pennsylvania the four uhf tv stations in Wilkes-Barre and Scranton are pumping efficient signals from strategically located mountain peaks, but there are two problems facing this relatively new medium—problems beyond station control.

First, engineers and servicemen agree, is the receiver problem. The allwave circuitry is highly inefficient, they feel, though some progress has been made by set factories. Second is the problem of filling absolutely blind spots, such as Schuylkill County, and putting a boosted signal into distant points.

Like their South Bend-Elkhart brethren, technical and service people speak critically of the front-end gear that goes into receiving sets and blame manufacturers for not putting better engineering into these allwave models. After all, 1,181,000 allwave sets were manufactured last year of the 7,756,000 tv total, plus large numbers of converters for vhf-only models.

"There's a crying need for a good front end in receivers," said Charles Sakoski Sr., chief engineer of WBRE-TV Wilkes-Barre, megawatt station. "A reduction in tuner noise of 6 db would be equivalent to an increase in station power from 1 to 4 megawatts."

Theodore French, chief engineer of WILK-TV Wilkes-Barre, also operating with a megawatt, said the new General

Electric microminiature metal-ceramic tube (6BY4) could be installed in a tuner to add possibly 6 db to the signal. This is the benefit gained by quadrupling power from 1 to 4 megawatts.

Mr. French said a tuner using this tiny tube (see photo) would include an rf stage, requiring a tuning adjustment.



GE's 6BY4

been used in guided missiles and for professional tuning. GE describes it as a low-noise, high-gain type. Technical delegates at the NARTB Engineering Conference last month voiced enthusiasm at the hope for a way out of the allwave tuning predicament.

Inquiry at GE disclosed that manufacturers, who have been sent models of the tube and technical data, are showing little interest in development of new uhf tuners despite obvious signs that FCC is looking toward uhf for allocation relief.

On a production basis, it was indicated at the NARTB meeting that the tube might be produced for around \$2. A power gain of 15 db is claimed for the 6BY4 with approximately a 6 to 8 db signal-to-noise improvement over the

6AF4 used in most uhf tuners. The 6AF4 boils, and it loses efficiency at the upper end of the uhf band. GE claims simplified vhf-uhf tuners can be built with the tiny, new ceramic tube.

Western Electric Co. has a costly tuner tube containing gold elements, but it is out of the consumer-product price range.

While tuner improvement will benefit all uhf reception, the stations in the Wilkes-Barre and Scranton area are showing interest in boosting of the transmitted signal. They would like to use efficient, trouble-proof translators, costing around \$5,000, for shadow spots. These automatic translators would operate in the top part of the uhf band and cover a range of several miles.

They are interested, too, in automatic boosters that could add vitamins to signals in weak spots. Both translators and boosters have been developed.

What would happen to community cable systems? One answer can be found in Wilkes-Barre, which once had a prosperous hookup. It now operates with a small subscriber list, principally taverns and clubs seeking sports and other programming from New York and Philadelphia vhf stations.

Around Northeast Pennsylvania are numerous cable systems, such as those at Williamsport, and small outfits serving crossroads spots and villages. All of them charge fees ranging up to \$3 or more a month for their service. None of the Scranton or Wilkes-Barre stations could offer any information on their cable circulation but they conceded it is extensive.

needed better coverage of the concentrated population." His firm is WILK-TV consultant.

The two Wilkes-Barre stations voice satisfaction at the results, but concede the service area was not pushed out substantially. They were aware of this before contracting for the new transmitters. Since the country is rugged, they wanted to add decibels where signal strength was barely adequate or inadequate.

Put in a general way, the two stations increased signal strength 6 db by quadrupling power. To get another 6 db they would have to go up to 4 megawatts, involving additional cost factors.

Since the tuners in allwave converters tend to deteriorate faster than the rest of the receiver, thus losing efficiency, the stronger Wilkes-Barre signals give a margin of safety. Equally important, from a coverage standpoint, is the conviction of both stations that the stronger signals added more audience than a 20-mile extension of the radius would have obtained. In the fringe city of Bloomsburg, the megawatt power "made the difference between just a tv picture and a real good picture," according to Joe Follmer, serviceman. Many servicemen observed that antenna adjustments are now less critical in outlying areas.

David Baltimore stated it this way, "Since we went to a megawatt, complaints have practically disappeared. We like our megawatt. We get heavy mail from Allentown, Bethlehem and Reading, but don't claim coverage." Mr. Baltimore said people forget that vhf had its troubles a few years ago, and added that uhf is just emerging from that stage.

Neither WBRE-TV nor WILK-TV has been silenced for any noticeable time because of trouble with their megawatt transmitters.

The uhf signals bounce around the hills, creating occasional problems. This can be serious when dual home antennas are hitched to a single lead-in. Large numbers of homes use bow ties or corner reflectors to pick up the two cities.

Mr. Scranton is satisfied with 250 kw for WARM-TV. "Our power on ch. 16 serves the area adequately," he said. "The megawatt power impresses Madison Ave.; possibly it is justified as a sales expense."

Having reviewed the coverage factors, the next question is this: How much does it cost to put out megawatt service?

Messrs. Shelburne and French said the WILK-TV transmitter tube bill went up from \$800 to about \$3,000 a month. It cost roughly \$220,000, including installation, to put in the GE unit. Six klystrons are rented from GE at a cost of \$1.25 per tube per hour, or \$7.50 per operating hour (three rent-free spares are kept handy).

WILK-TV hired three extra technicians as a safety factor. The station said it expects a cut in tube rent from GE because careful maintenance is giving longer tube life than originally anticipated. The power bill at the transmitter has increased from \$800 to around \$2,500 a month, due to the addition of the 45 kw amplifier.

At WBRE-TV Vice President Baltimore and Mr. Sakoski said their tube bill is running about \$5.70 per hour for six major tubes and going down every month. WBRE-TV operates with 4 pentodes (and two spares) bought from RCA at \$4,300 each. Tube life is being built up to 6,000 hours. The megawatt installation cost over \$200,000, about the same as the WILK-TV figure. Power costs have risen from \$600-\$700 a month to \$1,300 (including the fm transmitter) but WBRE-TV goes on the air in early morning whereas WILK-TV starts at lunch time.

Aside from cost factors, broadcasters have varying views on the merits of the two megawatt systems. David Baltimore, a Massachusetts Institute of Technology graduate, prefers the simplicity and efficiency of the RCA transmitter.

On the other hand Messrs. Shelburne and French prefer "honest kilowatts" to high antenna gain. They claim WILK-TV puts out a fatter lobe that is superior to that of WBRE-TV over most of Northeast Pennsylvania and contend it's easier to phase the signal so it is tailored to the population centers. They cite an engineering survey to support this claim.

WGBI-TV's megawatt operation will add new fuel to the technical argument when the new plant gets underway in a few months.

Reception in Outlying Areas

Here are typical comments gathered in field trips around Northeast Pennsylvania:

Jack Vandermark, Vans Tv Furniture Appliance Co., Berwick (18 miles from Wilkes-Barre, 35 from Scranton, in valley)—"Wilkes-Barre stations come in best. Scranton is hard to get snow-free in low spots behind hills but there are few blind areas. Some ghosting is found northwest toward the mountain. The newer model allwave tuners are getting better. No reliable vhf service comes into this area. Some of the uhf trouble is due to cheap leadins." A General Electric portable hitched to a roof antenna brought in 28 and 34 satisfactorily. Scranton stations were snowy but Mr. Vandermark said he had just moved into a new building and didn't have permanent antennas in operation.

Joe Follmer, Bloomsburg (30 miles from Wilkes-Barre, 45 from Scranton, in valley)—"We have a few blind spots, and there are some snowy installations. Since Wilkes-Barre went to a million watts we get chs. 34 and 28 good. Scranton is noisy but adequate in most cases. Sunbury (15 miles southwest of Bloomsburg) gets the two cities spotty—sometimes good, sometimes not. Danville, between Sunbury and Bloomsburg, is mixed, too. Uhf is wonderful. It has no interference. What uhf needs is good receivers. The tuners are a mess. We need a tuner with an rf stage, which would need tuning." Using an old set connected to an average-height antenna, chs. 28 and 34 pictures from Wilkes-Barre were good but ch. 22 from Scranton had some snow. Ch. 16 was a shade stronger.

Dale Vaughn, Horlacher & Sick appliance

store, Tunkhannock (17 miles northwest of Scranton, across hill country, and 22 miles from Wilkes-Barre)—"Avery Mountain to the east keeps Scranton out of the low places. Wilkes-Barre comes in through a cut. Ch. 12 from Binghamton doesn't show in the store but it's in town, especially on top of hills and Scranton hits the high places. We always get one or more uhf pictures except on an occasional farm in a hollow. Binghamton (38 miles north) frequently has ghosts and a black streak down the center. Sometimes we sell a vhf-only set in Mehoopany (six miles northwest) because it sits in a pocket. In the high spots around this country we get all five stations. The vhf shadows are as bad as uhf."

Mark Robinson Farm (2 miles south of Tunkhannock, atop a hill)—Scranton uhf signals were good, Wilkes-Barre snowy. Binghamton vhf was good. While the spot is high, there are higher hills to the east.

Mrs. Mac Peek, proprietor of Mac Peek Electric, Montrose (33 miles north of Scranton, 50 miles north of Wilkes-Barre, 17 miles south of Binghamton)—"They get Scranton another 15 miles north of Montrose. All four uhf stations have excellent signals except in the bad spots. In these hills some get uhf and no vhf, and some get vhf without uhf. There are a lot of high hills between Montrose and the uhf stations. We sell a lot of converters to people north of here who had been satisfied with one vhf picture until uhf came along. Once in a while we have tuner trouble.

"Our Philcos come from a Binghamton distributor. For some strange reason they never are allwave so we have to put in Philco allwave units for \$40. Sometimes we even have to drill the panel to put in tuners. We only sell allwave sets. The Blonder-Tongue converter uses a 6T4 tube and works well. We sell them for \$19.95. People generally install the tuners themselves." On a rather old Stromberg-Carlson set in Mrs. Peek's home, chs. 16, 22, 28 and 34 came in with good pictures. Ch. 34 had a slight flutter. The home and store are about half-way up a hill sloping generally downward toward the uhf stations. Binghamton vhf was good.

Floyd Seaman, Seaman's Store, New Milford, Pa. (33 miles north of Scranton, 50 from Wilkes-Barre, 18 south of Binghamton)—"Usually we get all Scranton and Wilkes-Barre signals fine, but may have some trouble in the low spots. Scranton is better than Wilkes-Barre. Ch. 12 from Binghamton comes in everywhere and once in a while we get chs. 3 and 8 from Syracuse."

Home of Sam Letzic, businessman, 82 Lincoln Ave., Carbondale (part way up hill sloping away from Scranton)—Wilkes-Barre stations, 30 miles southwest, came in better than Scranton, 15 miles southwest, because of terrain. In other parts of Carbondale, an important market, the situation is the reverse and Honesdale, another 15 miles to the east, sits in a tough uhf spot. Carbondale is at the head of the Lakawanna Valley which runs southwest through Scranton.

That's what uhf looks like in the bumpy landscape of Northeast Pennsylvania.