

Amazingly Simple Log Periodic Antenna

— an 8-lb. mini LP for 20m

Photo by Dennis Lopez

Ted Robinson K1QAR
General Delivery
Block Island RI 02807

Experimenting around with some mobile whips, I found that four pairs of them on a 10½ foot boom could give usable directivity using log periodic feed. This antenna weighed 8 lbs., about half as much as the smallest commercial 20 meter beam.

While the yagi is the most popular way to go, for an ultrasmall antenna, the LP seems better. It is broadband, covering all of 20, which is something a miniature yagi couldn't even begin to do. Unlike the yagi, the LP is tolerant of super close spacing, losing only 1-2 dB. Finally, the LP's all-driven configuration avoids the problem of insufficient coupling between the tiny mobile whip elements.

Construction is straightforward. Eight solid-core

fiberglass fishing-pole blanks, 6' long, 3/8" at the base, and tapering to 1/8" at the tip, are obtained from a tackle supply house (these dimensions are not critical). Starting at the tip, wind #20 enameled wire,

with adjacent turns touching, for about 18". For the next 18", the pitch gradually increases to 1/4" between turns. At this point, switch to #18 wire, soldering the connection. Pitch increases smoothly

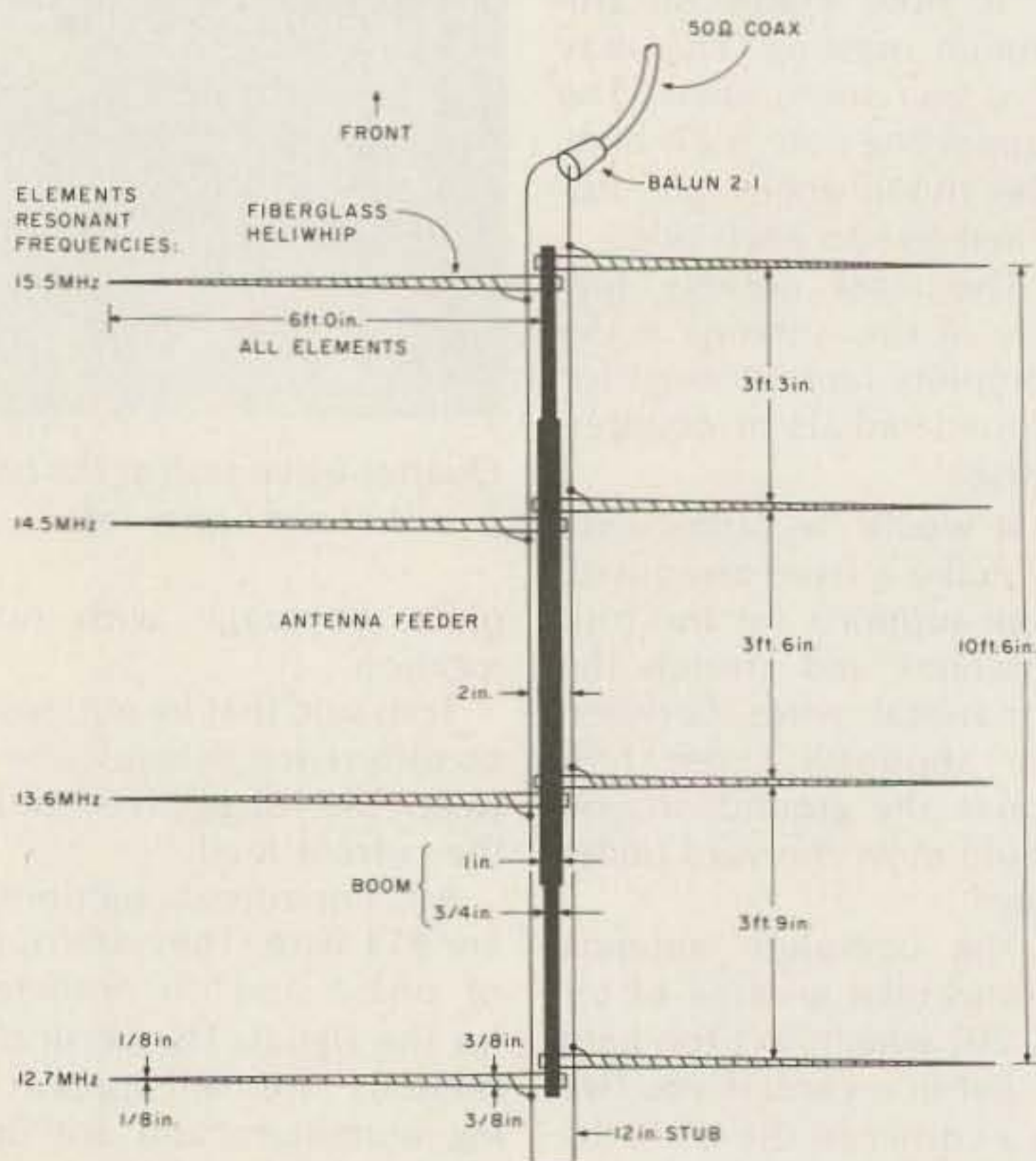


Fig. 1. 20 meter mini-log periodic beam.

from 1/4" to 3/4" as the winding is continued to the base. Using a grid-dip oscillator, add or subtract turns from the tip to resonate to the nearest of the following frequencies: 12.7, 13.6, 14.5, and 15.5 MHz. Making sure to always wind in the same direction and varying the amount of wire appropriately, fabricate all eight whips with two resonant to each frequency. The easiest way to wind is rotate the pole and feed

wire onto it.

The boom is made from 6' of 5/8" aluminum with 3' of 1/2" aluminum tubing telescoped in either end. Pairs of holes the same size as the pole bases are drilled in the boom for element mounting, observing the following spacing: 45", 42", and 39". An antenna feeder supported on top of the boom, consisting of #16 wire spaced 2", completes the array.

Varying this spacing will

vary the impedance of the antenna. Normally a 75-Ohm matching section into 50-Ohm line will give good results. Remember that adjacent elements get fed out of phase and that the lower frequency whips go with the wider spacings. Feed is to the high-frequency end, and a 12" stub is attached to the low-frequency end of the antenna feeder.

With such a small antenna, it was quite easy to get

it up 65 feet on a mast made from scrap pipe, which was clamped to the side of the house next to a window for hand rotation. With this setup, measurements indicated an f/b of 5-8 dB, an f/s of 10 dB, and a low swr across the band. Gain was calculated to be 4-5 dB. Compared with other beams on the air, performance seemed to bear this out. A bonus was an apparent 20 dB f/b for power-line noise. ■

Social Events

from page 164

multipurpose building at the Saline County Fairgrounds in Marshall, Missouri. There will be flea markets for the OM and XYL (tables—\$2.00 for first table; \$1.00 for each additional table). Many prizes are to be awarded and there will be old and new equipment displays. Campgrounds (no connections for utilities) are available. The timetable is 8:00 am—registration; 8:00 am to 10:00 am—breakfast rolls and coffee; 11:30 am—lunch—all you can eat; 2:30 pm—drawing. Tickets are \$2.00 in advance, \$2.50 at the door. For information and tickets, write James H. Little WD0BPG, 405 East Rosehill, Marshall, Missouri 65340. Talk-in on 52, 28/88.

SALEM OH JUL 23

The Kent State Salem Amateur Radio Club will hold a hamfest on July 23, 1978. The door prize will be a Ten-Tec #540 transceiver, courtesy of KenMar Industries; there will be many others for the whole family as well as a hot air balloon, a ramp for wheel chairs, and plenty of free parking. Wives and kids under 12 free. XYL drawing and recreation facilities available on beautiful campus. Open at 9 am; main drawing at 3 pm. Admission: \$2.00; flea market: \$1.00; tables: \$5.00. Talk-in on 146.10-.70. For information, write W8JPG 147.27, Milhoan Electronics, 1128 West State Street, Salem OH 44460; (216)-337-9275.

INDIANAPOLIS IN JUL 26

The IEEE Computer Society of Central Indiana and the Central Indiana section of IEEE will

sponsor the third annual Indy Microcomputer Show on Wednesday, July 26, 1978, from 11:00 am to 9:00 pm at the Holiday Inn located at I-70 and Shadeland Avenue in Indianapolis. There will be exhibits, demonstrations, and technical seminars addressing the engineering, industrial, scientific, business, and personal applications of microcomputer systems.

OKLAHOMA CITY OK JUL 28-30

Central Oklahoma Radio Amateurs will present Ham Holiday '78 on July 28, 29, and 30, in the Lincoln Plaza Forum, 4345 North Lincoln Boulevard, Oklahoma City. Preregistration closes July 14 with a fee of \$3.00; \$4.00 at the door. Non-commercial flea market tables are free in the ten-thousand-square-foot flea market area. Commercial exhibitors contact K5MB at (405)-787-9545 or 787-9292. Technical programs are scheduled throughout the hamfest. Many prizes will be given away, including a special preregistration prize. Mail preregistrations to Ham Holiday '78, PO Box 14604, Oklahoma City OK 73113.

FT TUTHILL AZ JUL 28-30

The Amateur Radio Council of Arizona will present the annual Ft. Tuthill Hamfest on July 28, 29, and 30, 1978. Come on out in the cool pine country of Arizona, and join our western barbeque, prize drawings, and tech sessions. For further details or pre-registration forms, contact PO Box 11642, Phoenix AZ 85061.

KINGSFORD MI JUL 29-30

The 30th annual U.P.

hamfest, cosponsored by the Great Northern Repeater Association and the Mich-A-Con ARC of Iron Mountain-Kingsford, Michigan, will be held on Saturday, July 29, and Sunday, July 30, 1978, at the Dickinson County Armory on M-95 in Kingsford, Michigan. Registration will begin at 9:00 am on both days. Tickets are \$2.50 in advance and \$3.00 at the door. Saturday night banquet tickets are \$6.50, and reservations should be received by July 1. Daily activities include: U.P. net meeting, U.P.R.A. meeting, YL net meeting, ARRL director's meeting, computers, DX and contests, slow scan, satellite, RTTY, moonbounce, FAX, 2m SSB, a swap and shop, and a special discussion on "Antennas—Legal Aspects" by George Goldstone W8AP, vice-director of the Great Lakes Division. Planned family activities will be held both days. Plenty of parking is available. Prizes galore! Talk-in on 146.25/.85 and 3922. For information, write UPHAMFEST 78, Box 2056, Kingsford, Michigan 49801.

HOUSTON TX AUG 4-6

On August 4, 5, and 6, 1978, the Houston Echo Society will host the annual Texas VHF-FM Society Summer Convention in the Galleria Plaza Hotel, just off interstate loop 610 at Westheimer Rd. While primarily devoted to the VHF-FM spectrum, attractions will also include microprocessors/microcomputers, the annual Texas champion hidden transmitter hunt, OSCAR communications, and much more, covering all phases of amateur radio. There will be forums conducted by both the ARRL and the FCC. A banquet/dance is planned for Saturday night. The featured speaker will be William A. Tynan W3XO, editor of "The World Above 50 MHz" column

in QST. Exhibitors will be displaying their wares all day Saturday and Sunday. Several excellent prizes will also be given away. The main prize will be the choice of an HF rig or an allmode VHF rig, with the second prize being the rig which is not given away as the main prize. There will also be a preregistration prize as well as hourly door prizes. More information can be obtained by writing to: FM Society Summer Convention, PO Box 717, Tomball, Texas 77375.

MACKS INN ID AUG 4-6

The 46th Annual WIMU (Wyoming, Idaho, Montana, Utah) Hamfest will be held on August 4, 5, and 6, 1978, at Macks Inn, Idaho, 25 miles south of West Yellowstone, Montana. Talk-in on 146.34/94 and 3935. Advance registration is \$6.00 for adults and \$2.00 for children, before July 25th, 1978. Late/regular registration is \$7.00 and \$2.50. There will be a special prize drawing for preregistration. Please send preregistration to: WIMU Hamfest, 3645 Vaughn Street, Idaho Falls, Idaho 83401; phone (208)-522-9568.

PETOSKEY MI AUG 5

The 3rd annual Straits Area Radio Club swap and shop will be held on Saturday, August 5, at the Emmet County Fairgrounds, Charlevoix Avenue, Petoskey, Michigan, from 9 am to 3 pm. Talk-in on 146.52. Food services, prizes. Tickets will be \$1.50 at the door. Campsites nearby. For information, write to SARC in care of W8IZS, Box 416, Pellston MI 49769.

JACKSONVILLE FL AUG 5-6

The Jacksonville Hamfest Association is happy to announce the 5th annual

Continued on page 213