16 Elements On 2 Meters

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AFTER BEING ON 20 AND 40 meter c.w. for over a year, the familiar "bug" bit and the next thing I knew I was getting my feet wet in VHF. The simplest way to start seemed to be a low power transceiver for 144 mc, which was acquired and performed most adequately. A true VHF ham, I have since learned, however, is never satisfied with existing apparatus. As yet unaware of this criteria, though I simply found that I must do better. A person of moderate means, I looked to the antenna. Here appeared the solution. With the low power transmitter and a no better receiver section of the transceiver, a high gain antenna system was definitely needed. Unable to afford most of the more elaborate long john beams commercially available, I decided on a homebrew job.

The yagi arrived at and employed here at WAØDPN is sweet and simple, nothing revolutionary, nothing "new." But it performs. As can be noted at the title, this beam has sixteen elements spaced moderately. The elements are fastened to the boom in a unique way. A hole is drilled through the center of the boom where an element is to be inserted. After the elements have been cut and straightened, push them through the holes and position them where they are to be left. Clamp these elements in position by use of a clothspin spring. The spring has to be hooked on both ends. Form the spring so that it will hold the element to the boom. This can be done by hooking the ends around the elements and taking up the slack by twisting with a pair of pliers around the elements. Now we have secured our elements uniquely and inexpensively!

The reflector and directors are made of #9 galvanized solid steel wire. Most galvanized clotheslines will work fine here. The boom is made of two 10 foot sections of steel TV tubing (thinwall) fastened together securely with two or three screws where the two mast sections meet. After all the directors and the reflector have been secured to the boom as explained above, the driven element should be made of ¾" thin wall tubing. The match to the driven element is a simple folded dipole. The match can be made of #9 wire, the same as was used for the elements. Form the match and driven element at two 90° angles (see drawing). The tubing in the driven element should be made 39½" long, bending both ends down about an inch. The match should be half as long from the boom to the end. The driven element and match should be 38" long.

The beam needs some support because twenty feet of boom length can be quite flexible. A five foot section of 1¼" steel tubing connected to the boom with a U bolt and about six feet of ¾" steel tubing at a 45° angle spaced four feet from the center of the boom and secured with sheet metal screws serves nicely.

I might conclude by mentioning that results with this antenna have been quite rewarding. At this writing (less than a week after construction) fifty mile contacts are commonplace. ■

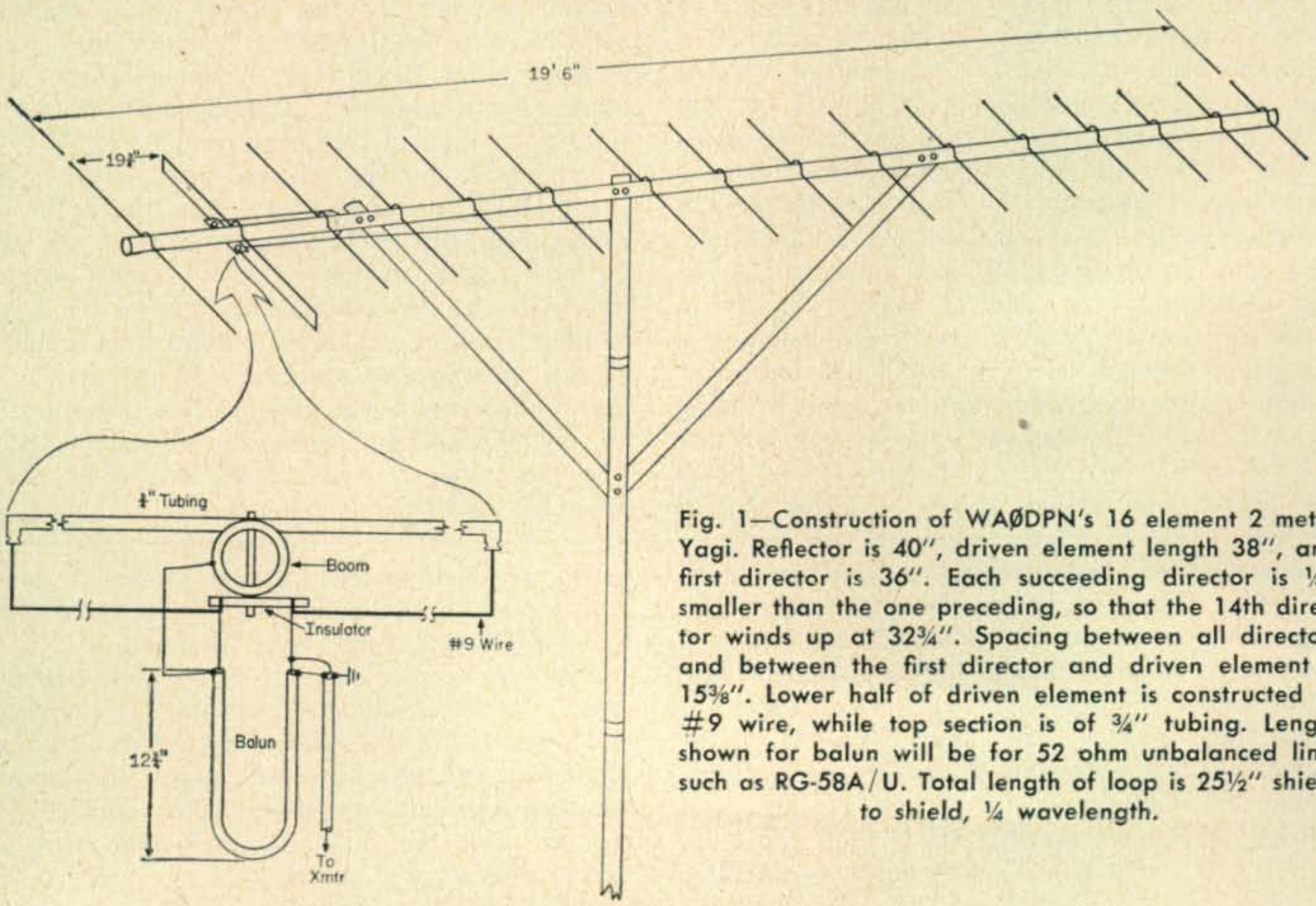

Fig. 1—Construction of WAØDPN's 16 element 2 meter Yagi. Reflector is 40", driven element length 38", and first director is 36". Each succeeding director is ¼" smaller than the one preceding, so that the 14th director winds up at 32¾". Spacing between all directors and between the first director and driven element is 15⅜". Lower half of driven element is constructed of #9 wire, while top section is of ¾" tubing. Length shown for balun will be for 52 ohm unbalanced line, such as RG-58A/U. Total length of loop is 25½" shield to shield, ¼ wavelength.