VINTAGE RADIO

By JOHN HILL

The awakening of the Dragon

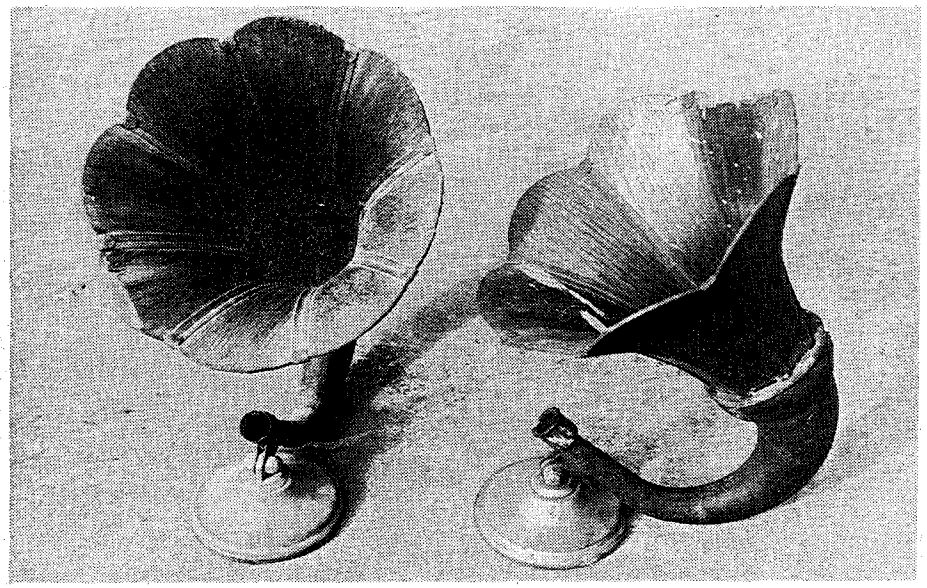
From a collector's point of view, horn speakers are valuable items & any receiver from the mid 1920s is only half complete unless it is matched up with an old horn. While these ancient loudspeakers all sound much the same, some are far more desirable than others.

A large proportion of early radio receivers used headphones as a sound reproducer. Users of crystal sets and 1-valve and 2-valve receivers had no other choice; these low powered sets lacked sufficient output to drive a loudspeaker. Radios having three or more valves were a different matter – these were capable of loudspeaker performance.

Loudspeakers were mostly separate items in the 1920s and the horn speaker was by far the most common type. Cone speakers came into vogue during the latter part of the decade, after which the old horns quickly fell from favour. It was at about this stage of home radio evolution that manufacturers started to tidy up domestic radios by building them into complete self-contained units. Prior to this, radio was a fairly untidy affair with most sets consisting of several bits and pieces.

Good points & bad points

The old horn speaker had both its good and bad points – mostly bad!



These two derelict Amplion Dragons were combined into one unit. The water damaged flare on the left had only two good segments & these were used to replace two broken segments in the flare on the right.

Perhaps its only good feature was sensitivity, while its worst aspect was a very narrow, peaky, frequency response which resulted in a harsh metallic sound. Horn speakers were also very fragile and just accidentally knocking one onto the floor could do considerable damage. Dangling wires often resulted in a speaker being tipped over.

A horn speaker can be described as a large headphone with a trumpet or sound horn attached. In the majority of cases, the driver is constructed in exactly the same manner as a headphone but with the added refinement of a variable air gap between the pole pieces and the diaphragm. This adjustment can increase or decrease the sensitivity, depending on whether the pole pieces are brought closer to the diaphragm or moved further away. On strong signals, it can be necessary to move the pole pieces further away to prevent the diaphragm from rattling against them.

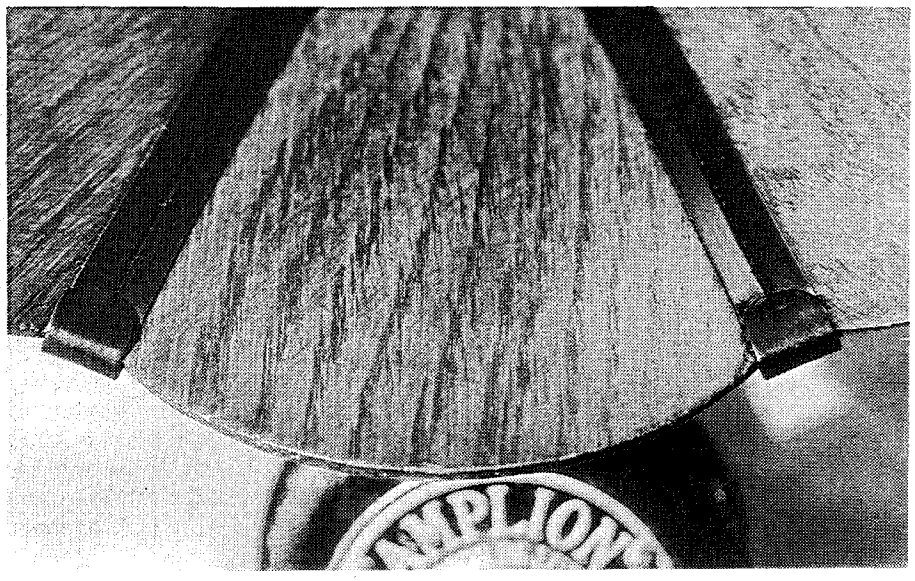
Horn speakers came in a range of sizes and varied from quite small units to large floor standing models nearly one metre high.

Size did not make a great deal of difference to performance and, generally, one horn speaker sounds much the same as another. If there were any notable exceptions, then I have yet to hear them.

It's also worth noting that not all horn speakers look like horn speakers. In some instances, manufacturers built horns into timber or metal cabinets. Never assume that an old speaker box contains a cone speaker. A close inspection may reveal that there is a horn speaker inside the cabinet.

Amplion Dragon

One of the most sort-after horn speakers is the Amplion Dragon which



Soft iron strips hold the flare together. The oak veneer segments slide into slots in the iron strips & are crimped at each end. An end tab is then folded over for good measure. The oak segments are extremely difficult to remove without damaging them.

comes in two sizes: junior and senior. Naturally, the senior is the larger of the two.

The appealing aspect of these old Dragons is their timber flares. Most horn speaker flares are made of spun aluminium which, when painted, has nowhere near the same visual appeal of the Amplion Dragon, with its segmented oak flare.

Better tone

Old advertisements claimed that the wooden flare produced a better tone. Once again, if there is a difference, then my ears cannot detect it. As far as I am concerned, Amplions with oak flares were no better sounding than any other horn speaker from that era. However, they were considerably more expensive than some makes and no doubt there was a bit of "snob appeal" attached to owning one because they looked very stylish indeed!

Regrettably, the Amplion Dragons, with their wooden flares, have not survived the shipwrecks of time very well. Although there are still a few good examples around, the majority are in poor condition. Whether Dragons or otherwise, most horn speakers are nearly 70 years old and are showing their age.

Damp storage usually results in the Dragon's plywood flare separating and going out of shape. The thin soft iron strips that hold the oak segments together can also give trouble and severe rust problems are difficult to solve. What's more, natural rubber was also used in their construction and this too can cause problems when it deteriorates and goes out of shape.

This Amplion Dragon driver had been in the author's collection of "junk" for many years. It was still in working order &, judging by the nameplate, has had little use. Often, the dragon emblem is damaged, due to finger wear as the sensitivity control is rotated.

Driver attachment

The driver on a Dragon speaker is attached to the horn by a rubber bush. It is not uncommon for the bush to perish away to almost nothing, leaving the driver separate from the rest of the speaker. It is for this reason that complete speakers in working order are comparatively rare. There are quite a few Dragons around without their drivers and I know of one particular collector who is willing to pay up to $100 for an Amplion driver to fit his junior Dragon.

My situation had been the direct opposite. I have had a Dragon driver for some years and had been looking for suitable parts in order to build up a complete speaker.

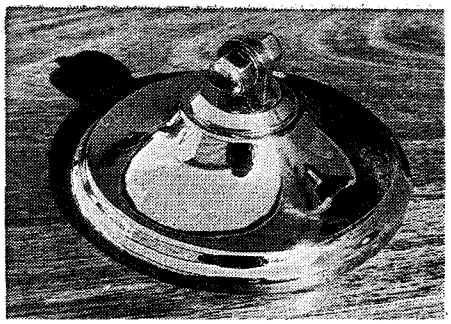
The bits and pieces I had been seeking finally materialised recently when I was lucky enough to obtain two wrecked junior Dragons without drivers. Unfortunately, both flares were damaged and the only way a complete speaker could be built was to combine the undamaged segments of each flare into one unit.

Rebuilding the Dragon

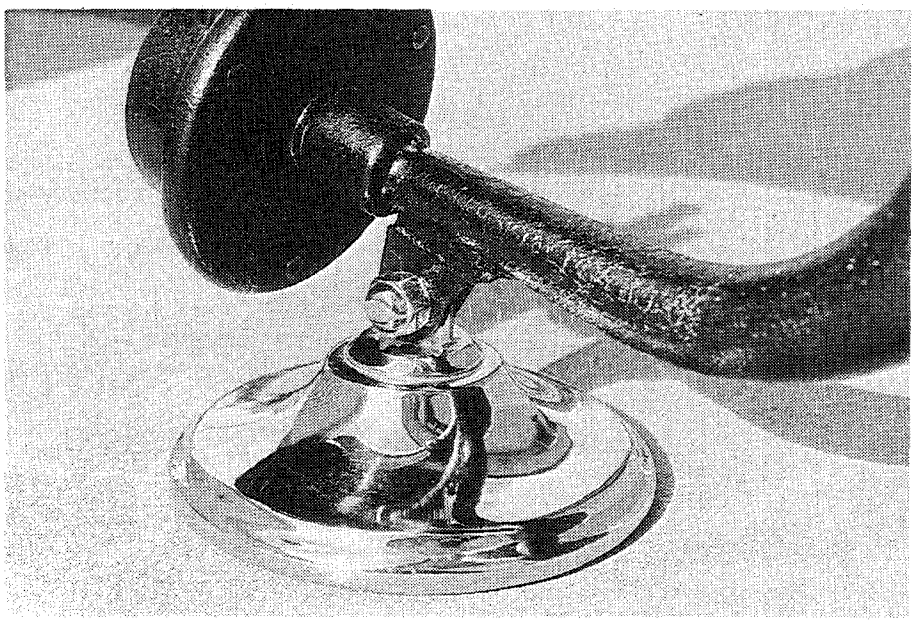
It seemed a simple enough task in theory – just dismantle the flares, pretty up all the usable bits and reassemble the pieces. Unfortunately, it's not that easy in practice!

The oak flare on a Dragon speaker is not easily dismantled. Each wooden segment is crimped into position at

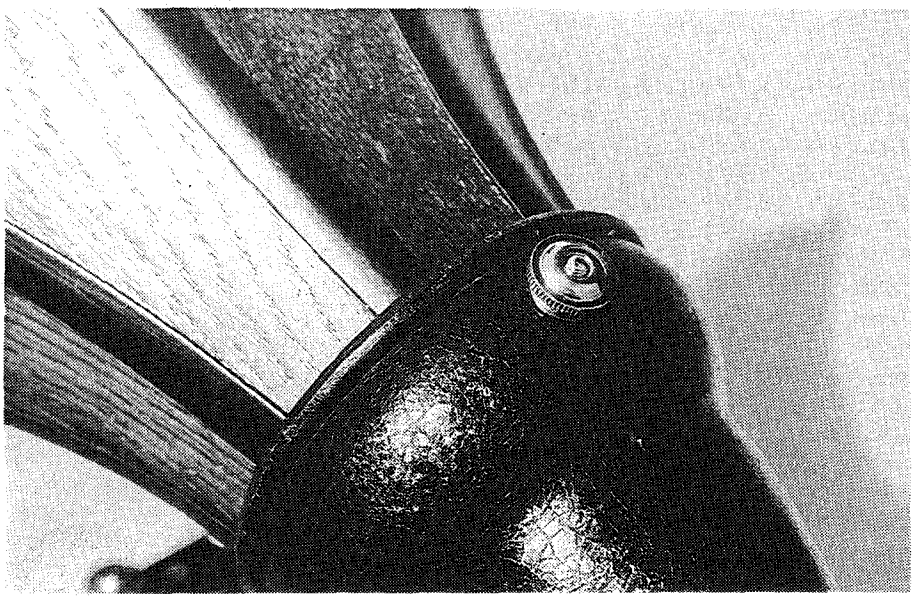
The underside of the base was coated with felt to protect valuable furniture from scratches – especially receiver cabinet tops.



Any "back from the grave" restoration of this nature requires a visit to an electroplater. Re-nickelling helps to bring back that as-new appearance and is often an essential part of the restoration.



The driver fits onto the end of the horn with nothing to hold it in place but the friction of a rubber bush. As the rubber perishes, it loses its grip & the two sections separate – one reason why so many Amplion Dragons now have no driver attached.



The electroplating included all nuts, bolts & washers. Attention to such details enhance the overall appearance of the finished restoration.

the ends, which makes their removal quite difficult. Great care is required if the segments are to be removed without damaging them.

Reassembling the flare also has its problems because once the segments have been removed they do not go back tight enough to hold together. They really need to be glued into place, otherwise the reconstructed flare keeps falling apart.

With my particular flare rebuild, one flare had two segments replaced with pieces from another flare. I would have preferred to completely strip the flare but I didn't want to risk damaging the various pieces and have to go through all the reassembly hassles.

Matching the segments

One particular problem when combining the flare segments of two or more speakers is that they may not match visually as well as they did originally. The oak veneer doesn't all come from the same oak tree. As a result, there can be significant tonal and wood grain differences between individual segments of the horn.

This was the case with my rebuild and some of the lighter toned segments were touched up with oak wood stain, making the overall appearance of the flare a little more uniform.

I might add at this stage that working on the flare is a delicate operation and one must be careful not to lift the veneer at the ends of the segments. Old oak veneer is very brittle and splintery and any loose ends need to be glued down before working on the flare. Each flare segment is made of 3-ply and this consists of two outside layers of oak veneer, with another slither of timber in between. The overall thickness of the ply is only about 2.5mm.

A tedious task

Stripping the flare back to bare wood and metal proved to be a long and laborious task. While some would argue that the speaker's originality has been ruined by doing this, one must remember that I have combined parts from three separate speakers in differing stages of disrepair. If the finished article is to have any appeal whatsoever, then it must be refurbished so that it will look as though it is a single unit.

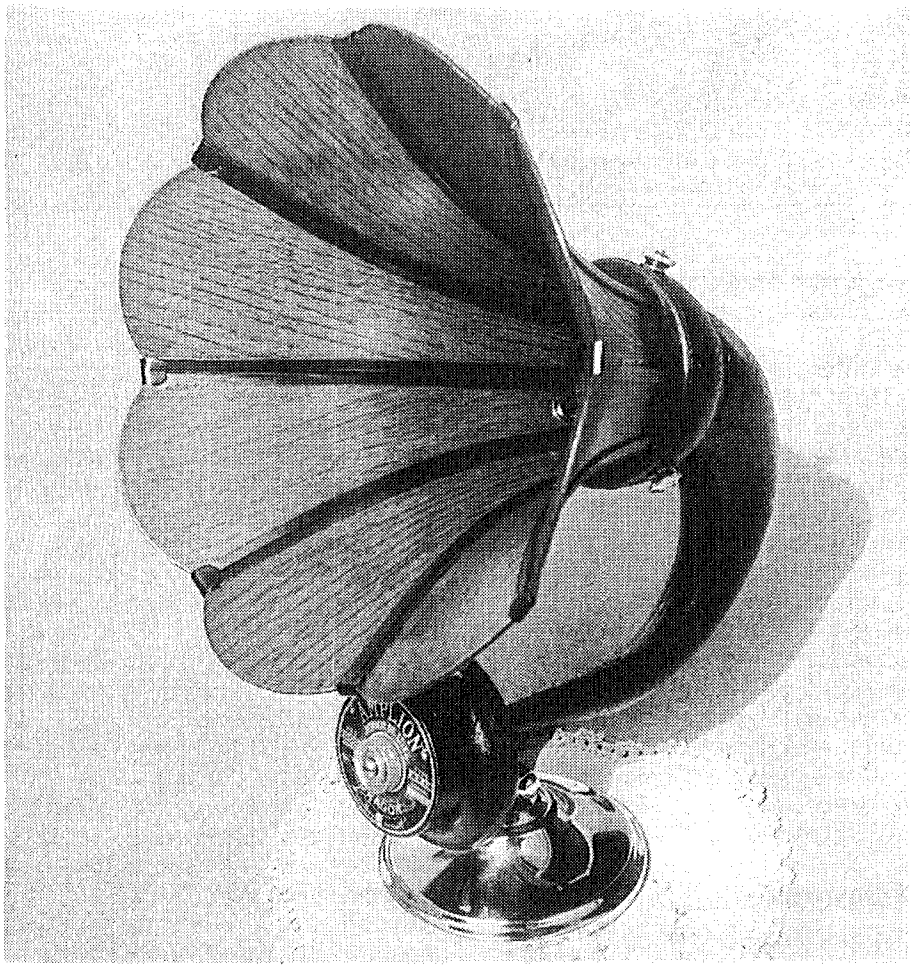
Regrettably there are not enough Amplion Dragons in good original condition to go around and combining various bits and pieces was the only way out of my dilemma.

Painting the metal strips that hold the oak segments in place was also a tedious job and calls for a steady hand. The inside of the flare was particularly difficult to work on.

Semi-gloss finish

When restoring an antique such as a horn speaker, a much better effect is obtained with semi-gloss finishes. Painting it up so that it is all bright and shiny really does spoil the illusion. A dull lustre is far more appropriate for antiques and a horn speaker is no exception to this rule.

The timber flare was not the only part of the speaker that required attention. The pressed steel horn was in need of painting and all the nickel fittings such as the base and various nuts and bolts were packed off to an electroplater to be "re-nickelled". These metallic items looked particularly shabby and really needed the full treatment.



The finished loudspeaker, circa 1926. Many hours of work went into restoring the oak flare and painting the metal strips that hold it together. Although horn speakers are terrible things to listen to, this one is a true collectors's item.

It was fortunate that the driver I have had for so long was in working order and only required a coat of paint to tidy it up. Some Amplion drivers are not easy to dismantle as there are no convenient screw heads to undo. They seem to be sealed units that were not meant to be tampered with.

Eventually, all the bits and pieces were reassembled and I was rewarded with an excellent example of an Amplion Dragon in working order. It was well worth the effort!

A true collector's item

Listening to the old Amplion confirmed my previous remarks. It sounded no better or worse than most other horn speakers. However, its looks and general appearance are far more appealing to the eye than most and that is what the old Dragon is all about. It is a collector's item in the true sense of the term!

An interesting aspect of collecting horn speakers is that although they are primitive by modern standards, they were the pinnacle of technological development at the time they were made. Every invention has to start somewhere and from that point on it is gradually modified and improved until technical excellence is finally obtained.

For example, consider how much sound recording and reproduction equipment has improved since the early days of the Edison cylindrical gramophone. Likewise, the loudspeaker has gone through many stages of development during the past 70 years.

One does not have to listen to a horn speaker for very long to fully appreciate just how much time and effort has gone into loudspeaker development since the 1920s – a time when the Amplion Dragon reigned supreme. **SC**