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W8MWA

The monthly Newsletter of the Monongalia Wireless Association
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Next meeting will be the third Tuesday March 18 at 7:30 in or near room 355 of the Engineering Science Building of WVU.

The following received from the Exercise Coordinator:

Quote
On behalf of the "Mountain Thunder" Weapons of Mass Destruction (WMD) Exercise Planning Team, we would like to thank you for your support and participation in "Mountain Thunder II" WMD Full-Scale Exercise on Friday November 15, 2002.

The purpose of this exercise was to assess and document the effectiveness of the multi-jurisdictional emergency response systems in Monongalia County during the first hours of a WMD incident. Results from the exercise are being used to provide a compendium of lessons learned, recommend corrective actions, and provide the basis for planning future exercises in rural America. As such, the team believes that this information, combined with other exercise after-action reports, will improve responses to future incidents of domestic terrorism, improve first and emergency responder training, and improve communications and resources used by both first and emergency responders.

Thank you for helping to make this exercise a success and for helping us learn more about the response community's needs for preparedness and readiness against use of weapons of mass destruction.
Unquote

I would also like to thank all who participated and supported ARES during the exercise.

Bob Steele/N8HGL
ARES EC

A SKYWARN class is scheduled with NWS Pittsburgh for May 8, 2003 at 7:00 PM. The classroom location will be determined. Further information will be provided when confirmed. Pass the word.

Bob Steele/N8HGL
Class Coordinator

Pepper KA8ZOO loaned me a bound copy of Amateur Radio News for the year 1919. One of the first articles was by Dr. Lee Deforest the inventor of the vacuum tube. I thought it very interesting so I am reprinting it here.. Pepper's book was a treasure trove on information on the way it used to be. The advertisements were as interesting as the articles. Of all the advertisements that I saw, the only one still in business that I recognized was Stromberg Carlson.

"The Audion and the Radio Amateur"

By DR. LEE DE FOREST

Written especially for "Radio Amateur News"

THE writer can lay claim to the honor of having been one of the original wireless amateurs in America. When he started experimenting in 1898 and '99 the Art itself was very amateurish, from the Rhumkorff coil transmitter to the coherer and trembler of the receiver; while the ranges that were then covered were small enough to have satisfied the most jealous guardian of governmental radio-regulations, had such a functionary then existed.

It was not until 1902 and by the introduction of the self-restoring detector and telephone receiver, the alternating current generator and transformer, and the tuned circuits at transmitter and receiver, that the infant art can be considered as placed on an engineering foundation.

The first two of these radical advances originated in America, and for some time distinguished the American designed apparatus from that of the British or the Boche.

The story of the original conception of the Audion idea, using heated electrodes and ionic or thermionic conduction thru gases (atmospheric or rarefied) is, I believe, so well known as to require no repetition here. Certain it is that had I not been thoroly imbued with the spirit of the radio amateur, forever on the lookout for brand new principles and devices, I would not have hit upon the germ idea, which the subsequent years have developed to such astonishing utility in fields so widely divergent.

And right here let me say that the surfaces only of those early researches were scratched. To-day if a radio amateur wishes to begin where I began, with a small quiet gas burner, burning illuminating gas enriched by salts, (such as of potassium, sodium, etc.), with various shaped electrodes, variously spaced and located in the flame, with the necessary range of *B*, and *C* (grid) voltages, he will find himself for a trifling expense in the midst of phenomena of delightful novelty and attractivenes, with the ever-present lure of discovery urging him on and on. It will not be difficult for him to soon discover genuine utility in some of his arrangements, with a countless number of practical applications suggesting themselves to his ingenious and investigating mind. But most lads will prefer to start with the most perfected and up-to-date type of three-electrode audion bulb, equipped with a good assortment of tuning coils, "ticklers," variable condensers, grid ressistance "leaks," and batteries for the *A*, *B*, and *C* circuits.

Given such an equipment as the above, I can imagine no keener zest, no livelier interest in any toy or device than the young man will experience during the flying hours, up in his "Radio Lab.," locked away from the family, the movies, and "the gang."

Here then are mysteries to be investigated which would have baffled old Sir Isaac; forces of which Faraday himself never dreamed; etheric voices infinitely more delicate than the faintest sounds from Aeolian harps of the fairies. Invisible messengers, speeding like light, through the darkness come whispering to him directly from the antenna of some gigantic station on the bottom side of the world, or he hears the call of a tiny ship a thousand leagues at sea.

A Picture to Make the Heart of Any Radio Man Swell. The Inventor of the Most Wonderful Thing Ever Thought of by Man, in His New York Laboratory. Look, Ye Radiobugs! The Instruments on the Tables About Dr. DeForest.

Then, too, and frequently too often, he can hear the surly growl of distant sky-forces; the mutterings of mysterious storms coming from over a hundred horizons; or the strange cracklings and shuddering sounds from the uppermost ceiling of the atmosphere, originating in or reflected from that intangible "Heaviside Layer". Static, in fact, may be profanely explained as the "cackling of the Heaviside Layer!"

Dr. DeForest, as a Radiobug in 1902, With His Own "Electrolytic Responder."

No amateur has owned an audion for a month without trying at least thirty different styles of "hook-up"—one for each day—and if he is worth his salt, he will by that time have thought of at least thirty other and additional circuits in which he wants to try the bulb.

First, there are the plain detector arrangements, with and without a grid condenser, with or without a grid or *C* battery. In the old days when the lamps were exhausted with simple oil-pumps, we had the fascinating "blue glow" or halo around the plate or filling the bulb, when a too-high *B* voltage was applied. Gradually the pumping processes have been improved until now the ordinary well built audion contains too little gas to show this visible and beautiful evidence of ionization. With the blue glow, however, a host of fascinating experiments can be made, such as the effect of a magnetic field on the glow and on the sensitiveness and general behavior of the audion—the "squealing" condition, the unstable condition when a blue ball plays around a corner of the plate and comes and goes with each strong received Morse signal—like a veritable little blue imp dodging back and forth in instantaneous response to his master's voice uttered perhaps a hundred miles away!

Then there is the multitude of heterodyning, or regenerative and "ultraudion" circuits—connecting the receiver circuit across the grid and plate, instead of, as usual, across grid and filament. One can go on trying one arrangement after the other, making comparisons for relative sensitiveness and sharpness of tuning.

Numerous as are these types of audion "hook-ups" now illustrated in the text magazines, the industrious investigator can still conceive new ones, and the study of these and the search for a published duplicate, to see whether or not you have hit upon a new audion circuit (and if so to classify it and analyze its operation), is perhaps a more fascinating problem than anything which other branches of electrical research can offer.

Then there is the audion amplifier—an amplifier of almost anything, from high-frequency currents transmitted from Russia or Japan to the slow pulse of heart-beats. One can try audions in cascades, coupled together by inductance, by capacity, or high resistance; single audions amplifying others connected in parallel, or small ones controlling larger, "pyramided" until the faintest signal *multiplied in strength a million times* can be heard for blocks, or so that a party of merry-makers can dance to music played perhaps one hundred miles away!

Can anyone wonder then at the keen and ever-growing enthusiasm among youngsters of all ages for the audion, the little lamp which seems at times to radiate thought waves as well as light, so marvelous and versatile are its functions, so infinitely sensitive and delicate, so mysterious and yet so certain in its operation!

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Transatlantic Radio Reception

(*Continued from page 9*)

pyrites. There is in this mine a vertical shaft 1000 feet (305 meters) deep. A series of preliminary comparative tests was made at this mine in April, and a more complete series of experiments was carried out in the latter part of July. A vertical insulated wire, approximately 1000 feet long, was suspended in this shaft, and a receiving set connected to the upper end, various earth connections being tried, such as steam and water pipes in contact with moist earth.

For a basis of comparison, an antenna consisting of a single horizontal wire, 1000 feet long, was extended over the ground to the southwest from the mine entrance, and supported on trees high enough above the earth to clear the surface vegetation; the maximum height of this wire did not exceed 4 feet (1.2 meters).

The receiving set was also connected to the lower end of the pendant wire, earth connection being made to piping at the bottom of the mine. Under the above conditions signals from Lyons (YN), France, were heard loud enough to be identified. Signals from several high power American stations were heard with comparatively high audibilities when the receiving apparatus was connected to either the upper or lower end of the pendant wire.

(Communicated by Major General George O. Squier, Chief Signal Officer, U. S. Army, to the Franklin Institute.) *(Excerpted.)*

THE AUDION AND THE RADIO AMATEUR

(*Continued from page 6*)

Edgar Allen Poe, in his "Thousandth and First Tale," once showed how far more wonderful and incredible were the "modern miracles" of his day than the wildest imaginings of the old Arabian story-tellers. Yet Poe lived in a primitive and prosaic day compared to ours. What would he have said had one told him that a whisper spoken in Washington could be heard throughout a large room in Paris, and that without so much as a wire between the cities; or that a man flying above the clouds could address in stentorian tones a vast throng on the earth, far beyond his vision, while cubic miles of silence intervened.

And all of this is made possible by a little lamp and some zinc cans containing damp powder. Compared to these actual wonders, does not the simple old story of Alladin's lamp and its obedient genii seem like a very tame reality? Yet this little lamp is to-day everybody's servant. Every amateur can become Aladdin. Rub the audion lamp in the proper fashion, bombard its insides with electrons and a million tiny genii will fly with the wings of light to the ends of the earth to convey your message.

Of course, this is figuratively speaking. As a matter of fact, the earth has no ends, neither has any amateur as yet an oscillation or collection of such sufficiently powerful to transmit his voice to the well-known Antipodes. However, the wonders which you, every one of you, can actually make the audion perform, either as a detector, a heterodyner, an amplifier of high or low frequency currents, (wire or wireless) an oscillion generator of low or high frequency currents, for radio or for music; or as a voice-controlled "modulator," to modulate, in accordance with speech, the radiated energy from another bulb—all these wonderful and useful things every one of you can experiment upon and achieve, with one or two audion bulbs.

When I consider what toys and playthings the studious lad of to-day has at his disposal, what unlimited possibilities for investigation and instruction fraught with boyish delight, the delight of discovery mingled with the joy of construction and achievement,—I almost regret that my own boyhood did not fall in this present era.