

Had a brief talk with Yardley Beers in his newlab on the fifth floor. He showed me proudly an IF receiver strip with miniature tubes. He said this was the first fixed-tuned strip with miniature tubes, (there first had been a fixed-tuned strip with full-sized tubes. The tubes were Western Electric 6AK5's, produced just shortly after the RCA 6AG5's which he showed in Galvin strips made for the lab (one of the earliest)

He showed me a sample of the WE 713A which is a stubby miniature, with the diameter and base of a standard tube, that had been designed for use of submarine cable repeater circuits. The first real miniature tubes ~~xxxxxx the WE 713A which put the~~ the 6AK5's were made by putting

Mentioned (October 12th) the fact that Van Vorhis in division meeting has just told his boys about a new tube which can be added to the receiver of the SCR 270 which will lower its noise figures. ~~to~~ to a point that will nearly double its range.

He spoke also of the forthcoming Weber tube which will have revolutionary effects on receivers if it can be produced in quantity. a tube to be put into after the TR box. will decrease noise & eliminate crystal burn out

October 7, 1943

Sinsheimer, who is working with Shultz on XMTR, came in to kill a few minutes. I pumped him about XMTR. He gave me the following outline of developments:

- LHTR - 10 cm. lighthouse tube
- SMTR - 10 cm. low voltage magnetron (used for AGS)
- XMTR - 3 cm. low voltage magnetron.

The low voltage maggie is being used because no lighthouse tube has been developed below 10 cm. Both the lighthouse tube, used in ARO, and the low-voltage magnetrons produce extremely light-weight sets. They use miniature receivers (first used in ARO, miniature in the sense that it uses as many miniature tubes as possible) and miniature IF strips. These were developed for this LHTR group. He spoke of the ASH, which I saw yesterday up on the roof, as "our rival". He said it looked "all right, but kind of heavy". It is about 180 lbs, while the XMTR is to be only about 80.

Asked about the stage of development he said that it is in the form of a bread board experimental model, thrown together yesterday and saw its first signals yesterday or today, I forget which he said.

Note on J. L. Lawson - from Conversation

With Sam Goudsmit

Nuclear physicist at Michigan. Did brilliant work in Nuclear Physics. Built a β -ray spectrograph, first that really worked. His actual boss was a dope, so Sam fathered him along and worked with him a lot. He got his degree at Michigan a few years before and was kept on with rank of instructor to do research. Sam defended him when other people wanted to let him go. He was not "popular socially" with the other physicists, but when Sam pinned them down about their objections, they had to admit they had nothing definite.

Lawson's habit of wandering around the lab and prying into the work of other people has resulted in many benefits to the laboratory work, but had rubbed a lot of people the wrong way. For example he got on very badly with the British on his trip. He is extremely gifted but he's "sometimes wrong". The Lawson line was not too much of a success, and annoyed workers occasionally dubbed it the "lousy line" or the "loss(y) line".

Sam mentioned "somebody" leaving the lab. because of Lawson's habit of charging in and taking over other people's work.

Sam Goudsmit

April 5, 1944

Larry Marshall - did good work -

everybody in England had a good word to say to him, DuBridge found.

Removed solely because he wouldn't work well with Ridenour.

4 men are to share job of visiting, reporting on all projects. Sam tried to see everything - saw very little, though he travelled all the time. Laboratory - in same village of Midlands as ADRDE.

Work in brick huts (several of them) - towers for spinners. Live in nearby Hotel, still occupied by a few old ladies. Food bad.

Most of work is done in the field at air fields or coastal stations. Loafing if at home.

Men away most of time in the field, working with Army - also training, doing a lot of training. Not enough emphasis on it.

NDRC office useful - does all orders.

Projects: H₂X, Aspen, Beacons, and MEW (for fighter control) - uses very secret.

Aspen trouble -

"Crackpots" e.g. development men (even Weiss) had to be kept off the flying fields. Too much meddling and changing of sets. Lack of coordination of Aspen program - ground sets wrong work.

Small amount of microwave equipment observable in UK.

Need of educating users -

Generals, Colonels & Majors - Majors and Captains best rank. Colonels are too high - usually administrative officers.

By work in field we are doing some of it already.

Need of more equipment of the kind we have. More systems are not needed. War not over.

April 11, 1944

Sam Goudsmit - still very fresh from England - agrees with Rabi almost completely: although he says some measurement work should be done, none is being done (except Sambo - Columbia Radiation Lab.) Kerr's work "useless". Lawson's "unimportant". Too many systems are being worked on.

Lawson did best work in early days. Training movies, trainers are neglected. Sam disapproves of "selling" use of movies, of "over-selling".

Sam says Alvarez only original mind - only one to make original contributions. Otherwise all our fundamental ideas are British. Story of H₂X movie - very bad - booed by the boys.

Sam agrees "crash" movies are very important.