

CBS on the Air Shortwave from Philadelphia

During the radio era before World War 2, there was quite a movement here in the United States, and in other countries throughout the world also, to establish shortwave relay stations in an endeavor to give wider broadcast coverage. At the time, television was a concept and not a reality, and FM radio was still a distant dream. The mediumwave band was not overcrowded though the mediumwave signal generally gave only local coverage. However, shortwave transmissions could give wide area coverage within the country, and even international coverage on a much wider scale.

Many mediumwave stations in the United States established shortwave relay transmitters during the late 1920s and throughout the 1930s to carry their programming to distant listeners. In fact, it is estimated that there have been somewhere around one hundred shortwave stations on the air in the United States during the past eighty years, and probably more than half of these were active during the pre-war era.

One of the shortwave stations that held a high reputation back during the early years was located in Philadelphia, Pennsylvania. This station was launched on behalf of the co-located mediumwave station WCAU under the callsign W3XAU. And again, even though a casual glance would seem to indicate that this was an amateur radio station, this is not the case. Station W3XAU was indeed a professional station, relaying the programming from mediumwave WCAU. The X in a prewar callsign indicated an experimental station, either amateur or professional; and in this case, indeed professional.

The mediumwave station WCAU was launched in 1922 as a very small operation located in the back room of a small radio shop in Philadelphia. Ten years later, following a couple of intermediate migrations, WCAU was installed in a professionally built studio complex, the first building in the United States that was constructed specifically as a radio station. This facility was located at 1622 Chestnut Street in Philadelphia.

Now, at the same time, a new 50 kW mediumwave transmitter was under construction also and this was installed in a new building out at Newtown Square. The initial broadcast from this grand new WCAU was on September 19, 1932.

Before we leave the mediumwave scene and take a look at the shortwave events in Philadelphia, just a touch of humor from the TV series, "Gilligan's Island". On July 5, 1992, Gilligan and his six fellow castaways on a lonely and unidentified tropical island somewhere out in the Pacific tuned in their radio receiver and they heard a broadcast from a radio station

that gave the identification announcement, "WCAU". At the time, the real WCAU in Philadelphia had become WOGL, and so there really was no radio station on the air with the callsign WCAU at that stage.

Not only was there a new suite of studios and offices, and a new transmitter facility back in 1932, but the relatively new medium of shortwave broadcasting was also under development. Early in the year 1930, a small locally made 1 kW shortwave transmitter with the callsign W3XAU was installed with the regular mediumwave unit in Philadelphia. It is claimed that this was the first license issued by the FCC for an international shortwave broadcast station as a commercial operation.

However, two years after the Newtown Square facility was inaugurated, a re-built version of the same 1 kW shortwave transmitter was installed alongside the huge 50 kW mediumwave unit. All of these developments took place during the era when the innovative William Paley of later CBS fame was at the helm.

Four years later, this same transmitter was re-built to 10 kW capacity and two V type antennas were erected for coverage into Europe and South America. Station WCAU became even more ambitious for a truly international outreach with the erection of two large curtain antennas for coverage into the same areas, Europe and South America. At the same time, they made a request to the federal licensing authorities for 50 kW operation on shortwave. In fact, on several occasions in the late 1930s and early 1940s, they made similar applications, but on each occasion the request was denied.

With war clouds developing over Europe in 1939, the FCC took a hard look at the international shortwave scene in the United States and issued three new rules. This edict, issued on May 23, 1939, required that shortwave callsigns should be regularized, power should be increased to 50 kW, and directional antennas should be installed.

As far as callsigns were concerned, this edict gave time for consideration and negotiation regarding desired call letters. Initially, the first new callsign chosen to replace W3XAU was WCAI. This new callsign for the shortwave outlet, WCAI, proved to be only temporary. With information derived from Time magazine, FCC news releases, and several other sources, it is learned that this temporary new callsign was in use for a little less than two weeks beginning in mid August 1939.

The FCC subsequently ruled that all callsign changes for the shortwave stations should become effective on September 1. However, some stations introduced their new callsign prematurely and at least a couple were a little tardy in implementing the change. As far as

W3XAU was concerned, the change from the initial WCAI to the subsequent WCAB was implemented on August 26, one week before the official date.

As for the directional antennas, they were already in place. And the power increase to 50 kW? They had already applied on several occasions and been denied. However, there was another mitigating factor involved; CBS had a large new shortwave station under construction at Brentwood on Long Island. Initially, the concept was for WCAB in Philadelphia to supplement the new Brentwood facility. However, in view of the power restriction, it was finally considered best to close the Pennsylvania station in favor of the large new facility under development on Long Island.

Programming from the Philadelphia shortwave station was initially a tandem relay from mediumwave WCAU, though separate identification announcements were given live over the air. However, when the station became a genuine international broadcaster, much of the scheduling was specifically prepared programming for the target areas, Europe & Latin America. Programming in foreign languages was taken on relay from the CBS sister shortwave station W2XE in Wayne New Jersey, and programming in English was also taken live from the CBS national network. This shortwave station was heard quite frequently throughout the Americas, over in Europe, and also in the South Pacific.

The new 50 kW shortwave transmitter WCRC at Brentwood was officially inaugurated on January 1, 1941. Just one year later, the 10 kW W3XAU-WCAI-WCAB at Newtown Square was finally switched off, and this nostalgic event occurred at midnight on December 31 in the same year 1941.

However, that is not the end of the story. The large new international shortwave station at Brentwood was taken into service with OWI-VOA (Office of War Information & Voice of America) programming less than two months later, on February 24, 1942 and the 10 kW unit in Philadelphia was packed up and sent over to England for use by the BBC in London.

How interesting it would be to find out the information from the other side of the Atlantic as to what happened to this famous American transmitter while it was in service over there in islandic Europe.

Dr Adrian M. Peterson

1. CBS Shortwave W3XAU Philadelphia PA

Timelines

Year	Date	Call	kW	Location	Information	Reference
1930	Early	W3XAU	1	Philadelphia	Station inaugurated homebrew unit	Kent 110
1930		W3XAU	1	Philadelphia	1 st (?) commercial international SW USA	geocities.com
1932	Jul	W3XAU			To be rebuilt at new location	ISWC 8-32 11
1933		W3XAU		Byberry	Relay WCAU daily 9580 kHz 31.32 m	OSWL&CB 33
1933		W3XAU		Byberry	Relay WCAU daily 6060 kHz 49.50 m	OSWL&CB 34
1934	Spring	W3XAU	1	Newtown Sq	New unit new location	Kent 110
1934	Oct	W3XAU	1		Two channels in use, 6060 & 9590	WRL 02.105 10-36
1936	Jul	W3XAU	1		Will leave air to increase power to 10 kW	ISWC 8-36 21
1936		W3XAU	10		Transmitter re-built for 10 kW	geocities.com
1936		W3XAU	10		Two V type antennas Europe South America	geocities
1936	Aug 5	W3XAU	10		New 10 kW commenced on air	IDXA-TGC 8-36 11
1936	Aug	W3XAU	10		Testing new 10 kW	ISWC 11-36 29
1936		W3XAU	10		Two channels in use 6060 & 9590 MD-10 pm	06.692 1936
1936	Oct	W3XAU	10		Back on air same new 10 kW	IDXA-TGC 11-36 13
1936	Nov	W3XAU	10		Returned to the air	ISWC 12-32 16
1938	Dec	W3XAU	10		Constructing two curtain antennas	IDXA-TGC 1-39 3
1939	Jan	W3XAU	10		Now four channels, 15270 & 21520 new	ISWC 2-39 17
1939	Apr	W3XAU	10		6060 & 15270 heard in Australia	R&H 79.11 5-39 56
1939	Aug	WCAI	10		New callsign	USA DXM 9-39 11
1939	Aug 26	WCAB	10		New callsign	NNRC 15-9-39 7
1939	Aug	WCAB	10		6060 9590 21520, new callsign	ISWC 10-39 9
1939	Sep	WCAB	10		9590 new call heard in Australia	R&H 79.11 10-39 56
1939	Sep	WCAB	10		Five SW channels, new call	B 1-9-39 80
1939	Oct	WCAB	10		Will soon use 25725 kHz 11 m	R&H 19.11 11-39 53
1939	Nov	WCAB	10		9590 & 15270 heard in Australia	R&H 79.11 12-39 51
1940	Jul	WCAB	10		RQ to FCC for 50 kW	IDXA-TGC 8-40 4
1940	Oct	WCAB	10		Soon increase to 50 kW	R&H 79.11 11-40 52
1940	Nov	WCAB	10		6060 & 15270, two channels in use	ISWC 12-40 13
1940	Nov	WCAB	10		Will close soon	R&H 79.11 12-40 57
1941		W3XPP			Became WCAU	1941 TV List
1941	Jan	WCAB	10		Will share time with WCBX 9650 11830	TGC 2-41 5
1941	Feb	WCAB	10		Will be deleted, new Brentwood on air	IDXA-TGC 3-41 5
1941	Mar	WCAB	10		Still on air	ISWC 4-41 15
1941		WCAB	10		Six channels listed	RTL 06.691 1941
1941	Nov	WCAB	10		6060 & 15270, two channels in use	ISWC 12-41 12
1941	Dec	WCAB	10		15270 heard in Australia	R&H 79.11 2-40 57
1941	Dec 31	WCAB	10		Station closed	R&H 79.12 5-42 54
1941	Dec 31	WCAB`	10		Left air at midnight	IDXA-TGC 2-42 4
1942	Early	WCAB	10		Transmitter sent to England for use with BBC	geocities
1942				Newtown Sq	Location closed down	geocities.com

2. CBS Shortwave Philadelphia PA

Callsign Changes

Year	Date	Callsign	Information	Reference
1929		W3XAU	Issued to Universal Broadcasting Co, North Bustleton, PA	FCC Report 1929
1930	Early	W3XAU	Station inaugurated with homebrew unit	Sidel 110
1930		W3XAU	Held by UBC, 1940 Market St	ARS-USA Gov Print, 30-6-30
1939	Aug mid	WCAI	"CBS Philadelphia, W3XAU to WCAI"	Time Magazine 28-8-39 1
1939	Aug mid	WCAI	WCAI is new call for W3XAU	FCC List
1939	Aug mid	WCAI	WCAI is new call for W3XAU	FCC List, Broadcasting 8-39
1939		WCAI	"WCAI (WCAU . . .) Newtown Sq PA, formerly W3XAU"	NNRC 15-9-39 7
1939		WCAI	"WCAI was used by the former W3XAU" – Listener report	NNRC 15-9-39 7
1939		WCAI	"W3XAU – WCAI Philadelphia, PA 10 kW relay WCAU CBS	DXLD 28-6-06
1939		WCAI	Listed in Australian radio magazine, 31 metres	WA Broadcaster 78
1939		WCAI	Listed in Australian radio magazine, 19 metres	WA Broadcaster 78
1939	Aug 26	WCAI	Callsign changed to WCAB – Listener report	NNRC 15-9-39 7
1939		WCAI	"WCAB (formerly W3XAU and WCAI) in Philadelphia . . ."	Radex 11-39
1939	Aug 26	WCAB	Callsign changed from WCAI to WCAB – Listener report	NNRC 15-9-39 7
1939	Sep	WCAB	Five SW channels, new call	FCC List, Broadcasting 1-9-39 80
1939	Sep	WCAB	9590 kHz, new call heard in Australia	R&H 79.11 10-39 56
1941	Dec 31	WCAB	Station closed	R&H 79.12 5-42 54

3. CBS Shortwave W3XAU Philadelphia PA

QSLs

Year	Date	Call	kW	Location	kHz	Information	Holder	Land	Reference
W3XAU Shortwave									
1935	Jan 2	W3XAU				Photo transmitter	SS	PA USA	Metz
1935	Jun 3	W3XAU	10		9590	Photo building	JK	NY USA	QSL
1936	Oct 10	W3XAU	10	Newtown Sq	9590	Typewritten card	Dunbin	Australia	Copy
1936	Oct 16	W3XAU	10	Newtown Sq	9590	Typewritten card	Dunbin	Australia	Copy
1939	Sep 23	W3XAU	10	Newtown Sq	6060	Transmitter photo			Copy
Mediumwave Callsigns									
1936	Dec 28	WCAU				Photo building	SS	PA USA	Metz
1941	Mar 8	WCAU	50	Newtown Sq	1170	Printed text card	MS	IO USA	QSL
1944	Jan 29	WCAU	50	Moorestown	1210	Duplicated text card	AJA	NZ	QSL
1973	Aug 11	WCAU	50		1210	Prepared card	AMP	MI USA	QSL
1992	Aug 30	WOGL	50	Moorestown	1210	1930 photo	AMP	IN USA	QSL
1992	Aug 30	WOGL	50	Moorestown	1210	1930 photo	AMP	IN USA	QSL
1998	Sep 23	WPHT	50	Moorestown	1210	1930 photo	AMP	IN USA	QSL
1998	Oct 3	WPHT	50	Moorestown	1210	1930 photo	AMP	IN USA	QSL
200x		WPHT	50	Moorestown	1210	1930 photo	FL	IN USA	Copy

4. Mediumwave WCAU Philadelphia PA

Studio Locations - Timelines

Year	Date	Location	Information	Reference
1922	May 22	1936 Market St, 39 th & Chestnut	1 st test broadcast, back room, Durham radio shop Short stay at this location	geocities.com members.aol.com
1932		1321 Arch St	Corner Broad & Arch	broadcastpioneers.com
1932		1622 Chestnut	1 st building USA constructed specifically for radio	geocities.com
1952	Summer	City Line	New studios opened	geocities.com
196x		Bala Cynwyd		broadcastpioneers.com
1973		City Ave Monument Rd		QSL card

5. Mediumwave WCAU Philadelphia PA

Important Broadcasts - Timelines

Year	Date	Information	Reference
1922	May 22	1 st test broadcast	geocities.com
1922	May 30	Inaugural broadcast	geocities.com
1927	Sep 18	1 st broadcast from WCAU as CBS	broadcastpioneers.com
1929	Jun	1 st USA broadcast from 2 radio equipped planes	broadcastpioneers.com
1932	Sep 18	Newtown Sq, 1 st broadcast new transmitter location	geocities.com

6. Mediumwave WCAU Philadelphia PA

Transmitter Locations - Timelines

Year	Date	Location	Information	Reference
1922	May 22	1936 Market St	1 st test broadcast, built by Durham	broadcastpioneers.com
1932	Sep 18	Newtown Sq	1 st broadcast from 395 Bishop Hollow Rd	geocities.com
1941	Mar	Newtown Sq	Still at this location	QSL card
1941		Moorestown	Located in NJ	geocities.com

7. Mediumwave WCAU Philadelphia PA

Transmitter Power - Timelines

Year	Date	kW	Information	Reference
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1922	May 22	1 ?	1 st test broadcast	broadcastpioneers.com
1923	Mid	25		broadcastpioneers.com
1925	Feb	5		broadcastpioneers.com
1928	Nov 11	1		broadcastpioneers.com
1932	Sep 18	50	Newtown Sq, 1 st broadcast new location	geocities.com

8. Mediumwave WCAU Philadelphia PA

Transmitter Frequencies - Timelines

Year	Date	kHz	Information	Reference
1922	May 22	833	1 st test broadcast	broadcastpioneers.com
1923	Mid	1050		broadcastpioneers.com
1925	Feb	1090		broadcastpioneers.com
1927	Mid	1080		broadcastpioneers.com
1928	Mid	1150		broadcastpioneers.com
1928	Nov 11	1170		broadcastpioneers.com
1941	Mar 1	1170	Shown on QSL card	QSL card
1944	Jan 29	1210	Shown on QSL card	QSL card

9. Mediumwave WCAU Philadelphia PA

Callsigns Changes - Timelines

Year	Date	Call	Reference
1922	May 22	WCAU	broadcastpioneers.com
1990	Aug 15	WOGL	broadcastpioneers.com
1994	Mar 18	WOMP	broadcastpioneers.com
1996	Aug 13	WPTS	broadcastpioneers.com
1996	Sep 17	WPHT	broadcastpioneers.com
1992	Jul 5	WCAU	Special news bulletin from "WCAU" heard on Gilligan's Island

10. Mediumwave WCAU Philadelphia PA

Ownership - Timelines

Year	Date	Owners	Reference
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1922		Philadelphia Radiophone Co	broadcast pioneers.com
1923	Jan 24	Durham & Co	broadcast pioneers.com
1926	Early	Universal Broadcasting Co (Isaac Levy & Daniel Murphy)	broadcast pioneers.com
1926	Nov 17	Leon Levy bought out Murphy	broadcast pioneers.com
		Bought by William Paley, renamed CBS	broadcast pioneers.com
1934		New corporate name, WCAU Broadcasting Co	broadcastpioneers.com
1946		Sold to Philadelphia Record – David Stern	broadcastpioneers.com
1947	Feb	Sold to Philadelphia Evening Bulletin	broadcastpioneers.com
1958	Summer	Sold to CBS	broadcastpioneers.com

11. CBS Shortwave W3XAU Philadelphia PA

Illustrations

No	Item	Picture	Location
1.	Postcard	Transmitter building 1930	Attachment
2.	Postcard	WCAU building 1935	Attachment
3.	Postcard	WCAU transmitter	Attachment