

1b: A Brief History of Ultrasound / Yale Fisher, MD

Transcript

Let's start with a brief history of ultrasound.

The first ultrasonographer can be seen here. Believe it or not, it is a bat. Bats were able to fly without their vision and this finding was unbelievable when it was first discovered.

It was discovered in 1793 by a man by the name of Spallanzani, an Italian who actually believed that bats could fly without vision at all. And did an experiment in which both eyes were covered on the bat and only the ears were allowed to be exposed. And, curiously, the bats had no problem avoiding walls or furniture or anything else.

The Curie brothers were also involved in the 1880s with the development of ultrasound. And Langevin, in the 1920s, was involved with ultrasound for war use. It's still used for war. Sonar maintains itself as an important adjunct to all of the submarine warfare. I'm sure most of you who have seen the movies are well familiar with this.

And it wasn't until the 1950s and commercial development that ophthalmology became involved. The first people to describe it in the literature were Mundt and Hughes, followed by Oksala from Finland, and Baum and Greenwood.

There was great interest in ultrasonography for use of in the eye because the eye was so close to the surface of the human body. Both A-scan, which is time/amplitude ultrasound, and B-scan, which is intensity modulation were described by these people in the mid and late 1950s.

A host of people have been involved in ophthalmic ultrasonography and this is just a short list. Doctors Keeney, Coleman, Purnell and Ossoinig have been massively involved in the development of this process. Some more involved with A-scan, some more involved with B-scan, but as I explained before, this site is predominantly interested in B-scan ultrasonography of a contact type.

In the mid-1960s, Dr. Edward Purnell described most of the pathology that we currently know today. It is a very mature field.

And he, and then Dr. Coleman, with his water-bath techniques, describe the ability to look at the eye in opaque media situations to develop diagnosis simply using ultrasound.

My mentor, Dr. Nathaniel R. Bronson, developed a contact scanner at about the same time as Dr. Coleman did, and he developed his in his garage with the help of the people from Grumman Aircraft. And eventually from aerospace materials that were left and utilized for the contact scanner.

The idea was to be able to examine somebody through the lid not to place the object on the globe itself. And several generations of ultrasonography devices have been developed since Dr. Bronson's work.

Dr. Coleman has had a number of revolutionary instruments and many others have as well. They've all added to the basic history of ultrasonography.

For those of you who are interested, there is a very long discussion and chapter in the literature by D. Jackson Coleman in his book Ultrasonography of the Eye, which you can find on our bibliography page