PROFILE

Solar Cell Inventor Tony Lamb Made His Breakthrough in 1931

By Maureen Far

With the emergence in the past decade of the solar cell as a practical way to extract electricity from our environment, little has been written about the man who started it all. His name is Tony Lamb, and he invented the first practical solar cell in 1931.

Lamb is now 86-years-old, retired, and living in Newbury Park, CA, after a spectacular career as inventor, engineer, and World War 11 "critical scientist."

200 Patents

He invented some 500 sophisticated devices, ranging from instruments that allowed planes to fly at night for the first time to the nation's first target guided bomb. He holds a total of 200 patents, some of them in foreign countries.

His earliest solar cell patent - number 2,000,642 in the U.S. Department of Commerce Patent and Trademark Office was riled July 14, 1932 and granted in 1935. An earlier solar cell patent, filed by Lamb on October 3, 1931, was abandoned, according to patent office records.

Lamb was 28 when he first came upon the solar-electric effect that led to his invention of the solar cell. He was in the midst of a 30-year-career as an electrical engineer with Weston Electrical Instrument Corporation of Newark, New Jersey.

A Discovery

The day was May 31,1931. Lamb sat at his test bench in his small Weston laboratory testing a selenium-coated metal disc that was part of a German made rectifier. He recalls:

"We had gooseneck lamps in those days with very weak bulbs, roughly 16 watts. I was trying to get the light closer to the disc so I could see it better. Out of. the corner of my eye I noticed that the pointer of the meter (microammeter) moved a bit.

"It shouldn't have. It was like if you had a dead man who was embalmed and he started moving, like a ghost had come in front of me for an instant. It was one of the 'most startling things that ever happened in my life. Here was life where it didn't belong, like finding Martians in your backyard.

"As I moved the light nearer to the disc the needle moved more. I waved my hands over the disc and the shadows made the needle move. I checked to see if any sweat from my hands got on it because there's enough acid and salt in sweat to produce a current. It hadn't.

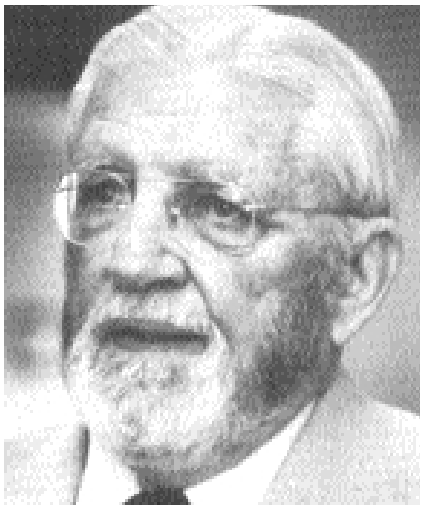
"I got so excited my heart almost stopped beating."

Management Doubts

But Lamb discovered that top executives at Weston were not as excited as he was. Lamb's boss, the sales manager, who was also in charge of the company's "new products division, called Lamb's solar cell "a scientist's play toy' that would not sell. He was advised to forget about it. Lamb sent copies of his report on the solar cell to top executives, including Dr. Weston, himself a pioneer in attempts to convert the sun's heat into electricity with thermopiles. The response from top management was a great silence.

Gives Speeches

Nevertheless, during the next two weeks he spent nearly all his time, day and night, conducting experiments with the solar-electric effect, and later in the month he presented his findings



Tony Lamb

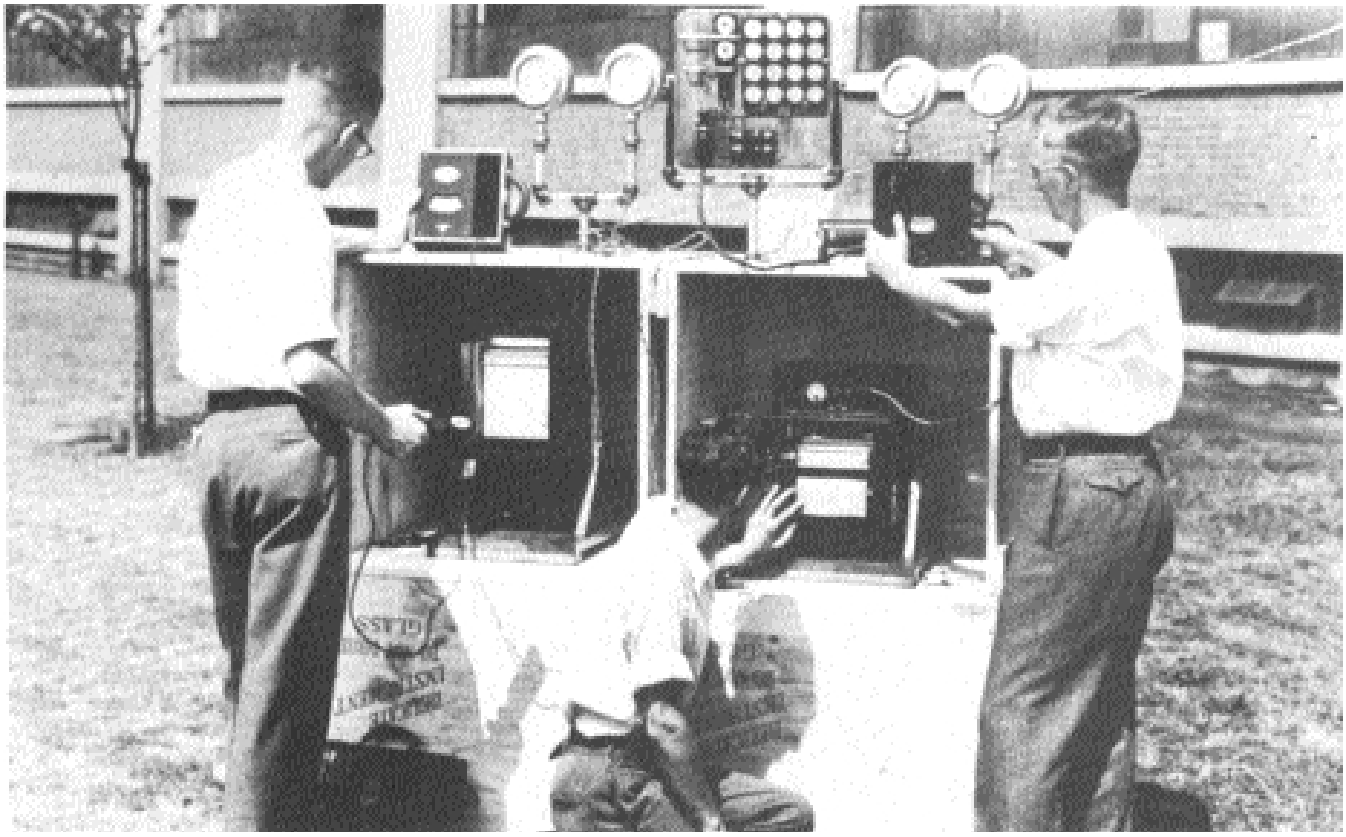
at a meeting of the American Institute of Electrical Engineers. He was asked to give a speech three months later before 3,000 engineers gathered at New York's Waldorf Astoria Hotel.

Newspaper Articles

Very quickly Lamb became a speaker in demand, and his claims about "free electricity from the sun" began showing up in newspaper stories. A news reporter for the New York American asked Lamb if he could use solar cells to drive his car from New York to Los Angeles. "Sure!" was Lamb's reply. "Just cover the roof with them." That Sunday the American ran a story about solar cells in their rotogravure foldout section. It was accompanied by an artist's sketch of a car with its roof covered with solar cells.

A reporter from another newspaper asked him if he could heat his home with solar cells. Lamb told him he could cover the roof with them and heat all his neighbors' homes too. With the depression making life harder and harder for the average American, such an idea was appealing. Again the story and the accompanying artist's sketch were played prominently in the New York press.

Lamb hit the speaking circuit. He had an interesting subject and was a witty, humorous talker who could instinctively feel the pulse of an audience. He led his listeners through the



Tony Lamb, left, and fellow engineers check first "solar panel" in 1932.

exciting future world of solar electricity. But while Lamb's message fell on ears hungry for new things in the midst of a depression that was forcing old companies out of business, his words fell disturbingly on the ears of others.

Clam Up or Get Fired

One of those most disturbed was the president of the Public Services Corporation, a company that had a near monopoly on sales of electricity and coal gas in New Jersey. He appealed to Lamb's boss to "cease all the talk about free electricity." The firm was worried that people would stop investing money in man-made electricity if Lamb continued to tell them it could be free from the sun. His boss was reminded that the Public Services Corporation was one of the largest users of electrical meters, the primary product of Weston Electric.

Lamb's boss told him to "clam up or find another job." Thousands of engineers were already out of work in those depressed days, and Lamb had a wife and two-year-old daughter to think about. So what he did was retreat into his laboratory to invent products that would make his company money. The new products, of course, employed his solar cell as the energy source.

Flood of Inventions

Lamb came out with a flood of inventions employing the solar cell. Since Weston was in the business of making meters, he naturally first invented a profitable agricultural meter to measure light over crops.

Electric Eye

He also developed the "electric eye", which was installed in Grand Central Station to automatically open its great doors, and in the Holland Tunnel to detect trucks that were too tall to go through the tunnel.

The solar cell was installed in street lights to allow them to turn on and off independently, triggered by the fight in the sky. He placed it in the nose cones of World War 11 bombs, allowing the bombs to seek their own target.

He modified the solar cell to do everything from measure the color of coffee beans inside giant ovens to screening urine samples for impurities.

First Solar Panel

In 1932 he fashioned the first array of solar cells on a "solar panel." He and a team of scientists took the solar panel to Magog, Canada, and recorded the first automated total eclipse of the sun. The scientific journal, *Instruments*, ran a photo of their undertaking on the cover of their September, 1932 issue.

Lamb's company, of course, was happy because it was making money from Lamb's inventions, but a lot of strange things happened along the way, Lamb says, as some people were reluctant to accept new things.

For example, a Maryland tobacco farmer threatened to shoot Lamb

unless he removed his solar cell beacon for airplanes from his tobacco field. The farmer claimed it was attracting UFO's to his tobacco field. Lamb refused and the threat passed unfulfilled.

Evil Eye

A Connecticut fisherman actually did shoot one of Lamb's solar cell beacons that was used to guide boats through the Connecticut River. The fisherman said he did it to destroy "its evil eye." Lamb subsequently encased the channel light in bullet proof glass.

Lamb developed many other things that did not employ his solar cell. The "SCRAM" alarm for The Manhattan Project, which was our nation's successful attempt to build the first atomic bomb, was just one of them.

Senior Activist

He retired from engineering in 1971 and moved from New Jersey to Southern California. There he launched a career as a senior activist, wrote a book on retirement, started college courses for senior citizen activists at three community colleges, and hosted both his own radio and TV talk shows.

Some thought the solar cell was an "evil eye."

His exploits as a senior activist won him national notoriety, even more so than the inventions of his earlier years. He even ran for city council in his town on the platform: "I won't spend a dime to get elected," and he got elected.

Last year, at age 85, he retired again after a bout with pneumonia seriously weakened him. Although ~ he is still a city councilor, he now lives in quiet semi-retirement at his home in New.bury Park, CA.

The Facts of Life

By David Weiss

When you gaze up into the sky on a country night, it's easy to feel a bit insignificant when compared to the apparent vastness of the universe. Here are some numbers to contemplate the next time you gaze up there.

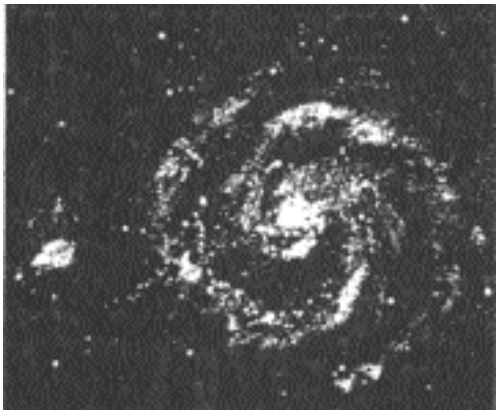
Solar System

The planet Earth is 7,926 miles across. It is one of nine planets that orbit a star we call the sun in our Solar System, which is 9 billion miles across if you take into account the furthest reaches of Pluto's orbit.

Our Solar System is one of about 100 billion similar systems of stars and planets that belong to a spiral galaxy called the Milky Way. Our sun is an average sized yellow star near the inner edge of one of the spiral arms.

Milky Way

So vast is the Milky Way that the nearest star to our sun is 23 trillion miles away. The Milky Way is 100,000 light years across (600 quadrillion miles, or 6 with 17 zeroes) and is one of about 100 billion galaxies that can be seen with modern telescopes. What's beyond the reach of our telescopes we don't know.



If we couId see the Milky Way from another galaxy, it would look something like this spiral galaxy. Our sun would be near the inner edge of one of the spiral arms.