

## A "GIRL TALK" GEOLOGICAL REVOLUTION : MARIE THARP (1920-2006)

AUTHOR: BRIDGETTE BYRD O'CONNOR  
ARTIST: THOMAS MUZZELL

BIG HISTORY PROJECT

AS LATE AS THE 1950S, GEOLOGISTS DIDN'T UNDERSTAND THE OCEAN FLOOR. THEY REJECTED CONTINENTAL DRIFT AS NONSENSE. THOUGH SHE WORKED MOST OF HER CAREER IN THE SHADOWS OF MALE SCIENTISTS, MARIE THARP'S DISCOVERIES HELPED PROVE CONTINENTAL DRIFT AND SHOOK THE BEDROCK OF THE DISCIPLINE.

IN 1948, SHE MOVED TO NEW YORK TO WORK AT COLUMBIA UNIVERSITY IN A NEW DISCIPLINE: GEOPHYSICS. THERE, SHE FOUND HER MALE COLLEAGUES TREATED WOMEN LIKE HUMAN COMPUTERS RATHER THAN SCIENTISTS AND PEERS.

THE MALE SCIENTISTS, LIKE HER COWORKER, BRUCE HEZEEN, CONDUCTED EXPEDITIONS TO GATHER DATA ABOUT THE OCEAN FLOOR USING SONAR TECHNOLOGY. MEANWHILE, MARIE AND THE OTHER WOMEN STAYED IN THE OFFICE, PLOTTING DATA THE MEN COLLECTED.

"I NOTICED IMMEDIATELY THE GENERAL SIMILARITY IN THE SHAPE OF THE RIDGE IN EACH PROFILE... I THOUGHT IT MIGHT BE A RIFT VALLEY... WHEN I SHOWED WHAT I FOUND TO BRUCE, HE GROANED AND SAID, 'IT CANNOT BE. IT LOOKS TOO MUCH LIKE CONTINENTAL DRIFT.'... BRUCE DISMISSED MY INTERPRETATION OF THE PROFILES AS 'GIRL TALK'."

FROM A YOUNG AGE, MARIE LEARNED ABOUT CARTOGRAPHY AND EARTH SCIENCE FROM HER FATHER. IN WW II, THE UNIVERSITY OF MICHIGAN BEGAN ALLOWING WOMEN TO STUDY GEOLOGY, AND SHE ENROLLED IN THEIR GRADUATE PROGRAM.

"I THINK OUR MAPS CONTRIBUTED TO A REVOLUTION IN GEOGRAPHICAL THINKING WHICH IN SOME WAYS COMPARE TO THE COPERNICAN REVOLUTION. SCIENTISTS AND THE GENERAL PUBLIC GOT THEIR FIRST RELATIVELY REALISTIC IMAGE OF A VAST PART OF THE PLANET THAT THEY COULD NEVER SEE."

IN THE MID-1950'S, A RESEARCHER ON HER TEAM PLOTTED THE LOCATION OF THOUSANDS OF EARTHQUAKES. THE SEISMIC DATA MATCHED MARIE'S THEORY OF A MID-ATLANTIC RIDGE AND RIFT VALLEY RUNNING DOWN THE ATLANTIC OCEAN.

"WHEREVER THERE WAS A MID-OCEANIC RIDGE, THERE WERE EARTHQUAKES... THERE WAS BUT ONE CONCLUSION: THE MOUNTAIN RANGE WITH ITS CENTRAL VALLEY WAS... A CONTINUOUS FEATURE ACROSS THE FACE OF THE EARTH."

MARIE HAD PROVED ALFRED WEGENER'S CONTROVERSIAL THEORY OF CONTINENTAL DRIFT AND HELPED LAUNCH THE MODERN THEORY OF PLATE TECTONICS.

"ESTABLISHING THE RIFT VALLEY AND THE MID-OCEAN RIDGE THAT WENT ALL THE WAY AROUND THE WORLD FOR 40,000 MILES--THAT WAS SOMETHING IMPORTANT. YOU COULD ONLY DO THAT ONCE. YOU CAN'T FIND ANYTHING BIGGER THAN THAT, AT LEAST NOT ON THIS PLANET." MARIE THARP