

**Zeitschrift:** Bulletin der Vereinigung Schweiz. Petroleum-Geologen und -Ingenieure  
**Band:** 26 (1959-1960)  
**Heft:** 70

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## **Prof. Dr. Wilhelm Schweydar**

On the 11th of July Prof. Dr. Wilhelm Schweydar, after a long illness passed away at the age of nearly 82 years. A long life devoted to science!

Geophysics and especially exploration geophysics is a young science and when one of the pioneers leaves us, it gives us reason to reflect what he has done for our branch of learning.

Schweydar was born on the 8th of december 1877 at Namiest near Brünn in Austria-Hungaria. His parents moved to Silezia and he became a citizen of the German empire in 1888. From 1898 to 1903 he studied astronomy, mathematics and physics at the Universities of Leipzig, Breslau and Heidelberg. In July 1904 he obtained his doctors degree on a treatise entitled: Untersuchungen der Oszillationen der Lotlinie auf dem Astronomischen Institut zu Heidelberg, zwischen Juli 1901 und Juli 1902.

He joined the staff of the Astrophysical Observatory in Potsdam in 1903 and on the first of January 1905 he went to the Prussian Geodetic Institut, likewise in Potsdam. After serving in various capacities he became director of the department of geophysics on the first of November 1923, where he worked especially in seismology.

On 9 July 1914 he defended successfully his thesis on «Methoden zur Erforschung des Erdinnern» which gave him the status of private lecturer.

In 1920 he was appointed honorary professor at the philosophical faculty of the University of Berlin and in 1921 he was elected member of the Kaiser Leopold Deutsche Akademie der Naturforscher in Halle.

He was offered in 1925 to become the successor to prof. Wiechert at the geophysical faculty in Göttingen, but he declined this offer.

For health reasons he resigned in 1926 and took up residence in Locarno, Switzerland, where he settled down definitely in 1929 and became a Swiss citizen in 1939.

In his official career he was primarily engaged in the purely scientific aspects of the physics of the earth. Aside from this work he devoted considerable time to exploration geophysics and he was one of the great pioneers in this field.

He constructed a torsion balance, which was the first automatic instrument of its type with photographic registration, built at Askania Werke in Berlin-Friedenau. This instrument had many advantages over the prototype designed by baron Eoetvoes. The automatic change to the various azimuths and photographic registration made it possible to use the instrument during 24 hours a day. The observer needed to be present only when the entire observation was finished and he and his crew could use the time for the topographic work, calculations, etc. while the instrument completed unattended its full series of registrations. However the total time required to complete an observation was still 6—8 hours and with one instrument only three, sometimes four observation points could be occupied in 24 hours.

Schweydar assisted by the staff of Askania improved the design and the new, so called z-bar torsion balance could give a full observation in 3—4 hours, thereby cutting the time in half.

For the use of the field crew, Schweydar worked out also the various calculation methods for obtaining the gradients of gravity and curvature values from the readings and the necessary corrections for latitude and topography. He managed to design forms whereby observers without academic background could make the often very intricate calculation by merely following in a routine manner his recipes as given on printed forms.

He also worked out an integraph for the determination of the effect on the gravitational field of bodies of any shape, that could be represented by profiles or contour maps. This instrument could be used either by the interpretation or for the calculation of topographic corrections in more hilly areas.

He also worked out a number of formulas for the computation of the size and position of anticlinal structure, with approximately triangular cross section. He used primarily the maxima and minima, half values and inflexion points of the gradient curve, and the curves of the values of curvature. Such methods are now considered standardized, but to the authors knowledge Schweydar was the first to introduce them in exploration geophysics.

The first field work with Schweydar's torsion balances was done in Germany during the latter part of World War I (Hambueren, Neuengammen, etc.). He, personally made observations near Ariçesti in Rumania. In spite of the difficult working conditions during the war, such as lack of transport, etc., he made enough observations to obtain an indication of the Ariçesti structure, which was only much later confirmed by additional work.

The first really large scale applications were made by the Royal Dutch-Shell Group. The gradient mape of the Hurgada structure in Egypt is still a text book example. Work was simultaneously started in British North Borneo, but especially in Mexico and in the Southern United States, where a large number of saltdomes were mapped.

Schweydar however did not spend all his time on gravity observations. He also constructed seismographs for the refraction seismic method, first at the Institute at Potsdam, later at Askania.

These exploration activities of Schweydar were made in close cooperation with the Bataafsche Petroleum Maatschappij in his capacity as scientific adviser. He made several field trips to Mexico and the United States.

Schweydar has contributed a great deal to the art of exploration geophysics. He was truly a pioneer. He was also a warm friend for all those with whom he came into contact. His advice and help with word and deed were always available for all of his friends and relatives. It is with a deep feeling of gratitude that those of us who had the privilege to work with him, will remember him.

He has had a long and happy married life and our sympathies go out to his widow. May she find consolation in the knowledge that his was a long life well spent and in which he made many warm friends.

A. van Weelden \*

\* Herr Ing. A. van Weelden, langjähriger Chef-Geophysiker der Royal Dutch-Shell in Den Haag, hatte auf unser Ansuchen hin die Freundlichkeit, diesen Nekrolog für unser Bulletin zu verfassen. Wir möchten ihm hierfür unsern herzlichen Dank aussprechen.