# Two Swiss Brothers in South America: Daniel and Eduard Trümpy and their Impact on the Petroleum Geology of Colombia and Argentina*

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## Abstract

Daniel Trümpy (1893-1971) was the founding father of a geological dynasty of which the presenter (his grandson) is for the moment the last representative. He had a brilliant career as an oil explorer, first with Shell and later with the French Petroleum Institute. In Shell, his first assignment was in Northern Morocco before moving on to Comodoro Rivadavia in Argentina, Tampico in Mexico, Miri in Sarawak and, after a brief stint in Brazil, to Colombia where, because of World War II, he stayed until 1946.

Eduard Trümpy (1903–1966), Daniel's younger brother, also studied geology and then also embarked on the path of petroleum geology. After a brief stint in Romania, he joined YPF in 1931 to work as an explorer in the foothills of Salta and Jujuy Provinces, based in the then flourishing Campamento Vespucio, where he became President of the local football club. In 1935 he was transferred to Mendoza Province, where he played a significant role in the development of the Cuyo Basin petroleum province. Like his brother Daniel in Colombia, his stay in Argentina, because of World War II, was extended until 1946.

The two brothers were very different s persons. What united them, however, were superb geological skills.

Addressed in this article is the impact of the Trümpy brothers on the petroleum geological development of the Middle Magdalena Valley in Colombia and of the Cuyo Basin in Argentina.

## References Cited

Baldwin, H.L., 1944, Tupungato oil field, Mendoza, Argentina: AAPG Bulletin, v. 28/10, p. 1455-1484.

Cediel, F., ed., 1987, Petroleum Geology of Colombia: Middle Magdalena Basin, v. 10-11, various pagination.

Gerencia de Asuntos Públicos y Gubernamentales De las Empresas Shell en Colombia: 60 años de Shell en Colombia, 1936-1996, p. 20.

# Two Swiss Brothers in South America: Daniel and Eduard Trümpy and their impact on the (Petroleum) Geology of Colombia and Argentina

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# Shell Colombia's perception of Daniel Trümpy (the OTHER Daniel Trümpy…)

entrar al país no fue tomada a la ligera. Al contrario sólo se produjo después de muchas previsiones y cálculos, pero sobre todo del análisis concienzudo realizado durante un año por el genial geólogo suizo Daniel Trumpy. Este, uno de los grandes sabuesos del mundo petrolero y un profesional con tanto tino que años más tarde descubriría los yacimientos petroleros del Sahara, había desarrollado durante todo el año de 1936 un estudio sobre las estructuras geológicas generales del país y había confirmado la existencia de grandes depósitos de petróleo. Un veredicto que en su boca era una certeza cargada de futuro.

**The entry (by Shell) into the country (Colombia) was not taken lightly. On the contrary, the decision was only taken after many evaluations and calculations, but mostly after a detailed analysis by the genial Swiss geologist Daniel Trümpy. This geologist, one of the great detectives of the petroleum world and a professional with such good judgment that years later he was to discover the petroleum reserves of the Sahara, had during the entire year of 1936 prepared a study about the general geological structure of the country and had confirmed the possibility of the existence of significant petroleum reserves. A judgment that, coming from his mouth, was a promise for a great future.**

60 años de Shell en Colombia, 1936-1996, Gerencia de Asuntos Públicos y Gubernamentales De las Empresas Shell en Colombia. Santa Fe de Bogota, 1996.

# The Trümpy Family, probably around 1920

Presenter's notes: Sitting: Mother Maria Trümpy-Stüssi and Father Balthasar; standing from left Daniel Trümpy and wife Ria, Eduard Trümpy, Anni (wife of Hans) and Hans Trümpy. In the background the Military Zeughaus.

## Comodoro Rivadavia, ca. 1921

Presenter's notes: After terminating his brillant Ph.D. at age 23, Daniel Trümpy joined, during World War I, a German mining company and made two highly adventurous travels to the Far East to look for wolframite mines. In 1919, he joined the Baatavse Petroleum Maatschappij, soon after to become Royal Dutch Shell. After an initial assignment to Northern Morocco, Daniel Trümpy was transferred to Patagonia, where he lived both in Comodoro Rivadavia and on the Chilean side, in Punta Arenas, with his wife Ria and his baby son, Rudolf..

# Home of Trümpy Family, Camp km 17, Comodoro Rivadavia (1922)

Presenter's notes: Living conditions in the early days of oil exploration were at best marginal. This corrugated iron shed served as living quarters for Daniel Trümpy (here with his cigarette and his 1-year old boy Rudolf, my Father).

## Daniel Trümpy's home in Tampico, Mexico

Presenter's notes: Living conditions clearly improved thereafter. The Trümpy family home in Tampico is witness thereto. Whilst there are no major discoveries associated with Trümpy's stay in Argentina, his following assignment to Mexico (Puerto Mexico- Coatzacualco, and Tampico), where Shell was associated to the British company, El Aguila, was crowned with much success.

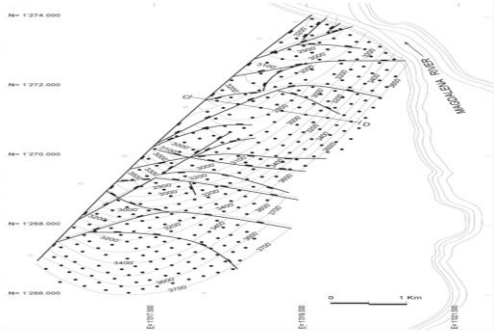
## Drilling in Mexico, late 1920 to early 1930

Presenter's notes: Whilst Mexico had been professionally very successful for Daniel Trümpy, with the discovery of the Poza Rica giant (other discoveries were also made in the heavy-oil prone Chicontepec Basin, but those at that time were deemed non-commercial); the stay was overshadowed by the untimely death of daughter Dorli, age 3. Around 1931/1932, Daniel and his wife left Latin America and moved to Borneo, where, sadly, Daniel´s wife succumbed to complications related to a pregnancy. These two events profoundly changed Daniel Trümpy on the personal side. However, not so professionally, when, married again, his return to South America (a very short stint in Brazil, then Colombia in 1936), led to significant success. At that time, field geology was still a significant element of oil exploration. However, gravimetry and, increasingly, seismology, became more and more important, leading to discoveries in areas without any surface expression of structure.

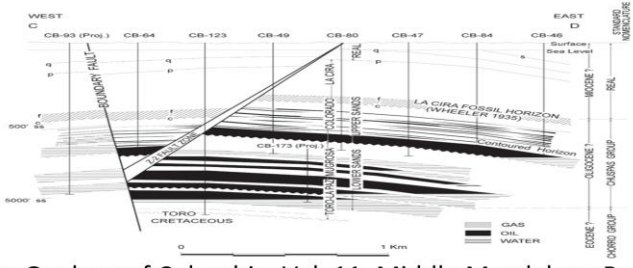
## The mighty (Upper) Magdalena River, near Guamo, 1938

Presenter's notes: The Magdalena Valley (especially the Middle Magdalena Valley), became Daniel Trümpy's (and Shell's) main playground. In early 1936, Daniel Trümpy and a group of geologists assigned to him systematically explored the Middle Magdalena basin on board a seaplane. At that time, there were no roads in the Middle Magdalena Valley, which then was still covered by dense tropical jungle. A major discovery in that basin had already been made much earlier, in 1917, when the La Cira-Infantas Field was discovered.

# Casabe Field




STRUCTURAL CONTOUR MAP ON TOP OF A 2 (UPPER SANDS).

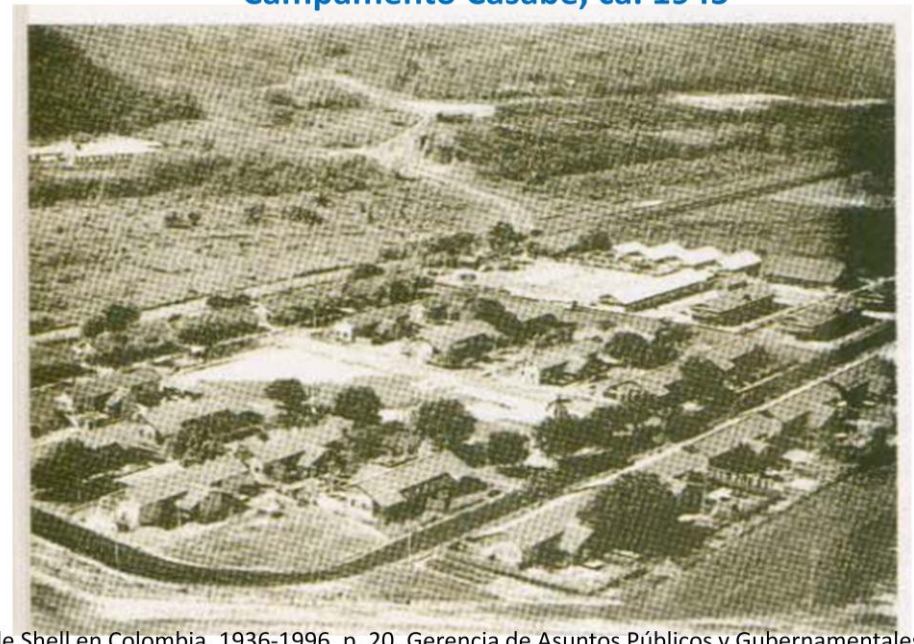



STRUCTURAL CROSS SECTION, CASABE FIELD, SHOWING OIL ACCUMULATION AND GAS-OIL AND OIL-WATER CONTACTS.

Petroleum Geology of Colombia, Vol. 11, Middle Magdalena Basin, Fig. 27. F. Cediel (ed.)

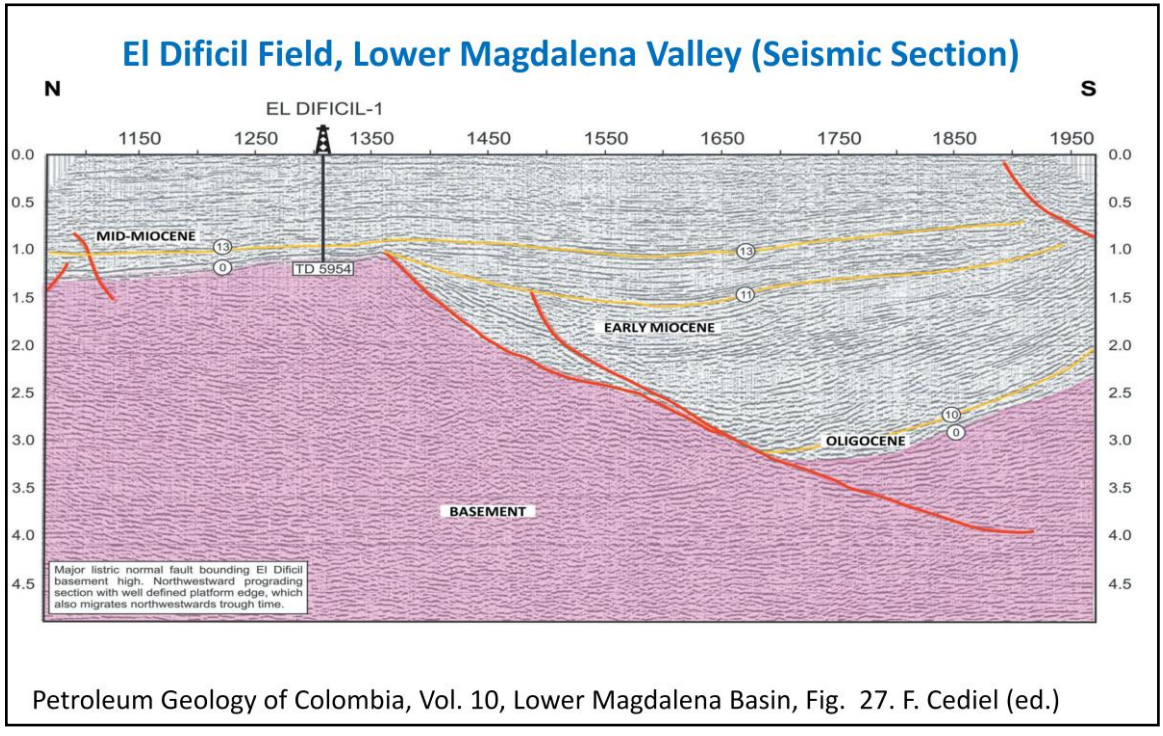
Presenter's notes: The first well drilled after Trümpy´s field and geophysical surveys, Casabe-1 (1941), became the company-maker, upon which Shell´s presence in Colombia became based. The Casabe Field, with a STOIIP of some 1.3 MMBBls, has today (owned and operated by Ecopetrol since 1974) an expected ultimate recovery on the order of 400 MMBBls. It is a faulted anticline, producing 21 degree API crude from Oligocene sands (Mugrosa and Colorado formations, around 20% porosity), and initial production from this Casabe-1 well was 430 BOPD. By 1991 (El TIEMPO), some 400,000 Barrels had been produced from the Casabe-1 well alone.

## Campamento Casabe, ca. 1945



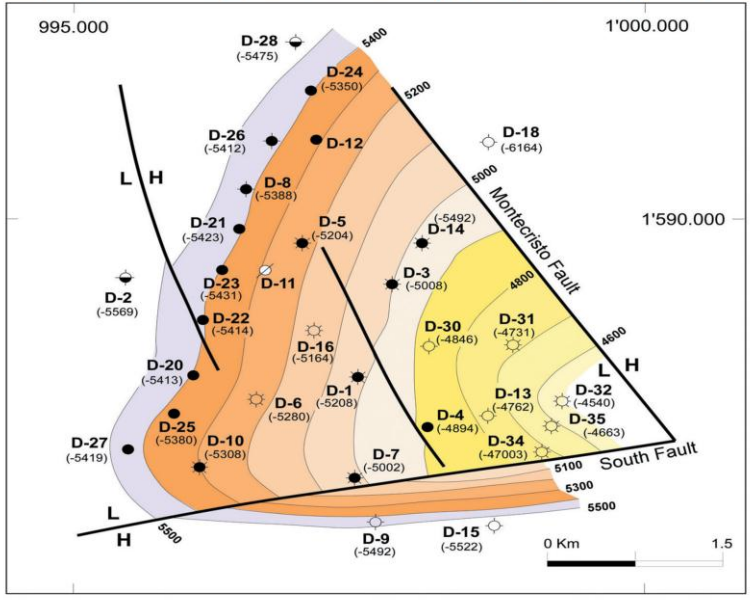
60 años de Shell en Colombia, 1936-1996, p. 20. Gerencia de Asuntos Públicos y Gubernamentales De las Empresas Shell en Colombia. Santa Fe de Bogota, 1996.

Presenter's notes: The development of the Casabe Field was the opening for a significant presence of Shell in Colombia, with additional fields being found and developed in a short time (e.g. Cantagallo, San Pablo, La Cristallina; then El Dificil in the Lower Magdalena).




Presenter's notes: The El Dificil Field was the first development in the logistically very difficult Lower Magdalena Valley and remains to date one of the main **oil** discoveries in an otherwise gas-prone basin. With location based on gravimetric analysis, the field has produced a total of 11 MMBbls of 44 deg. API oil, as well as some 300 BCF of condensate-rich gas. El Dificil, as small as it may have been, was the play opener for later, much more substantial gas discoveries in the Colombian (Chuchupa-Ballena) and Venezuelan (La Perla) offshore. Production is from Oligo-Miocene reefal build-ups and calcareous sandstones.

# El Dificil Field, Lower Magdalena Valley (Depth Map Top Reservoir)




Petroleum Geology of Colombia, Vol. 10, Lower Magdalena Basin, Fig. 53. F. Cediel (ed.)

Presenter's notes: The El Dificil Field is a triangular fault closure with two intersecting faults forming the main trapping elements, coupled with shale-out of the carbonate reservoir towards the west. Reefal build-ups at that time were established on existing paleo-highs.

## Some things haven't changed that much…
## Landslide on the road to Villavecencio (1938)

Presenter's notes: Whilst Daniel Trümpy was an avid photographer in his times in Argentina and in his early days in Mexico, there are no more photos in the family records after the death of his 3-year old daughter in Mexico. Only photo records from his stay in Colombia are from a trip that my Father, Rudolf, took there in 1938. Then he made numerous trips on mule and horseback to the Upper Magdalena Basin, but also to the Llanos, where Shell would also initiate exploration activities a few years later.

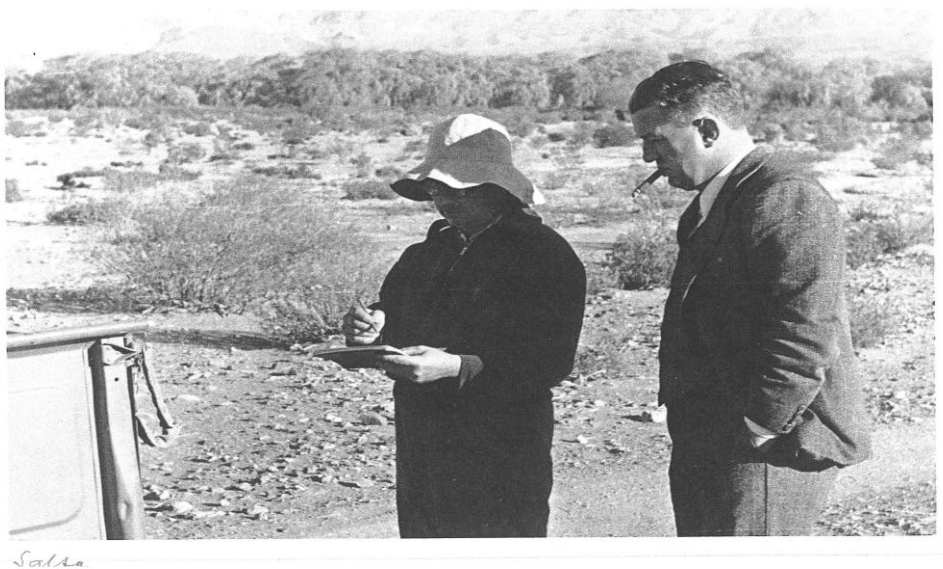
## Crossing the Meta River (near Villavicencio, 1938)

Presenter's notes: Whilst Daniel Trümpy (and Shell) had significant exploration success in the Magdalena River basins, they were less successful in the Llanos. Notably, one of the San Martin wells missed the Castilla Field (discovered later by Chevron) by only a few hundreds of meters. Also, the Chafurray-1 well in the southernmost part of the Llanos found a rather thick oil column, but with a gravity so low (bitumen, or dead oil) that no development could be envisaged at that time.

Because of World War II, Trümpy stayed much longer in Colombia than that of a "normal" Shell assignment. Consequently, he could also gain insights in parts of the geology of Colombia that were not that closely related to petroleum potential. His 1943 publication on the Paleozoic of Colombia remains today the basic compilation on Colombian rocks of those ages—also because many of the key sections measured there have remained poorly accessible to geologists in more recent years (e.g., Serrania de Macarena).

Shortly after returning from Colombia in 1946, Daniel Trümpy took retirement from Shell and joined the Institut Francais du Petrole, where many more successes were waiting for him on other continents, most notably in the Algerian Sahara.

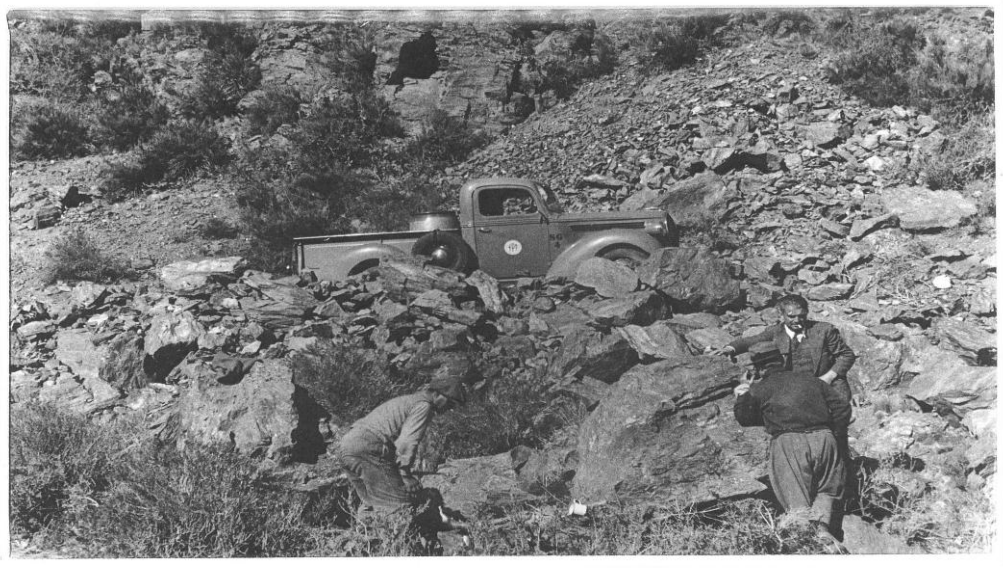
## Field Geology in Salta Province (around 1933)



Courtesy S. and H.R. Mazzolini-Trümpy

Presenter's notes: So what was younger brother Eduard up to during these years? As his brother, Eduard was a qualified chain smoker, and like his brother, he had conducted his university studies (with Professor Arbenz in Bern) at highest standards, albeit under milder topographic conditions on the shores of Lake Como in Northern Italy. He then joined a small oil company and went to work in Romania.

## Field Geology in Salta Province (around 1933-1934)



Courtesy S. and H.R. Mazzolini-Trümpy

Presenter's notes: He was contracted by the then still young Argentine national petroleum company, YPF. Aged 27, he set sail for Argentina, speaking no Spanish (trying to learn it on the passage between Italy and South America), and complaining in letters to his Mother about the reservation of the Argentines and Bazilians on board. His first assignment was in the Northwest Basin of Argentina, based in Campamento Vespuccio, where his tasks were that of an operations geologist and field geologist, the latterassignment being carried out with the help of a new Ford truck, about which he proudly reported home.

## Well Operations on Yuto-1, Jujuy Province (1933?)

Courtesy S. and H.R. Mazzolini-Trümpy

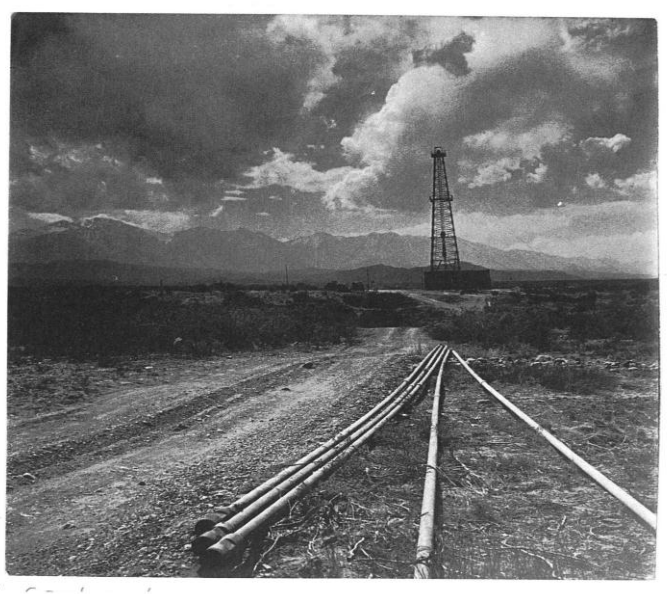
Presenter's notes: No major discoveries were made in the then already moderately mature Northwest Basin during Eduard's stay, but significant appraisal and development work was progressing. The well Yuto-1 missed the Caimancito field (discovered 1969 by YPF) by a few kilometres.

## Eduard Trümpy, Predident of FC Vespucio

Courtesy S. and H.R. Mazzolini-Trümpy

Presenter's notes: Whilst in his early letters he seemed to have essentially social contacts with other foreigners having then leading positions in Vespucio, over the years, and especially with acquired mastery of the Spanish language, Eduard started to enjoy his social life much more. He advanced at the end of his stay to President of the Vespucio Football Club.

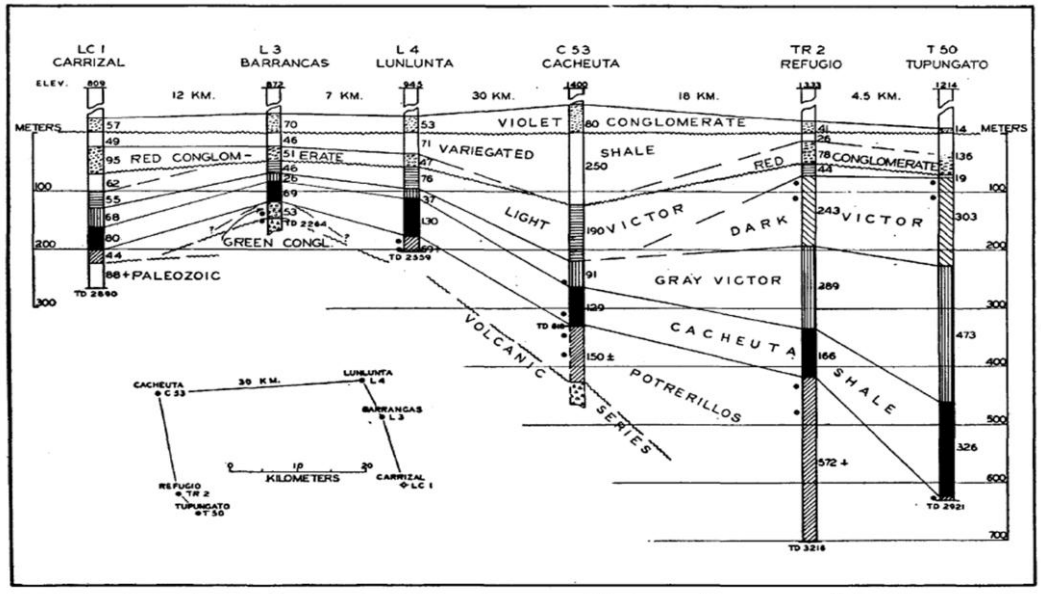
## Drilling Operations in Cacheuta



Courtesy S. and H.R. Mazzolini-Trümpy

Presenter's notes: But Eduard's real impact on the Argentina geology and petroleum history came after his transfer south to the Cuyo Basin in Mendoza Province. Now married, and with three children all born in Argentina (the youngest son also became geologist, but died as a young man), he was assigned the position of Head of Geological Services, leading numerous field parties and mapping prospective structures. As such he "discovered" the Tupungato Field, having made the first surface map of it. He also published the key report on the stratigraphy of the area between Lujan de Cuyo, Potrerillos and Tupungato, an area which had not been visited by any geologist since Charles Darwin had traveled the area.

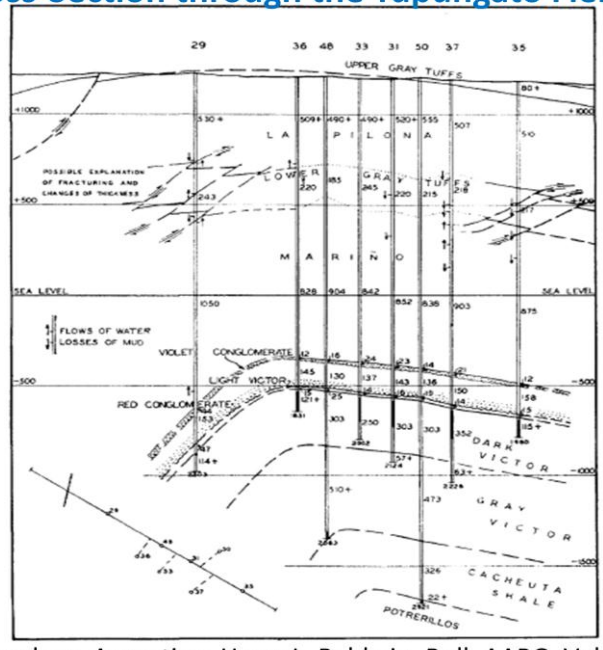
# Stratigraphic Cross-Section through the Cacheuta sub-basin




Tupungato Oil Field, Mendoza, Argentina. Harry L. Baldwin, Bull. AAPG, Vol. 28, No. 10, 1944

Presenter's notes: Eduard's field geological observations served as the basis for the drilling activities, and the stratigraphy was complemented when as additional subsurface information became available (the Victor reservoir, e.g., does not outcrop).

# Cross-Section through the Tupungato Field




Tupungato Oil Field, Mendoza, Argentina. Harry L. Baldwin, Bull. AAPG, Vol. 28, No. 10, 1944

Presenter's notes: In a letter from Eduard to his brother, Daniel, he states that unfortunately the Tupungato Field turned out to be considerably smaller than originally anticipated because the structure at depth was considerably smaller than at the surface. This is illustrated in this 1944 AAPG paper by Phillips geologist, Harry Baldwin.

## Eduard Trümpy's mother visits Cacheuta (Mendoza, around 1937)

Courtesy S. and H.R. Mazzolini-Trümpy

Presenter's notes: Eduard's first daughter, Susy (who jointly with her husband Hans-Ruedi kindly provided this photo and other information about Eduard), was born in 1936, and Eduard's mother visited the young family around 1937. In those years, pressure on foreigners in the Argentine national oil company mounted, because more and more high-quality graduates of Argentine universities pushed not only for basic positions in YPF but also for positions, for which it was necessary to displace foreigners. Yet, just as Eduard was about to make the decisive move, World War II erupted and the family settled firmly in the Cuyo until 1946, when they returned to Europe. Eduard then joined Gulf Oil Europe as Chief Geologist, working decisively on Gulf's Sicilian interests, before leaving the oil industry in 1950.

## Lunlunta Field, Cacheuta sub-basin – painting bei Lily Trümpy-Spelty

Courtesy S. and H.R. Mazzolini-Trümpy

Presenter's notes: I would like to close my presenttion with this painting by Lily Trümpy, Eduard's spouse, of the drilling operations at Lunlunta in the Cacheuta sub-basin of Mendoza Province.

Daniel and Eduard Trümpy, two brothers from the small, not very significant mountain town of Glarus in Switzerland, both lived for significant periods of their lives in South America.

Due to World War II, both brothers became confined to South America, Daniel in Colombia and Eduard in Argentina for significant periods of time. This allowed them to impact significantly the Petroleum Geology and also the general geology of their respective host countries.

Very different in personal nature, except for chain smoking and the occasional drink (though Daniel's silences certainly also were related to the tragic experiences in his personal life), both brothers shared one common interest, which was classical music. Eduard was a keen and gifted piano player, with a keenly developed artistic side, whilst Daniel was more an appreciator of classical music.

Both in their ways have left their marks on numerous younger geologists in their respective host countries.