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## EUROPA STAMPS DISCOVERIES

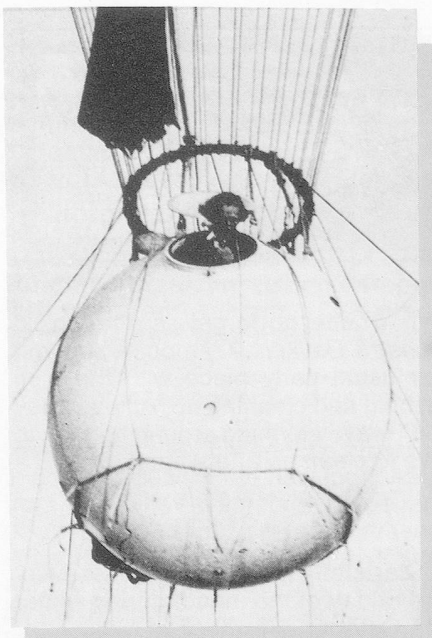
The 1994 Europa stamps are devoted to "DISCOVERIES", the common theme chosen by the European Conference of Postal and Telecommunications Administrations (CEPT). Being a small, landlocked country, Switzerland has no seafaring tradition as such, and has not produced any famous discoverers of new lands.

On the other hand, Switzerland has been highly successful in the field of scientific research and discovery. Auguste PICCARD and his son Jacques are famed for their exploration of the stratosphere and the ocean depths. The two stamps show the vehicles used in their voyages of discovery, i.e. the stratospheric balloon and the bathyscaphe.



### STRATOSPHERIC BALLOON "FNRS"

The Swiss scientist Auguste Piccard (1884-1962) completed studies in both mechanical engineering and natural science, but privately preferred to devote his energies to ballooning. By 1931, after a long period of planning and preparation, including a search for sponsors, he was finally ready. With a colleague, Paul Kipfer, he made an ascent with a stratospheric balloon and a pressurized, spherical cabin, reaching a height of 15,781 metres. A year later, on 18 August 1932, Auguste Piccard made another ascent, accompanied by the engineer Max Cosyns, at Dubendorf near Zurich, reaching the record height of 16,940 metres. To attain these altitudes, he used a balloon that differed from conventional designs in two ways: firstly,



given its enormous size, the envelope of the balloon had to be particularly light and filled with hydrogen instead of town gas: secondly, because of the low atmospheric density at that altitude, a conventional balloon basket was out of the question, and a pressurized aluminium cabin had to be used instead. The "Fonds National Belge de la Recherche Scientifique (FNRS)", after which the balloon was named, met the cost of the expedition. Piccard was not driven by sporting ambition or the desire to break records, his aim was to measure cosmic radiation, which had just been discovered and about which little was known at the time. After a 12-hour voyage over the Toggenburg mountains, the Grisons Alps and northern Italy, he finally landed his balloon to the

south of Lake Garda near the village of Monzambo in the Desenzano region.

The data collected by Professor Piccard on these two high-altitude flights were later of vital importance in the development of pressurized aircraft cabins.

### BATHYSCAPHE "TRIESTE"

Piccard began preparing for his deep-sea diving attempts as early as 1937, being convinced that the principle of the air balloon also held good for "underwater ballooning" in a bathyscaphe. However, his work was interrupted by the Second World War, and it was 1948 before he could make his first diving attempts off Dakar.

Despite various setbacks and problems in obtaining the necessary funding, he carried on with the project, now supported by his son Jacques. Finally, the bathyscaphe "Trieste" was built in an Italian shipyard and completed initial dives of 3,150 and 3,700 metres. The ultimate success came on 23 January 1960. On board the "Trieste", from a base in Guam, Jacques Piccard and Lieutenant Don Walsh of the US Navy descended to a depth of 10,916 metres in the Marianas Trench. The bathyscaphe was exposed to a water pressure of approximately 1100 atmospheres, equivalent to a pressure of 170,000 tonnes, or 1,150 kg/cm<sup>2</sup>, for a vessel of that size. After spending 20 minutes on the sea bed, during which a flatfish was sighted even at this great depth, the "Trieste" resurfaced and returned safely to the support ship.

