NEUTRINO'72 (OPENING ADDRESS)

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We may now celebrate the 40th anniversary of the discovery of neutrino. The understanding of weak forces acting in Nature was always directly connected with the investigation of this tiniest and simplest piece of matter. The four decades of neutrino research form a brilliant success story. Pauli told at the beginning of neutrino science that neutrinos would never be detected. But Fred Reines and Clyde Cowan taught us the way of experimenting with neutrinos. To-day sophisticated neutrino eyes are watching at the glowing of different sources in several laboratories.

NEUTRINO EXPERIMENTS

from reactors:	Hanford	1953
	Savannah River	1955
	Brookhaven	1956
from accelerators:	Brookhaven	1962
	CERN	1964
	Batavia	1973
from cosmic rays:	Home Stake	1965
	Kolar Gold Field	1967
	Utah	1969

Doing fundamental research is a hard job in our age. For tremendous efforts Nature pays only with very faint and very provisional results. But weak interactions helped us in obtaining valuable bits of exact information about the fundamental properties of matter. The last discovery of a strict conservation law was that of the leptonic charges /1952/. The C V C theorem built a bridge from electricity to beta decay /1957/. The weak interaction taught us, what was the essential difference between left and right /1956/, positive and negative /1957/, past and future /1964/.

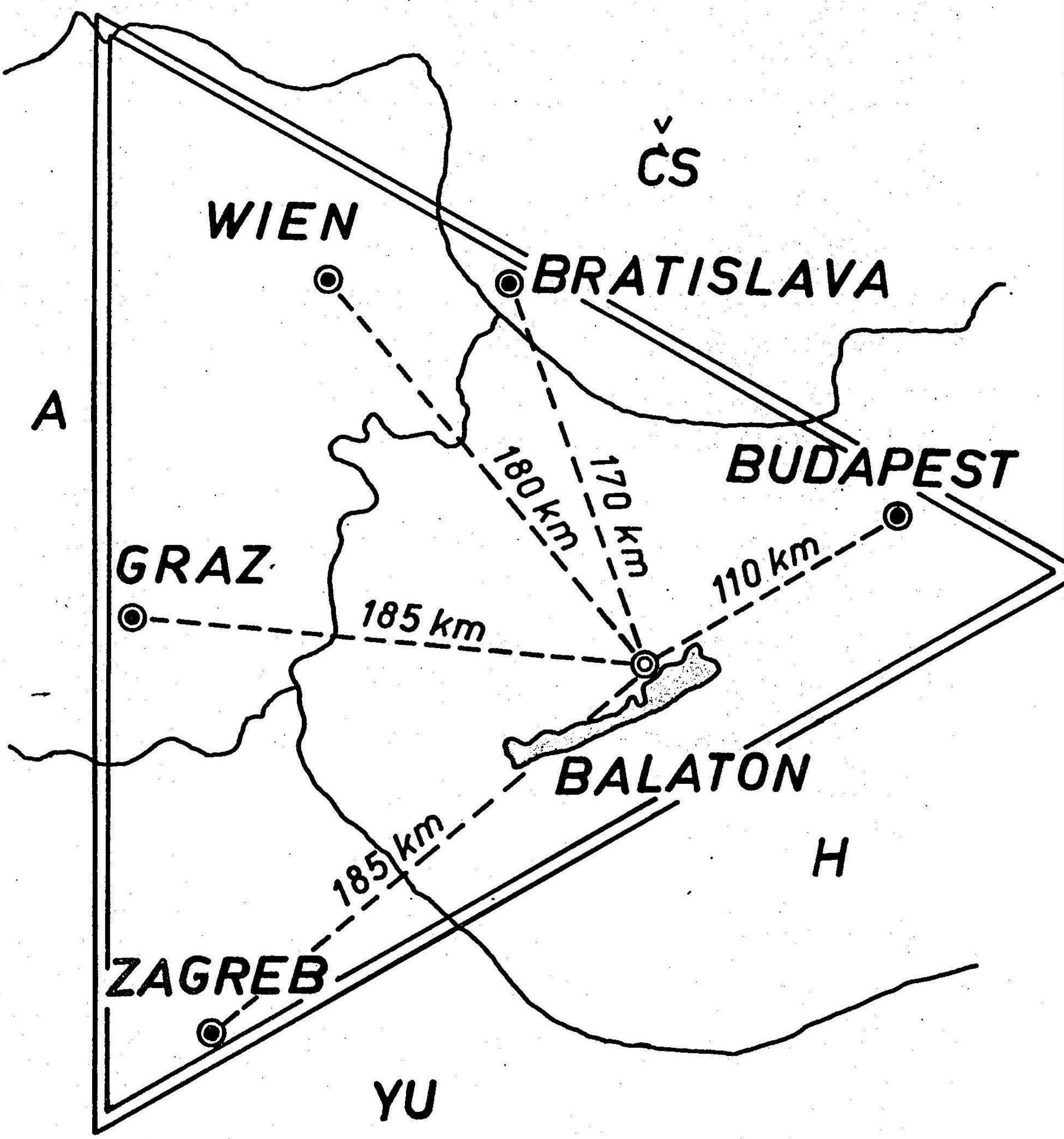
The Universe is crowded by neutrinos. They are more plentyful,than protons or electrons. Neutrinos are not only the simplest, but also the most common forms of matter. We learned them to know earlier, than the neutrons or positrons or mesons. But neutrino science is far from being closed. Just the opposite statement is true: it is getting more and more puzzling in the recent years. We have several well-formulated questions, which are waiting for answer. We discovered the muon long ago, but we did not understood it up to now. /Its existence contradicts sharply all of our classic ideas about the origin of particle masses./ On the other hand, we tried hard, but we are unable to discover the W boson. /Consequently we still do not know, if field theory is valid anywhere but quantum electrodynamics, or not./ And we have also new puzzles: We observed the decay of the K^o_L meson into $\pi^+\pi^-$, what we did not want to observe. /We learned, that Nature is asymmetric with respect to time reversal, but the only statement we are able to formulate is that this asymmetry is superweak and almost unobservable./ We did not observe the decay of K^o_L into $\mu^+\mu^-$ what we needed desperately. /In this hide-and-seek game around the K^o_L meson we do not see, if there is any connection between the positive and negative surprises/. The neutrino eyes do not see the sunshine either.

We have these tricky problems, because we asked Nature on the sophisticated language offered by the modern experimental technique. But the systematic knowledge about weak interactions and the experimental ability to handle neutrinos will help us at the new frontiers of exact science, what we have reached: at the deep inelastic frontier inside the hadrons, at the supernova singularity in the late stellar evolution and at the Big Bang singularity at the beginning of time. There are good hopes, that the tiny neutrinos may show the way to the pioneers in these virgin lands.

The little old neutrinos may come again to the headlines of scientific journals. Feeling this, Prof. Zatsepin called a specialized meeting to Moscow in 1969, in order to discuss the problems of cosmic neutrinos. Prof. Bernardini and Prof. Radicati called another meeting on stellar neutrinos to Cortona in 1970. On the Cortona conference we agreed to organize the third European neutrino conference in Hungary.

In our organizing work we enjoyed the sponsorship of the European Physical Society, the positive interest of the Joint Institute of Nuclear Research /Dubna/, CERN /Geneva/, International Centre for Theoretical Physics /Trieste/. The main sources of the financial support were the Hungarian Academy of Sciences, the Hungarian Physical Society, the Roland Eötvös University and the Central Research Institute in Budapest. But the Hungarian efforts were not enough, to overcome all the difficulties in the organizing work. We made a strong use of the Triangle Collaboration. This scientist's co-op started four years ago, according to the suggestion of Walter Thirring. The corners of the original Triangle were formed by the particle physics groups in Vienna, Bratislava and Budapest, but in the meantime also other nearby scientific centers joined us.

This is about the organization of this conference. Let the Moscow, Cortona and Balaton Meetings be followed by several Neutrino Conferences!



„THE TRIANGLE COLLABORATION"
IN PARTICLE PHYSICS