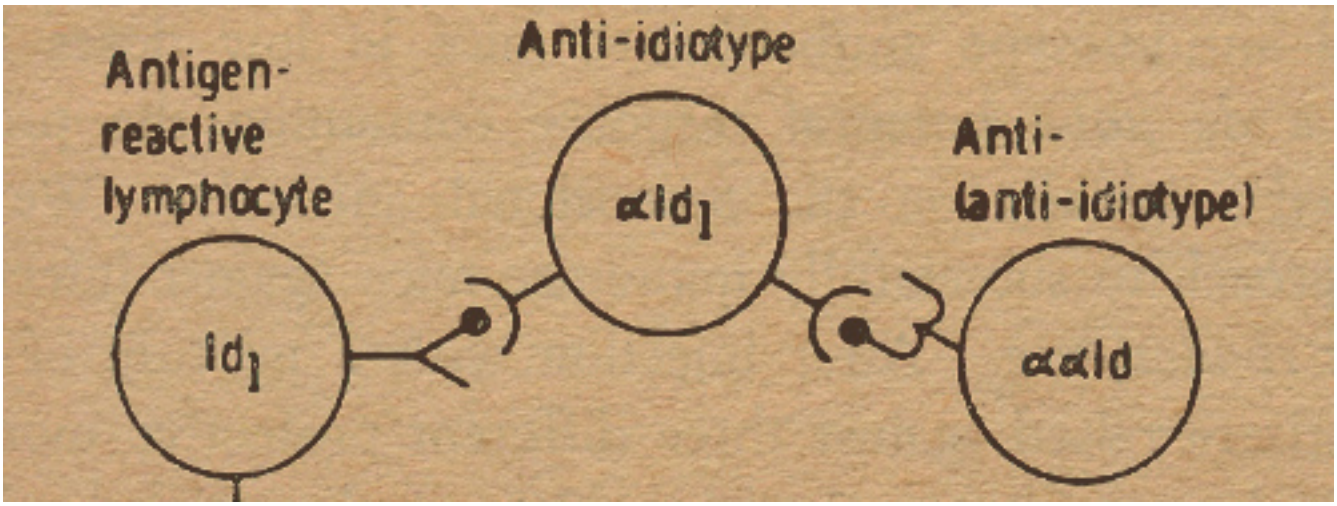
Perspectives of Immunization in Parasitic Diseases



The explosive developments occurring in the field of immunology have opened new perspectives for the production of vaccines against some of the worst diseases which affect humanity.
The concept of immunization, which was first perceived by the Greek philosopher Thucydides – when he described an epidemic which occurred in Athens, circa 500 B.C., probably produced by the plague – gained attention with the work of Jenner towards the end of the 18th century.
It acquired its scientific background as a result of Pasteur's and Metchnikoff's work, undertaken in the last quarter of the 19th century.
Endemic regions around the world are the sites of extensive re-search, sponsored by governmental health agencies. This research is not only directed towards the control or eradication of the disease itself, but also involves a complete study of the sanitary conditions of the population, which in most cases provide a "healthy" habitat for the parasite's vector (e.g., the case of Chagas' disease, where the vector inhabits the thatch roofs of rural huts).
Therefore, parasitic diseases can be fought by prevention, which necessarily includes the improvement of socio-economic conditions, by therapy where it exists, and by education.
Prevention and education, including the elimination of the parasite's vector, is in the foreground of modern medical directives as it seems wiser to provide health for humanity, thus rendering therapy less necessary.
It becomes each day clearer that immunization, or vaccination to employ a more usual term, is a powerful weapon for preventative medi-cine. To prove its success it is enough to point out the recent eradication of smallpox throughout the world, the control of yellow fever and polio-myelitis.
Modern immunology, with all the support it receives from molecular biology, biochemistry and genetics, is therefore a promising tool for fighting some of the challenges modern society faces.

It seems, therefore, not too idealistic to approach through immuni-zation the problem of prevention of diseases whose pathogenic agents are parasites. In some cases this approach is quite compulsory. Some vectors have become or are becoming resistant to known pesticides and may de-velop resistance to new products; in turn, parasites become resistant to the drugs used in therapy. Such is, for instance, the case of malaria.

It was with these facts in mind that the Pontifical Academy of Sciences held a meeting of specialists at its headquarters in the Vatican to try to form an overall picture of the perspectives of immunization in five para-sitic diseases: malaria, schistosomiasis, leishmaniasis, African and Ame-rican trypanosomiasis. As our resources were limited, a choice had to be made. The diseases chosen were those on which more immunological work has been done, bringing the perspectives of vaccination closer, or where the perspectives seem still very remote, as in the case of American trypanosomiasis.

I hope that the results will be of use to the STD program in which the UNDP/World Bank/WHO are directly involved, in the study, control and eradication of “Tropical” diseases. The strenuous task accomplished by the participants of the Working Group will also be useful for governments in shaping their health and biomedical research policies.