

VATLY NEWSLETTER

“After having spent all my life with the study of microscopic organisms, wouldn’t it be strange if I were ignorant of what is biggest in the creation? This is why I love observing the stars in the night sky”.

Alexandre Yersin

CONTENT

This eighth issue of the **VATLY NEWSLETTER** starts with the usual report on the **LIFE OF THE LABORATORY**. Next, Thao, who spent the end of last year with Dong in Orsay, shares with us her impressions in **AN AUTUMN IN PARIS** and Nhung reports about her journey to Paris and to the Auger Observatory in **A SPRING IN PARIS... AND IN MALARGUE**. The foundation of the Hanoi **OPEN LABORATORY** of particle physics and astrophysics is the subject of the next article, followed by a few words in the honour of **ALEXANDRE YERSIN**. A **PHOTO ALBUM** closes the issue.

LIFE OF THE LABORATORY

At the end of last year, when Newsletter 7th was issued, the team was again together, Diep, Dong and Thao having returned from their stays in Malargue and Orsay respectively. The very first activity was to take part in the Vietnam School of Physics, VSOP 13th, held as usual between Christmas and New Year. It took place in Nha Trang, a town of the southern coast to which the name of Alexandre Yersin is associated. Diep was awarded a scholarship given to the best students in the school and Thao proudly won a tee-shirt in a competition organized by François Le Diberder, who was teaching “Experimental state of the art in Particle Physics” at the school. Pierre Billoir, who had come with his wife Viviane, joined us there and gave a seminar on Auger. He then spent a week with us in Hanoi, updating us on the progress in Auger and discussing topics of interest to the thesis of Nhung which he jointly supervises with “our” Pierre. The whole team took this opportunity to spend a week-end with Pierre and Viviane in an island east of the Ha Long Bay, Quan Lan, where “our” Pierre has built a house.

Dong and Diep needed to follow lectures at the Institute of Physics, which took some of their time in the first part of the year, in order to be accepted as PhD students in the doctoral school. They are now busy working on their theses after having passed their exams with success. We hope that joint supervision agreements can soon be established with Orsay and Catania respectively.

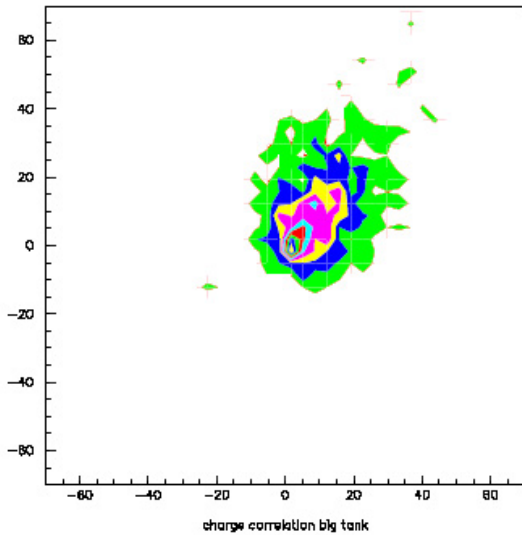
Dong and Thao had been taking data in Orsay with the aim of understanding better the dependence on angle of incidence of the photocathode efficiency of the Auger PHOTONIS photomultiplier tubes. Back in Hanoi, they spent a few weeks with the analysis of these data and sent the results in a note to Bernard Genolini and Tiina Suomijärvi who had been supervising their work while in Orsay. As usual when one looks at details, these measurements call for additional studies, in particular of the dependence of the response on impact point, which Dong is now setting up to perform in Hanoi.



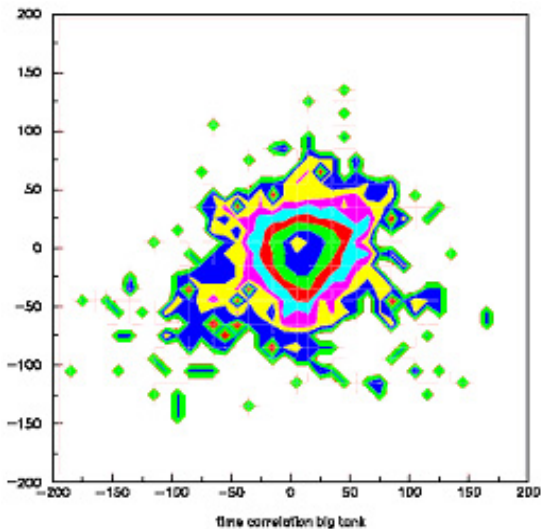
On a boat to Quan Lan: Viviane, Dung (Diep’s wife), Pierre and Nhung

Thao has been fully busy with the completion of her master thesis, which she must submit by the end of June. It implied, with Dong’s

help, restarting the detector which had been down for a few months: it was not trivial because of many bad contacts having appeared in the mean time, the humid tropical climate and the age of the equipment conspiring against us... It also implied completing the writing of the Monte Carlo code used in the simulation of the detector and comparing its predictions with the data.



Charges (after subtraction of their mean) measured in each big tank PMT, plotted on three axes (at 120° from each other) for coincidences of the three small tanks. Full scale is equal to the rms of a single charge distribution.



The same as above for the times of arrival of the three PMT signals (5bins/ns).

The results show that the three-tank trigger works remarkably well, providing a trigger on showers at a rate of a tenth of a Hertz

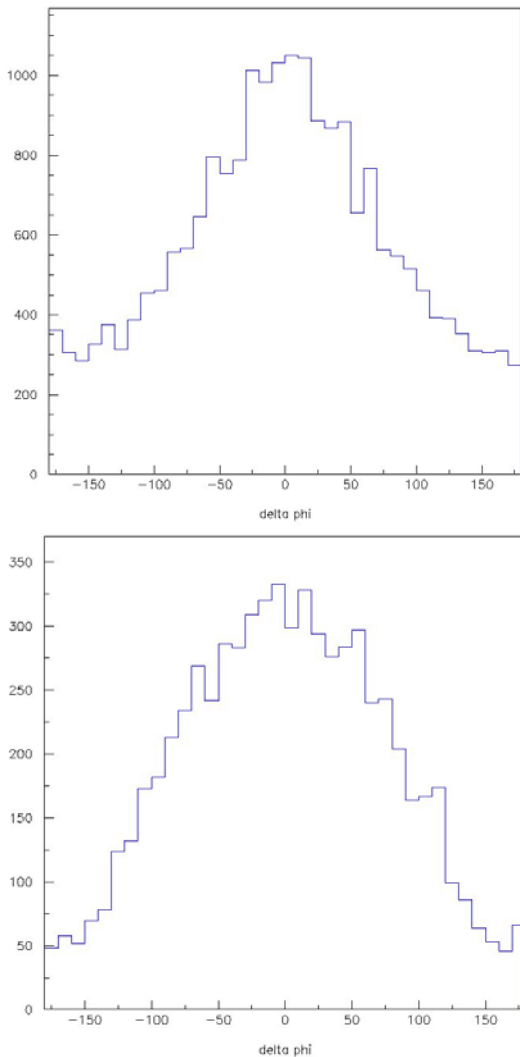
with a particle density of some 20 m^{-2} , such that each trigger gives a signal in the main tank. The showers on which we trigger are contained within a steradian or so around the vertical, as could be expected: being at sea level, we trigger on the shower tails as these are of course low energy showers; inclined showers cannot make it through the increased atmosphere thickness. Moreover, the refurbishing of the main tank has paid off: the correlation between the three phototube signals of a same event, which was very weak before, has become quite strong. We now keep the detector running: it will provide useful data for our training, both on the behaviour of the Auger tank and on the physics of atmospheric showers.

Nhung spent her time working on the analysis of the FADC traces of the Auger surface detector before leaving for Paris in March. The emphasis was on the strong asymmetry between the responses of the three photomultiplier tubes of a same tank to the early Cherenkov light, in the first twenty or so nanoseconds. The outstanding optical properties of the Auger tanks make it in principle possible to exploit this feature to tag the start of the signal produced by each individual particle. This asymmetry is strongly correlated with both the zenith angle and impact points of the shower particles. While the former is known, the latter is not and must be averaged over. Yet, as long as the signal associated with an incident particle is large enough, the probability to have a significant asymmetry is also large.

The implementation of an algorithm combining the pattern of the FADC traces with this asymmetry is not trivial, it implies in particular an excellent control of the uncertainties attached to these measurements; but we convinced ourselves that the method is practical and should contribute to the improvement of the disentangling of the FADC traces into individual particle signals, the ultimate aim being a measurement of the muon fraction. During her stay in Paris, under the supervision of Pierre Billoir, Nhung has worked on combining these ideas in a maximum likelihood search with information on the muon arrival times obtained from shower simulation codes.

A few months ago, Nhung had applied for an Evariste Galois fellowship from the French Embassy in Hanoi in partial support for her thesis

and we learned recently that she had got it: congratulations!



Difference between the azimuth of the shower axis and that of the PMT displaying the largest early times asymmetry for Auger showers (upper panel) and for a MC sample corresponding to similar (but not identical) conditions (lower panel).

A fourth year student from the Pedagogic University, Doan Thi The, spent three months with us for her graduation thesis work. We gave her the task to write a Monte Carlo code simulating the propagation of the Cherenkov light in the Auger tanks and to study its predictions. She very quickly integrated in the team and worked mostly under the direct supervision of Diep. Her results have been very useful to us and helped us to better understand the early light asymmetry which has just been described. She obtained excellent marks, 9.8 on 10, and her thesis was selected for a

presentation at a student meeting where the best graduation theses had been collected. She wants to become a teacher, and she surely will be a very good one, but she may come back with us later on for a master thesis. In any case, we wish her much success in her career.

Duong Quoc Van, from the same university, who will join us for his master thesis on solar radio interferometry, has been fully busy with his master lectures and exams and has not been able to work yet. The pair of antennas and associated detectors given as a gift by Pr Nguyen Quang Rieu (from the Meudon Observatory in Paris), are now in the lab and ready to be assembled and worked on.

François Le Diberder, in charge of particle physics at the French CNRS/IN2P3, paid a visit in March. He would like to set up some collaboration with Vietnam on LHC. For the time being the only physicist working on LHC in Vietnam is Nguyen Mau Chung, who is associated with Lausanne on LHCb where he has one student being trained. François' hope is that Vietnam would give decent positions to the young Vietnamese postdocs currently working on LHC in Europe when they come back to Vietnam. This would be very nice indeed as it would be a clear sign for a very welcome change of policy in the academic and research Vietnamese circles. For the time being, unfortunately, the very few postdocs coming back to the country (the vast majority stay abroad, causing a catastrophic brain drain) are not given such opportunities. For example Tran The Trung, a brilliant student who had got a fellowship to study in Australia and later on made his PhD in Paris on planetary atmospheres, and who came back to Vietnam for family reasons, was not offered any reasonable position in the Hanoi universities. The fact that he is the only active Vietnamese physicist doing research in astrophysics (he kept his association with the Paris team), a precious asset which could have been used to start teaching seriously astrophysics, was simply ignored. He is now teaching mathematics at FPT: what a waste of talent! Yet, François' visit had at least one positive impact: it led the few of us working in particle physics and astrophysics to create an open laboratory. We report on it elsewhere in the Newsletter.

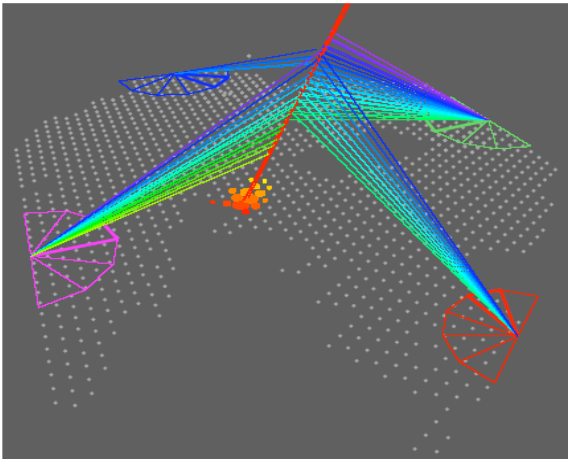
Another good news in this domain is the creation of a particle physics department at the National University in which our friend Ky is involved. For the time being, it is still somewhat virtual, but it gives at least a clear positive signal. Pierre was invited to give the inaugural talk entitled "Particle Physics for tomorrow".

Diep and Nhung have been nominated to spend a week in Beijing, in late June, in a school on cosmology.

In the very early days of July, Khoa organizes an international Nuclear Physics and Astrophysics Conference in Hoi An where Diep will present VATLY's work. Hoi An is a very pleasant little town on the sea shore of Central Vietnam, it used to be an active and wealthy harbour in the XVII^e century.

In August, there will be a school on astrophysics at the Hanoi Pedagogic University which we shall all attend. There will be lectures on binary and variable stars by E. Guinan, on stellar atmospheres by J. Hearnshaw, on observational stellar astrophysics by M. Gerbaldi and by Pierre on cosmology.

Finally, the XIVth VSOP will change style, splitting partly in two parallel sets of lectures, one for the nanotechnologists and one for the particle/astro-physicists. We shall join it as usual.



Three dimensional view of the first Auger quadruple event

We cannot end this section without a few words about the progress in Auger and its remarkable achievements. Most of the land, essentially all of it, is now available for the deployment of the Cherenkov tanks, which is

proceeding at high speed. The installation will be completed before the end of the year. The four fluorescence eyes are now in operation and the simultaneous detection of a shower by the four eyes has been a major historic event. We watch this remarkable progress with much pride, even if our contributions are extremely modest. Pointing back the highest energy showers into space is now the subject of intense work and the Collaboration is looking forward with excitement for the identification of their sources.

AN AUTUMN IN PARIS

In November and December past year Thao and Đông were in Orsay. Thao reports.

Our association with Auger brings us many friends around the world and in particular in France with LPNHE/Jussieu and IPN/Orsay (Institut de Physique Nucléaire). The latter welcomed Dong and me for two months, November and December, at the end of last year. Dong is more hardware oriented and I more software. Orsay is a large campus of Paris University in a valley south-west of town. My very first impression was a horribly long first day: we were jetlagged, we had not slept for 24 hours and it was tough to keep awake. We went directly to Orsay from the airport and met our professor, Tiina Suomijärvi. She welcomed us warmly, helped us with the registration, arranged for us to have an office, desks and all the necessary equipment. She was so efficient that at the end of the day, we were all set to work.

Our first task was to monitor the T2 trigger rates of ninety counters of the Auger Surface Detector (SD) and to compare them with standards. We used Cyclone to do that. We also wrote a small program to read out the temperature dependence of the gains of fifty-one freshly repaired Auger photomultiplier tubes (PMTs). But most of the remaining time, we worked on a set-up aimed at measuring the photocathode efficiency of one of the Auger SD PMTs, a PHOTONIS XP 1805. The data acquisition system used by the R&D electronics group at IPN was similar to our own in Hanoi: NIM and CAMAC; we got quickly acquainted with it. We have been working under the supervision of Tiina and of Bernard Genolini, who communicated their

enthusiasm to us. Back in Hanoi, we analyzed the data and wrote a summary report.



At IPN Orsay: Thao, Claire, Bernard, a PhD student and Dong.

I really enjoyed my stay in Orsay, not only the work and all those things which we learned, but also the beautiful landscapes with golden sunlight on the falling leaves. Our friends in Auger-France did their utmost to make us happy, in particular Tiina and Pierre Billoir, whom we wish to express again our deep gratitude. They made us work in a relaxed atmosphere and encouraged us to look around.

Pierre took us to the Panthéon, where some of the great Frenchmen are buried, including Marie Curie... who was more Polish than French and more a woman than a man, wasn't she? If she had been allowed to marry the son of her landowner, whom she was giving private lessons, she would never have left Poland to study in France, isn't it? She was 24, then. And if the nose of Cleopatra had been shorter... It is also in Panthéon that the Foucault pendulum has kept swinging for now some hundred fifty-six years, superbly ignoring that the Earth has been rotating all along. Pierre took us to other mythic places in the Quartier Latin, such as the twenty century old Arènes de Lutèce and, as I wanted to buy some books, to the "bouquinistes" on the banks of the Seine River. He bought two books for me, "*Le Petit Prince*" de Saint-Exupéry and "*Fables*" de La Fontaine. It was the first time I saw the Seine, with its grey-greenish gleam. There are two islands in the middle of its bed with many bridges crossing and Notre-Dame de Paris in the centre. Pierre was a great guide, he explained us how the

Métro was born, over a century ago, and where its name comes from. He also took us to Jussieu, where we enjoyed meeting Murat, and to many other places, the farthest away being Provins, on a very cold day. This is a town east of Paris, with beautiful old houses, where we very much enjoyed having some hot pancakes.

Tiina took so much care of us. She took us to various tourist places and treated us in nice restaurants such as a Vietnamese one and an Italian restaurant on the Champs-Élysées. She invited us for dinner at her place on Halloween's eve. Although she was very busy with her lectures at the University, she always took the time to talk to us and to spend some time with us every day.

I enjoyed walking in Paris. I found the broad avenues that run straight across it, lined by trees and buildings of the early XXth century, all built in the same style, particularly impressive. Everywhere, there are pieces of art, from sculptures to graffiti...

Each week-end, I visited a new place: Louvre, Versailles, Musée d'Orsay, Eiffel Tower, Arc de Triomphe, Montmartre, Sceaux, les Champs-Élysées, la Défense, l'Opéra... I was often surprised, sometimes shocked, by things which we do not see in Vietnam: so many unmarried couples, incessant strikes, the prostitutes in Pigalle, paintings such as *L'Origine du Monde* by Gustave Courbet, etc. They may also exist here, but then they are well hidden...

Finally, we spent four days in CERN where we were superbly taken care of by Daniel Froidevaux and his family: Sylvie taught me how to cook pancakes. On the occasion of Daniel's birthday, they had a party in his home where the young members of his group had been invited: we had a lot of fun. We also enjoyed meeting Suzy again, who was actively getting prepared to retire from CERN. We had time to visit ATLAS and CMS which are getting prepared to take data in LHC next year. Dong and I were very deeply impressed.

A SPRING IN PARIS... AND IN MALARGUE

Nhung spent nearly three months abroad, in Paris and in Malargue. She reports below.

I have just been back from a two-and-a-half month stay in Paris, in the framework of my

PhD work. Thanks to the financial support of the Vietnamese Ministry of Science and Technology and of the French CNRS, I also had a chance to attend the Auger Collaboration meeting in Malargue in April. The things I learnt during the past two months are not only helpful for my work, they also made me aware of the need to become more familiar with Auger.

It was my second stay with the Auger group in Jussieu, so I didn't need to spend too much time getting used to my new life. Unfortunately, former members of the group have now left and I was a bit disappointed when I realized that the Auger group had shrunk to only Pierre and Oscar (Antoine was away). But their enthusiasm and friendliness made my stay so enjoyable that I immediately felt at home with them, like a real member of their group. Pierre had more free time than last time I came; he spent much of it following what I was doing, always giving ideas and advice whenever I needed and encouraging me in learning new things; he knows so many things, and was so patient in his explanations, I am really full of admiration for him.

Pierre and Oscar encouraged me to join a series of "Auger France Meeting" that were bringing together the French Auger groups and were taking place in Paris and Lyon. I found it interesting but I must confess that I would have found it even more interesting if I only could speak some French. Physicists from each group presented their work, their progress or just some ideas for the future. It was a useful opportunity to meet and discuss many interesting topics related to Auger. I met other students there, newcomers to Auger, with whom I could share impressions about working in such a big Collaboration.

Thanks to Pierre, who is very proud of the beautiful historic monuments in Paris, I explored many interesting places in the Quartier Latin; I was often getting lost for a while in the small streets around Jussieu before I could find my way. The hospitality of Pierre's family gave me the opportunity to visit a beautiful region of the deep rural France, Limousin, where they have a house in which we went for Easter. I really enjoyed the peaceful and quiet atmosphere as well as great traditional French meals on the occasion of Easter and of Pierre's birthday.

At the end of April, I flew to Malargue for a week to attend the Collaboration meeting. This was an unforgettable experience. My flight from Paris took off two hours late, implying a complete reshuffling of my travel plan: I had to spend nearly two days in planes and in airports! I felt so happy when I met Auger friends in Mendoza airport, Markus, Martin and Julian, and could join them on my way to Malargue. They were very friendly and showed me interesting things along the road. When Julian said that we should start to be able to see Cherenkov tanks, I was anxious to look for them! I did my best to see as many as I could, keeping account of how many I had seen... until I saw a set of them nicely lined up on the vast plain. How beautiful it was and what a great job had been done!



Jim Cronin and some of his Argentinean colleagues at the Pierre Auger Observatory

The meeting covered many topics, it was going a bit too fast for me... I selected some topics close to my work and tried to follow the presentations. The most important for me was the opportunity to take part in so many discussions; I could not have done that if I had not attended the meeting. They go on all the time, anywhere, in the meeting hall, on the stairs to CDAS room, during meals... I was very impressed by the mixture of enthusiasm and prudence of the senior physicists and by the self-confidence and motivation of the younger members of the Collaboration. I learnt so many things from the presentations and discussions; it made me realize how far I am from knowing all what is going on in Auger and made

me think about what should be done to get better acquainted with it.

It was a pleasure to meet VATLY friends such as Jim Cronin, Tiina Suomijärvi, Jim Beatty, Antonio Insolia, Markus Risse. I was very happy to see that they keep good memories of VATLY and are eager to see our group progress. There was an image which left a deep impression on me, that of the Auger Campus at night, with so many people working and discussing behind the lighted windows. I always mention this impression with a bit of pride when people ask me about Auger, and how it is going. It motivates me to work harder...

HANOI OPEN LABORATORY OF PARTICLE PHYSICS AND ASTROPHYSICS

On May 15th, a few of us in Hanoi, active in particle physics and/or astrophysics research and/or teaching, took the initiative to create an open laboratory. The present members include the names listed below, together with their students: Nguyen Anh Ky, a field and group theorist working at the Institute of Physics and well known to us, in particular for its responsibility in the organization, together with Patrick Aurenche, of the Vietnam School of Physics; Nguyen Mau Chung, a former student of Tran Minh Tam in Lausanne with whom he is now associated on LHCb and who holds a teaching position at the National University; Nguyen Quynh Lan, a postdoc who made her PhD in particle phenomenology, holds a teaching position at the Pedagogic University and has strong interests in astronomy – in particular she took the initiative of organizing the Summer schools of last and present years; Tran The Trung, a postdoc who made his thesis in Paris on planetary atmospheres and has kept his association with the Paris team, now teaching mathematics at FPT; Dao Tien Khoa, a nuclear theorist who worked many years abroad in close contact with the experimental ion physics community and returned to Vietnam eight years or so ago where he actively pursues his research and gives lectures with a strong interest in nuclear astrophysics; and Pierre, on behalf of VATLY. The founding text on the basis of which we decided to join is reproduced below. We are currently busy setting up our web site and

organizing a first cycle of seminars. Success and long life to this new endeavour!

Particle Physics and Astrophysics are very active research fields in modern physics. Yet, they are nearly absent from the Vietnamese academic cursus and research scene. A few of us, who are directly implied in research and academic teaching in these fields, are attached to different institutes and/or universities. In order to strengthen the working relations between us, we have decided to create an open laboratory.

Its aim is to make it easier for us to communicate, to increase the visibility of our activities to the outside world, often unaware of what we are doing, and in particular to attract good students to join our activities. A first action we wish to initiate is the creation of a cycle of seminars, at a rate of one a month or every second month, in which each of us would talk about what he is doing. Of course, outside experts will be welcome and invited whenever possible. The default location should be the place where the speaker works but another place may be found more convenient. A second action should be the creation of a web site as a home for any relevant documentation and information and a means to communicate easily.

The virtual nature of an open laboratory is both a strength and a danger: a strength because it is not subject to the administrative, financial and political constraints which a real laboratory is subject to; a danger because its virtuality may be so strong that it has in practice no identity, no purpose and no use. Its success depends fully, and exclusively, on the commitment of its members. For this reason, the membership should be limited to physicists active in the field. Any new member should be unanimously accepted by the existing members.

In principle, there is no need of a hierarchy of any kind in such a structure, neither executive nor administrative. We must be aware of the susceptibilities of the different institutes and establishments which employ us and avoid any action that might disturb these. In particular, any action undertaken in the name of the open laboratory, or simply using its name, should be agreed by all the members. Yet, for many purposes, it is useful to have one of us acting as secretary, in particular when it comes to contacts

with the outside world. Dao Tien Khoa has kindly accepted to be in charge for the coming year. Communication between us, including decision taking when and if necessary, may be done by e-mail without requiring a physical meeting.

For the time being, the main lines of research and teaching represented in the open laboratory include [...] (see above).

Other activities of interest to some or all of these main lines, such as computing networks, GRID and others, do not need to be represented by members.

In a first step, the accent will be on getting the laboratory started and on giving it an identity. Once it has been created, its existence should be made known to those, in Vietnam and abroad, who are potentially interested in learning about it.

ALEXANDRE YERSIN

Alexandre Yersin was a remarkable scientist, an admirable person and an engaging character. He is not very well known. We take the excuse of the Nha Trang school, VSOP 13, to write a few lines about him. His intelligence, his generosity, his intellectual and moral probity, his dedication to science, his curiosity, his original and non conventional mind, his courage and his amazing determination to conclude what he had undertaken have set an example for all of us and, in particular, for the Vietnamese science and for those of its students who are determined to contribute to its development and to its progress.



Alexandre Yersin was born in 1863 in Switzerland, near Lausanne, where he started medical studies which he pursued in Marburg (Germany) and in Paris (France). Aged 23, he got a job as a lab technician in a famous Paris hospital

where he met Pasteur who took him in his lab, rue d'Ulm. He got his PhD two years later, being awarded on this occasion the bronze medal of the Paris Medical School, and took the French

nationality. Having been offered a job in the newly founded Institut Pasteur to continue ongoing research on the diphtheria toxin, he preferred to start a new adventurous life and embarked as a physician on a liner sailing between Manila and Saigon. He left France in September 1890 and at the date of October 21st, Pasteur wrote in his diary: "the passion for discovering new far away territories suddenly took Yersin and we have been unable to keep him with us."

In July 1891, cruising off shore Nha Trang, he got fascinated by the beauty of the site and decided to accept a two year mission, 1892 to 1894, to explore the Central Highlands for the French colonial administration. This was a fascinating experience, sharing the life of local ethnic groups in often unexplored regions, some times under very difficult conditions. In 1893, bandits attacked him, cut half of one of his thumbs and abandoned him nearly dead in the jungle. It was also on that occasion that he discovered a marvellous site where he later convinced the French authorities to establish the climatic station that has become Dalat.

This adventurous life ended suddenly in May 1894 with the outburst in Hong Kong of a major epidemic of bubonic plague. Yersin then asked permission to go there and study the cause of the disease. In early June, he arrived in Hong Kong where the death rate of contaminated people had reached 96%. He worked day and night to save them and set up a bacteriological analyses lab in a small suburban shack. There, on June 20th, he identified the plague bacillus, which has later been named after him, *Yersinia Pestis*.

He then returned to France, in Institut Pasteur, worked out a new serum meant to considerably reduce the death rate, and soon decided to go back to Vietnam with the idea to produce it there from immune horses. In 1895, he landed in Nha Trang where he built a laboratory, with facilities for raising horses, which for years produced serums that have saved thousands of life on the Indian and Chinese continents. Being aware of the importance of cattle raising for the Vietnamese economy, and concerned that an epizooty would have dramatic consequences for the population, he set up an Institute to prevent such diseases. In 1899, his Nha Trang laboratory

was famous, very busy and so successful that, in 1902, the French Governor asked him to create and head a Medical School in Hanoi, the first of the kind in Vietnam. In 1904, the school was created, it still operates today as the Hanoi Medical School that has since trained thousands of excellent physicians, but Yersin preferred to let someone else take its head and he returned to Nha Trang. However, he was then given a series of administrative jobs in relation with the creation of new institutes which he felt he could not escape.

When he reached sixty, he could leave his job as director of the Institute to his successor and decided to devote himself to raising tropical plants : for the last twenty years of his life he has been a talented botanist, bringing to Vietnam all kind of species that became of primordial importance for its economy : gutta-percha (latex), cocoa, coffee, kola, hevea, etc. Most important was quinquina, which he grew extensively to produce quinine used in the treatment of malaria.

He kept travelling for presenting the results of his research, and publishing them, for

some ten more years but spent in Nha Trang the last ten years of his life. His passion for science never dried up. He had installed a small astronomic observatory on the roof of the Institute and enjoyed spending nights there, observing the stars. He made some experiments with infrared and ultraviolet radiations and some studies of the influence of the tropical climate on measuring devices. He spent much time doing meteorological and tidal observations, helping Nha Trang's fishermen with weather prediction. He was the first person in the region to drive a car and to own a motor boat. He was shooting and processing colour pictures as well as movies of which his Nha Trang friends and neighbours were the actors. He had set up a telegraphic network for the Institute to communicate with its many outbuildings in the mountain.

He died on February 28, 1943, eighty years old, accompanied by the love of his neighbours and friends. His life had been marked by simplicity, generosity, human dignity, unselfishness and an indefectible passion for science.

Distribution: Patrick Aurenche, Jim Beatty, Jean Pierre Bibring, Pierre Billoir, Murat Boratav, Bui Duy Cam, Ludwik Celnikier, Georges Charpak, Nguyen Duc Chien, Bach Thanh Cong, Jim W. Cronin, François Le Diberder, Minh Ha Pham-Delègue, Manoel Dialinas, Luigi Di Lella, John Ellis, Alberto Etchegoyen, Daniel Froidevaux, Yoshitaka Fujita, Karel Gaemers, Bernard Genolini, Nguyễn Văn Giai, Lê Văn Hồng, Jacques Haïssinski, Nguyen Van Hieu, Morihiro Honda, Pham Quoc Hung, Antonio Insolia, Dao Tien Khoa, Stavros Katsanevas, Marc Lachièze-Rey, Nguyen Quynh Lan, Grant Mathews, Peter Mazur, Etienne Parizot, Michel Pedoussaut, Eliane Perret, Denis Perret-Gallix, Bernard Peyaud, Joël Pouthas, Philippe Quentin, Burton Richter, Nguyen Quang Rieu, Jean-Michel Rieubland, Jonathan L. Rosner, Shin'ya Sawada, Dieter Schlatter, Greg Snow, Paul Sommers, Michel Spiro, Jack Steinberger, Annick Suzor-Weiner, Tiina Suominen, Christine Sutton, Marilena Streit-Bianchi, Tran Minh Tam, Dick Taylor, Samuel C.C. Ting, Hiroshi Tsunemi, Hoang Tuy, Odon Vallet, Jean Tran Thanh Van, Suzy Vascotto, Sylvie Vauclair, Tini Veltman, Alan Watson, Achim W. Weidemann, Atsushi Yoshida, Antonino Zichichi.

Contact: vatly@mail.vaec.gov.vn

Issues 1 to 8 of VATLY's Newsletter are available from our web site where you can also find general information concerning VATLY such as membership, list of publications, etc...

<http://www.inst.gov.vn/inst/English/About/VATLY/Vatly.htm>

- PHOTO ALBUM -



Thao and Dong having lunch with Suzy, Sandro, Nanie and their friends at CERN's cafeteria



All together on one of Quan Lan's beaches within walking distance of Pierre's house



Dong and Thao in CERN Microcosme



In Quan Lan, in front of Pierre's house



Pierre and Viviane on the boat to Quan Lan



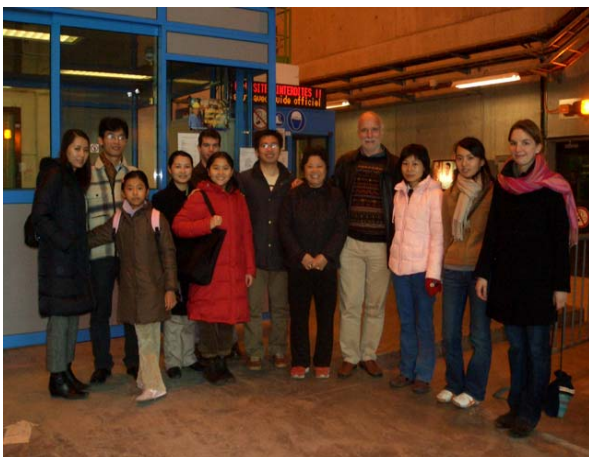
Pierre's house in Quan Lan



Provins: Viviane, Carel, Thao and Pierre



The's graduation



En route to ATLAS: Daniel, Thao, Dong and other students and visitors.



Dong in the electronics lab in Hanoi.



On Chambord's balconies: Pierre, Nhung and Viviane



Visiting CMS



Thao and a broken bike near Eiffel Tower



In a park at Montmartre