

Doctoral school on machine learning in atomistic simulation



University of Basel summer school
Monday 15th - Friday 19th May 2017
The Apuan Alps Centre for Physics @ TTI, Vallico Sotto, Tuscany, Italy

vallico.net/tti/tti.html

This is the programme for the doctoral school '*Machine learning in atomistic simulation*' to be held at the Apuan Alps Centre for Physics in Tuscany. The event will be organized and run by Anatole von Lilienfeld and Markus Meuwly from the University of Basel. The purpose of the school is to bring PhD students up to speed with respect to the latest developments of Machine Learning related to theory and applications in atomistic simulation sciences. The course will consist of roughly 20 hours of lectures by recognized experts in the field. As with all events at the Institute, formal lectures are restricted to the mornings, and participants are encouraged to spend much of the rest of the day in active contemplation/discussion of the issues at hand or working. Practical computer work after lunch is possible on available terminals or on your own laptop using the centre's wifi network. Recreational activities, such as mountain walks, cave trips, and city visits can also be arranged. The days generally conclude with evening meals in local family restaurants.

1 LIST OF REGISTERED PARTICIPANTS

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Anatole von Lilienfeld	University of Basel, Switzerland	anatole.vonlilienfeld@unibas.ch

Local staff: Mike Towler, Samantha Keil, Saska Towler, Jamie Towler, Rares Cublesan

2 FLIGHTS AND TRANSPORT

This programme is based on a generic document containing useful information for all visitors to the Institute. Most people will be travelling to this event in a minibus from Basel with four others flying to Pisa. The extensive information below is nevertheless kept for reference.

In this section we explain how to get to the Institute for people flying into our recommended airport - Galileo Galilei Airport, Pisa. It is also possible to fly to Peretola airport, Florence (Firenze) which is only slightly further away, though flights to this airport are more limited - not least since Ryanair don't go there. In principle one could also fly to other airports such as Perugia, Bologna, Ancona, Parma, Milano, Verona, Genova or Roma but you should count on a train ride of up to four or five hours to get to the Institute (we can arrange this for you). A list of airlines flying to Pisa with links is given on the TTI web page (see 'Flying to Italy' in the left-hand column) and there is a map on the Pisa airport web page (http://www.pisa-airport.com/index.php?lang=_en - click the 'Destinations' link). Americans should note that Delta Airlines operate a direct service to Pisa from New York (the only direct service from outside Europe). Further details about transport, including how to drive to the Institute, are also given on the TTI web site.

How to get to TTI from Pisa airport:

Go to Pisa Centrale train station. The coolest way to do this is to travel on the fancy new monorail which has just opened - so recently that I haven't had the opportunity to try it. Alternatively, you may take a taxi costing 10 euro or so - you can see the taxi rank as soon as you exit the airport terminal building. The *stazione* (phonetic: 'stasjonay ferrovia') is a 5-minute journey.

Once at Pisa Centrale station you then need to get a train to Barga-Gallicano. This is an isolated station north of the city of Lucca somewhere along a branch line going up the Serchio river valley into the mountains (see the map on the TTI web site). Depending on the train time, you may need to change at Lucca to get the train north. The train will usually be flagged as going to one of four final destinations: "Aulla-Lunigiana", "Minucciano", "Piazza al Serchio" or "Fivizzano". See the printed timetables on the station wall to check where each train stops (for the usual stopping trains Barga-Gallicano is the eighth station stop after leaving Lucca; start getting ready to leave the train after Fornaci di Barga station). The electronic screens in the station show the departure platform ('binario'). Note that in Italian, Departures is 'Partenze', and Arrivals is 'Arrivi' - make sure you're looking at the right screen!

You can't buy the train tickets in advance (this is only possible for big important trains) but it is easy to buy them either from PisaMover in the airport or at the station, where you can ask a human ("Uno a Barga-Gallicano. Solo andata.") or one of the red, white, and green ticket machines, which can be requested to speak English. On all Italian train journeys you are supposed to validate ('convalidare') your ticket by inserting it into one of the small wall-mounted green and white machines in the station or you may have to pay a fine - though you should know that in over ten years I have never seen a ticket inspector on any of the trains that you will take. Note that Italian trains are very (even absurdly) cheap by international standards, particularly British ones. The ticket should cost around 4 to 6 Euros.

One final thing that can cause confusion: at Lucca and Pisa some of the trains leave from a platform labelled '1TO' or '1TE', meaning 1 Tronco Ovest (west) and 1 Tronco Est (east). This is *not the same* as Platform 1. All the 'through platforms' are labelled 1, 2, 3 etc., and 1TO and 1TE refer to separate 'terminus platforms' which you can find by walking to either the west or east end of Platform 1.

At Barga-Gallicano station you should find a TTI representative who will meet each train as required and take new arrivals to the Institute. If no-one is there you can wait in the station café - call us if you find yourself waiting too long. Clearly we need to know in advance the time of the train on which you intend to arrive. The full timetable is online at <http://trenitalia.com> - click the Italian flag top right to switch to your favourite language, and make sure to select 'tutti i treni/all trains' not 'Freccie'. Note that the last train from Pisa is normally around 19:50 so it's generally a good idea to arrive earlier in the day if possible.

In emergencies - or if you arrive at an unusual time after the first day when our drivers might be busy - it is possible to get a taxi to Vallico Sotto from the station. In general this needs to be pre-booked - see the instructions on the web site (Barga Taxi : bargataxi@libero.it Tel. 331 3378051 or 339 5678336) but we can do this for you on request. If you are a non-Italian speaker who hasn't pre-booked and you need to talk to the guy (Massimo) on the phone you will find he doesn't speak English so just say (phonetic) "Taxi a Vallico Sotto da la stasjonay di Barga-Gallicano?" or similar down a phone at him - the trip should cost around 35 Euro. Note that "I don't speak Italian" is "Non parlo italiano" - though that should probably be self-evident.

In case of problems contact Mike Towler on his mobile - 3461022097. TTI has a landline on 0583 1805441 which you should use as a last resort, since the people you want are unlikely to be standing next to it.

3 SPECIFIC TRAVEL PLANS

Anne-Sophie Alingue

Felix Faber

Heini Heinen

Bing Huang

Akshaya Kumar Das

Marco Pezzella

Diana Tahchieva

Oliver Unke

Anatole von Lilienfeld

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Minibus from Basel (c. 7 hours drive). Meet on Monday May 15 at 7 am in the arrivals hall of the airport of Basel to get the bus.

Depart Fri May 19 in same bus.

Kiran Kanekal

Tristan Bereau (00 49 157 578 14589)

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Arr Pisa 19:00 Mon May 15. MDT to pick up in TTI bus c. 20:10

Dep Fri May 16 anytime (staying in Pisa till flights later in the weekend)

Gregoire Montavon

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Arr Pisa 19:50 Mon May 15. MDT to pick up in TTI bus c. 20:10

Dep Fri May 16 anytime

Felix Musil (00 41 788225875)

|

Arr Pisa 14:00 Mon May 15. MDT to pick up in TTI bus c. 20:10

Dep Fri May 16 (how ???)

Michele Ceriotti (00 41 79 5133490)

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Arr Florence 18:25 Mon May 15. Travel to Lucca by train arrive 20:25. MDT to pick up in TTI bus following Pisa airport pickup (c. 20:45)

Dep Florence 19:00. Needs to be at Lucca for 15:40 bus to Florence airport.

Anders Christensen

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Arrive Pisa 07:30. Travel by train to Barga-Galliciano, arrive 14:57. MDT pickup.

Dep Fri May 16 on Basel minibus.

Markus Meuwly

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Arr evening Tue May 16 in own car.

Dep Fri May 19 in own car

4 ACCOMMODATION

TTI, ATTIC - one single mattress, one sofa bed

Mike Towler, Jamie Towler

TTI, NURSERY - one single bed

Anders Christensen

TTI, PLAYROOM - three single beds
Heini Heinen, Oliver Unke

TTI, PINK ROOM
Samantha Keil, Saska Towler

TTI, LILAC ROOM - two single beds
Diana Tahchieva, Anne-Sophie Alingue

TTI, TINY ROOM - one single bed
Tristan Bereau

TTI, RED ROOM - one double bed
Anatole von Lilienfeld

TTI GARDEN ROOM, two single beds (bunk)
Marco Pezzella, Felix Faber

CASA SARDA - ROOM 1 - 1 double bed
Markus Meuwly

CASA SARDA - ROOM 2 - 1 double bed, 1 sofa bed
Bing Huang

CASA SARDA - ROOM 3 - 2 single beds
Akshaya Kumar Das, Kiran Kanekal

CASA GIANPIERO - ROOM 1 - 1 double bed
Gregoire Montavon

CASA GIANPIERO - ROOM 12- 2 single beds
Michele Ceriotti

DOCTOR'S HOUSE, FIG TREE ROOM - one double bed
unavailable - refurbishment

DOCTOR'S HOUSE, UPPER TWIN ROOM - two single beds
unavailable - refurbishment

DOCTOR'S HOUSE, UPPER SINGLE ROOM - one double bed
unavailable - refurbishment

DOCTOR'S HOUSE, LOWER APARTMENT - one double bed, two single bunk beds, one sofa
unavailable - refurbishment

CASA LUCIANA - ROOM 1 - 1 double bed

CASA LUCIANA - ROOM 2 - 1 single bed

CASA GIOVANNI - ROOM 1 - 1 double bed

CASA GIOVANNI - ROOM 2 - 1 double bed

CASA GIOVANNI - ROOM 3 - 2 single beds

CASA LIANA - ROOM 1 - 1 double bed

CASA LIANA - ROOM 2 - 2 single beds

CASA LONTANA - ROOM 1 - 1 double bed, 1 single bed

CASA LONTANA - ROOM 2 - 1 double bed

CASA LONTANA - ROOM 3 - 1 sofa bed

BEDOUIN TENT (vallico.net/tti/tti_tent.html)
Available on request

DA SANDRA

Multiple commercial rooms/apartments

All unavailable - requisitioned for immigrants

ROOM 1 - 1 double bed

ROOM 2 - 1 double bed

DA SANDRA - APPARTMENT 1 - 1 double bed

DA SANDRA - APPARTMENT 2 - 1 double bed (+ 2 children's beds if required)

CASALE DEI RUSCELLI (www.casaledeiruscelli.com)

Posh apartments for rich people requiring privacy - 10 min drive.

All unavailable - requisitioned for immigrants

5 AVAILABLE VEHICLES

Up to 19 people, 31(+4) seats available

9-seat rental minibus (LHD) - Driver: Anatole von Lilienfeld
5-seat car (LHD) - Driver: Markus Meuwly (from Tuesday evening)

17-seat minibus (RHD) - Driver: Mike Towler
4-seat Alpina B3S (RHD) - Driver: Mike Towler
5-seat Peugeot 106 (RHD) - Driver: VANDALIZED IN LOCAL BUILDER DISPUTE
2-seat Peg Perego Gaucho jeep - Driver: ANYONE UNDER 7
1-seat Piaggio Ape - Driver: ANYONE CRAZY ENOUGH.
1 bright pink 1978 Vespa - Driver: PENELOPE PITSTOP. PINK HELMET AVAILABLE.
1 mountain bike

6 THINGS TO BRING WITH YOU

- Notebook and pen.
- Your laptop (not strictly necessary, as we have a lot of them)
- Summer hiking gear such as boots, socks, mini-rucsacs etc.
- Italian plug converters if you want to plug anything in (we have some spare but probably not for all countries). The sockets in the village mostly have two round pins (with an optional third one between them). There are two types of thin prongs on European adaptors. You want the thinner of the two. Just to confuse things, there are also lots of English plug sockets into which English equipment can be plugged directly (including the majority of those in the lecture hall). Various adaptors are available onsite - ask Mike.
- Some Euros for spending in restaurants and shops. Please note that there is no cash machine within walking distance of the Institute, and although we might pass them from time to time on our afternoon trips, large numbers of people getting money out can cause considerable delays. There is a cash machine in Pisa airport to your left

as you emerge into the arrivals hall (look under the escalator leading to the upper level). Go up the escalator to find an alternative cash machine if that one isn't working. A few years ago a cash machine was in fact set up in Fabbriche di Vallico a few kilometres away from the Institute, and it now usually works - this is where you should go if you run out of cash during the week (if you can't find it, find a local and say 'Bancomat?').

- People who intend to visit caves or canyons (most of you I hope) should bring some clothes/shoes that you don't mind getting wet.
- Climbing/caving equipment (harness, boots, helmet, via ferrata 'absorber', head torch) if you intend to take part in such activities and already have some (don't buy them just for this trip). We have a fair amount of gear we can lend but not enough for everyone.
- Sunscreen. It only gets really hot in June/July/August but note that even in high summer afternoon rain showers or storms are not uncommon in the mountains.
- A towel
- Light sleeping bag (if you intend to sleep in the Bedouin tent).
- Hay fever tablets. Some students who have lived in darkened basements in huge cities most of their lives sometimes have difficulty with pollen when they come to live in the countryside.
- Swimming costume (if you want to go swimming). We're building a new swimming pool which should be completed early May 2017.
- Earplugs - if you are sharing a room - to avoid being disturbed by snoring people.
- A nice bottle of wine (or whatever passes for it in your country).

7 SUMMER SCHOOL SCHEDULE

Here is the proposed schedule for the Retreat.

Note that the lists of 'Possible Excursions' is intended only as a guide as to what we will *probably* do. What actually happens in the late afternoon of any given day is dependent on the weather, nagging from wives, and other factors and is usually made up by MDT during each morning; he is always very open to suggestions and requests.

Monday 15th May

ARRIVALS

~7:30pm : DA SANDRA (BOOKED FOR 13) Note: this is a normal meal where you choose your own food.

Tuesday 16th May

8:45 am : Anatole von Lilienfeld - "Introductory remarks"
9 am : Anatole von Lilienfeld - "Learning curves"
10am : Anders Christensen - "The QML code"
11am : Gregoire Montavon - "Learning linear and nonlinear models"

12:30 pm LUNCH - Vallico Sotto bar

WORK SESSION -

1:30 pm - 3:30 pm

POSSIBLE EXCURSIONS

Mountain ridge walk from San Pellegrinetto to Matanna via Monte Croce and the Scalette (3.5 - 4 hours)

OR

Relax in Institute. Drive to Matanna for relaxing stroll (c. 1 hr) and a drink.

DINNER : 8pm Alto Matanna 0584 776005 (BOOKED FOR 18 assuming no Meuwly)
Fixed menu. 20 euro. No choice apart from vegetarianism.

Wednesday 17th May

9 am : Gregoire Montavon - "Model selection and interpretability"
10 am: Michele Ceriotti - "Molecular pattern recognition and structural representations"
11 am: Michele Ceriotti - "Non-linear dimensionality reduction"

12:30 pm LUNCH - Vallico Sotto bar

WORK SESSION -
1:30 pm - 3:30 pm

POSSIBLE EXCURSIONS
Cave of Cascaltendine (3 hours)
OR
Relax in Institute (local short walks can be recommended)

DINNER : 8pm Il Vecchio Mulino (BOOKED FOR 15, assuming no Ceriotti)
Fixed menu. 20 euro. No choice apart from vegetarianism.

Thursday 18th May

9am : Bing Huang - "Machine learning the genes of chemistry"
10 am : Tristan Bereau - "Machine learning of vectors and tensors 1"
11 am : Tristan Bereau - "Machine learning of vectors and tensors 2"

12:30 pm LUNCH - Vallico Sotto bar

WORK SESSION -
1:30 pm - 3:30 pm

POSSIBLE EXCURSIONS
Monte Procinto, 3.5 hours with via ferrata
OR
Relax in Institute (local short walks can be recommended)

DINNER : Da Ramona (BOOKED FOR 15)
Fixed menu. 20 euro. No choice apart from vegetarianism.

Friday 19th May

9am : Felix Faber - "The FCHL representation"
10 am : Oliver Unke - "Reproducing kernel Hilbert space interpolation"

12 pm DEPARTURE

8 EXCURSIONS AND ACTIVITIES

Here is the list of possible excursions and activities generally offered at TTI. This list is for reference only, and most of the information will be irrelevant, but please ask MDT if you want to try something listed that doesn't appear to be in

the schedule.

The various activities are divided into categories according to the physical effort involved. For events with large numbers of people, it is usual to split into multiple groups, with the hot young muscular virile people doing the strenuous excursions, and the lazy, old and corpulent doing the more relaxed activities. What to do is generally debated in the morning each day.

8.1 Very strenuous activities

- Climb the peak of Pizzo d'Uccello. Requires early start with no other activities (e.g. day before conference). See http://www.tcm.phy.cam.ac.uk/~mdt26/tti2/photos/pizzo_ducello.jpg. Enough said. They don't call it the 'Matterhorn of the Apuan Alps' for nothing.
- The ascent of Monte Procinto. This is a huge cylindrical rock tower with a belt of trees around its middle from which rise 500-foot walls, overhanging on every side. Michelangelo had the idea of carving it into a gigantic sculpture along the lines of Mount Rushmore but never got round to it. You can see the mountain here: <http://vallico.net/procinto.jpg> or <http://vallico.net/casinoqmc/wp-content/uploads/2014/01/procinto.jpg>. Yes - the walls are more or less vertical, but there is a *via ferrata* to clip yourself onto. Instruction, assistance, and the necessary equipment can usually be supplied - but we only have about eleven harnesses so bring your own if you have one!
- Reach the high peak of Pania della Croce from Piglionico (described as 'The finest peak in the whole of Italy' in *Below the Snow Line* - one of the 19th century books in the TTI Antiquarian Library). Also features in Dante's *Divine Comedy*. This defeated some of TTI finest mountaineers for several years before they finally succeeded in 2007 (note - it isn't that hard if you move quickly).
- Find the spectacular natural rock bridge of Monte Forato (under which someone once flew a biplane). Start from Fornovolasco (lots of up) or from Matanna (much easier) or even have two groups that meet in the middle and exchange car keys. There is a fun *via ferrata* traverse on the way to the arch from Matanna, and we can also do a new route via Foce di Valli.
- Learn to scythe. MDT has obtained an excellent quality scythe with all its accoutrements from Simon Fairlie's excellent website at <http://www.thescytheshop.co.uk/index.html>. Just above TTI, there is a huge set of neglected terraces whose grass is just asking to be cut down; we will try to scythe them all during the school.. ;-)
To quote Simon Fairlie:
"The art of scything has been lost in the British Isles and my aim is to revive it. I subscribe to Ivan Illich's aim of retooling society with convivial tools that "allow men to achieve purposes with energy fully under their own control".
"Scything summer growth by hand is usually quicker than using a strimmer, and there is no noise, vibration or pollution. Mowing an acre of grass with a scythe is probably less hassle than maintaining and using a motor scythe. Once you have learnt how to sharpen and use an Austrian scythe properly, mowing a meadow by hand becomes a joy, rather than a struggle."
Scything with a good tool relaxes the mind and attunes the body. As Levin says to his brother after a day's mowing, in Tolstoy's Anna Karenina : "You can't imagine what an effectual remedy it is for every sort of foolishness."
- Find the Neanderthal cave (Grotte all'Onda) down the slope from the balloon station near Matanna. *"This vast grotto stretches 40 x 60 meters and it originally hosted numerous internal tunnels, which are obstructed today. Its enormous cavity offers important evidence that suggests the frequency with which people entered the grotto, from pre-historical times to more recent periods. The first people to use the cave were Neanderthals; they hunted throughout the surrounding area and probably used it to hoard their tools and weapons, together with the bones of the animals they cooked. Hunters from the Superior Palaeolithic period (Homo Sapiens) lived in the more external part of the grotto where they set up a giant hearth. Later, Neolithic farmers and shepherds planted their huts in the shelter of the grotto's vast vault, carrying out their daily activities there during many seasons. This cave was also used during the Neolithic period (the Bronze Age), during which new models were developed for decorating ceramic. During this period, new raw materials, imported from distant locations, were adopted to make special equipment. From the post-Bronze Age until recent times, the grotto was not continuously frequented."*
- The *Geoscopio* web site – linked from http://vallico.net/tti/tti_mountaineering.html – shows precise locations of all of the thousands of caves in Tuscany (even the crap ones) together with a brief technical description

and a plan of the cave. Interesting little expeditions may be made that have the aim of finding the entrance to particular caves, as well as exploring them. This is of course the most fun that a boy can have. The Apuan Alps have more caves than you can possibly imagine, so this will still be a viable activity in 2050. In particular, ask Mike about the untried Campolemisi, Fabbriche di Vallico, Motrone, and Antro della Paura expeditions.

- Explore the canyon of the Turrite di San Rocco river. This starts from the fork in the river upstream from Fabbriche di Vallico before you get to Gragliana. Take the left-hand fork. The aim is to go all the way through it to take coffee at the cafe near the Chiesa di San Rocco in Turrite. Be prepared to get wet - you basically can't avoid it. There are various natural swimming pools in there. Once reaching the village where the cafe is (there is also a children's playground and a nice river) you will have to bribe a local to give your driver a lift back via Focchia to your van. Or perhaps all your drivers drove a convoy out there beforehand, left most of the vehicles, and returned to the start of the canyon in a single car - use your initiative here.
- Morning workout. Run from the Institute each morning at 6am to the spectacular summit of Monte Palodina in order to tone up your thigh muscles and pep yourself up in preparation for the morning's talks. Mad people only.
- Complete the Cinque Terre coastal walk, a four-hour excursion through some of Italy's most spectacular scenery, or a similar walk near the famous seaside haven of Portofino.
- *Orrido di Botri* canyon walk. The Orrido is a giant canyon created by the Pelago river in the Apennines (about an hour's drive from the Institute) with deep steep walls as high as 200 metres and in some places only a few metres apart. This is a geologists' and naturalists' paradise. It can only be visited with helmets and suitable clothing you don't mind getting wet. There are some nice long walks in the country above the canyon (watch out for marmites and Royal Eagles - this is one of your best chances to contribute to the TTI Wildlife Photography expedition).
- There are of course any number of spectacular high mountain expeditions in the Apuan Alps and the Institute has a library of guidebooks which you can browse through. Let me know if you want to try anything else (that will fit in the clearly limited amount of time). There is also the TTI Antiquarian library (Mountaineering section) to inspire you.

8.2 Quite strenuous activities

- Go to Alto Matanna at the end of the Turrtecava valley and visit the beautiful nineteenth-century hunting lodge that was once the destination for travellers in Rosetta the Balloon on her aerostatic cableway. See the old balloon station at Foce del Pallone and the extraordinary view. On clear days you can see Elba - 100 miles to the South - and sometimes the even more distant Corsica and the French Alps. Come back over the top of Monte Matanna and descend back to the lodge. Take one of the Institute's antique telescopes with you.
- From the Matanna hotel, climb up to the cross on the adjacent ridge for a spectacular view of Monte Procinto, Stazzema and the Apuan Alps. From there you can climb Monte Matanna the other way around, or visit the donkey and his little horse friends who live on the top of Monte Nona. Or you could go on a longer walk below the Giant West Wall of Nona, threading past Monte Procinto, and round the back of Monte Nona which will take several hours. Finish up the day with a fabulous dinner in the Matanna hotel.
- Take part in the latest expedition to the ancient cave known as the *Tana di Cascaltendine* which is the subject of Pietro Magri's 1880 book *An expedition to Mount Gragno and the Cave of Cascaltendine* as translated by Mike and available on the TTI web site (click the Local History Projects link). The 2007 summer school crew were able to photograph the result of the following quote: '*Before coming down from the cavern we used a chisel to inscribe our initials and the year 1880 on both walls of the passage near the entrance.*'. This was done in the "Palace of Ismeno" which was the name Magri's group gave to an extensive cave whose entrance is a 6 foot hole about forty feet up a cliff - the full story is on the News from the Towler Institute blog here: <http://www.barganews.com/blogs/towler/?p=21>. It is also known that the cave continues for a kilometre beyond where we have penetrated before and this remains to be explored (note that in summer 2007, Mike and Evans went up the big wall in the final chamber with the dangling rope - a place many TTI visitors have visited before - with somewhat amusing consequences - see the blog story 'Bronze Hermaphrodites and the Fat Boy Filter': <http://www.barganews.com/blogs/towler/?p=28>). Expedition to be followed by cold beers and refreshments in the lovely village of Cardoso, or a circuit of Monte Penna hunting for the lost Cave of the Fairies..

- Visit the Selva del Buffardello adventure park:

<http://www.selvadelbuffardello.it/index.php?lang=eng>

I quote from their web site: “Among the centuries-old fir trees some acrobatic forest paths, open to everybody, have been created and their aim is to show the wood from a different and adventurous point of view: hanging in the air. It is a challenge for children, youth and adults, who can test their ability with suspension bridges, swinging beams, vertical nets, ropes and obstacles, finding again their lost adventurous spirit. The Adventure Park ‘Selva del Buffardello’ in San Romano in Garfagnana (locality Pra’ di Lago) is a real novelty in the Appennino Tosco Emiliano. An old wood of two hectares and a half in the heart of Garfagnana, near the natural ‘Parco dell’Orecchiella’, with a wonderful view on the Alpi Apuane and on the Fortezza delle Verrucole (old castle). The park entrance is free if you don’t practise in the adventure paths.” We have never tried this, but it looks like great fun, even for grown-ups.

- TTI management has discovered that there is a secret underground tunnel in Vallico which starts from the Doctor’s House next door to the Institute (a former army barracks 500 years ago) and which goes up to the Rocchetta above the village (the site of an old castle on the summit of a little hill, where we now pitch the Bedouin Tent). This was used in mediaeval times for escape from the frequent warfare so common in these parts. The supposed entrance to the tunnel was bricked up (we think) at the end of the last war - there are a couple of elderly men in the village who remember (but don’t really want to). We’ve learned a lot through ground-penetrating radar studies, and this summer we hope to unblock the entrance(s) and explore. This will probably be one of the next thrilling tales in ‘News from the Towler Institute’. See <https://vallico.net/casinoqmc/secret-tunnel/> for further details.
- Explore the Vallico Sotto mule trail and the spectacular forgotten waterfall of Cascata Pendolina - one of the highest in Italy. Vallico was only connected by road to the outside world in the 1960s - before then people went up and down the *mule trail*. This was neglected and a little overgrown for many years but has recently been extensively cleaned. Once we reach the bottom of the valley we will head over the river to the site of the Cascata Pendolina where will take lunch. We will ascend back up the cliffs via the steep ‘Scalette’ path to the little hamlet of Porche before heading back to Vallico Sotto. Note that parallel to the mule trail is the incredible *Canyon of the Pili* carved by the Rio Selvano. This canyon is quite famous - the Apians group from Castelnuovo organize tours down it, where you have to descend 12 waterfalls on ropes or by jumping. One of these days I will have to attach myself to one of these expeditions to learn how to do it. Photos and rough maps are linked from the Mountaineering page of the web site.
- Explore *Buca della Freddana* cave near the mule trail from Vallico Sopra to San Luigi. This was (re-)discovered by Mike in Easter 2007 following conflicting and confusing advice from several local old ladies who remembered its existence from 40 years ago. He has also found the upper entrance of the same cave on the summit of Monte Penna - the two are apparently connected by a 1 kilometre passage. The old ladies have advised us not to go inside because of the evil monsters and dark pits that lurk within, but then again, they always say that. Dare you explore?
- Five a side-football (a new fenced pitch was constructed in Vallico a couple of years ago) or regular football (on the local full-sized pitch).
- Rock climbing or low-level bouldering - the Institute should have some ropes and climbing equipment. I’ve read that there is good climbing near the Trombacco damn in the next door Fornovolasco valley - ask MDT for more details. Don’t forget to bring climbing boots and a harness that fits if you want to do this seriously (we have a rope you can borrow).
- Pietro Magri in his 1880 book mentioned above states that there are two other caves in Monte Gragno besides the Tana di Cascaltendine. Today no-one seems to know where they are. Having found the Buca della Freddana, Mike has narrowed down the lost “Cave of the Fairies” to a relatively small area. Can you find it? (Note for 2017: I’ve been there three times this year, I’ve stood on the exact GPS coordinates, I’ve walked all around for hours, and I still can’t find the damned thing.. Where is it?)
- Traverse from San Luigi via Monte Palodina and the cliffs of Monte Gragno past the giant karst depression of Pian di Lago to the spectacular Rocca Estense fortress of Trassilico. Come back along the road past La Fornace.
- Explore the *Tana che urla* (the Cave that Screams!) - first explored and scientifically described by Vallisneri in 1726 - off the footpath to Foce di Petrosciano from Fornovolasco. This isn’t a tourist cave suitable for your mum - so bring some appropriate clothes and torches. By the summer the Institute should have some proper speleological equipment to hand round. If you can read Italian, have a look at http://lnx.buffardello.it/images/file/DI_ALCUNE_GROTTE.pdf

- Go on a beautiful walk over the highest stone railway bridge in Europe to the church in Sambuca.
- Go wild boar hunting.
- Learn to play local sport *palla elastica* (elastic ball) with the village youths.
- Use TTI's two inflatable boats to play on the Turrtecava lake - accompanying picnic recommended. Have races. Try to find the Buca del Lago della Turrte Cava (as you sail towards the dam, it is on the left just after the exit of the second road tunnel). Note: both boats have now sunk.
- Go kayaking on the Turrtecava. Bring your own canoe.
- Explore the ancient *Vasaio di Motrone* cave in the nearby village of Motrone (see http://www.apuane2007.it/italiano/vasaio/zona_vasaio.php).

8.3 Relaxed activities

- Relax in our (new for 2017) swimming pool..
- Visit the Pinocchio park, the Garzoni gardens, and the Collodi butterfly house in Collodi. See <http://www.pinocchio.it/park.htm>.
- The Opera Barga festival happens each summer if you're here at the right time. See: <http://www.operabarga.it/english/>.
- Look in the latest issue of Lucca "Grapevine" magazine in English for local cultural activities and concerts etc.. See <http://www.luccagrapevine.com/>
- Play with the Institute's Victorian Scientific Instrument Collection.
- Spend the afternoon bathing in the outdoor hot pool at the ancient thermal baths of Bagni di Lucca (one of the most fashionable spots in Europe in Lord Byron's time - the Switzerland of Tuscany!). Followed by shopping, sightseeing and coffee in the town centre.
- Samantha has two other favourite open-air pools at Galliciano and Barga. These are like little beach resorts where one lazes about on deckchairs and has the occasional dip.
- Watch the night sky through the Institute's astronomical telescope.
- Visit the ancient city of Barga (<http://barganews.com>) for an afternoon's relaxed sightseeing, shopping and culture.
- Visit the beautiful city of Lucca.
- Visit Castelnuovo di Garfagnana, where you can find Andrea's (the 'Indiana Jones of the Garfagnana') famous Osteria, where all day you can sample fabulous local wines, cheeses and snacks.
- Follow in the footsteps of Michaelangelo, and visit some of the Apuan Alps famous marble quarries.
- Day trip to Florence, where Sam and Mike run the Keil Art Bronze art gallery (<http://keilartbronze.com>). There's some other good art in the city as well..
- Drive to the next valley along from ours over a spectacular high mountain road where the eagles live. Visit the Grotta del Vento - the Cave of the Winds (<http://www.grottadelvento.com>). This is the most famous cave system in Tuscany and the visitor will enjoy a spectacular and bizarre landscape of caverns and lakes. Take a pullover as the temperature is a reliable 10 degrees the whole year round. Then head down the valley to visit the *Eremo di Calomini* - an ancient monastery built into a high steep cliff.
- Table football and drinking in Fabbriche di Vallico.
- Horse riding at La Fornace.
- Various mild short walks around the Institute.
- Weeding the Institute garden and volunteering to do little DIY tasks (I say this merely in hope..).

8.4 Very relaxed activities

- TTI has a high-definition video camera (and you've all got fancy smart phones). Make a film of life at one of the world's best conference venues.
- Budding archaeologists may use the TTI metal detector - bought following a recent spooky event when Evans and Mike were digging a hole in the ground for the satellite dish (I'm really not making this up): MIKE: Hey Evans, watch out for crucifixes when you're digging that hole. This used to be a monastery you know. EVANS (REACHING INTO THE HOLE) What, like this one? (HOLDS UP A THOUSAND YEAR OLD BRONZE CRUCIFIX FROM FIVE FEET DOWN). The crucifix is stored in the monastery in a secret place; please ask to have a look at it.
- Spend all day in the TTI garden relaxing in one of the Institute's three hammocks, drinking wine, snoozing or reading one of the books from the TTI library.
- The Institute has a variety of board games, jigsaws, and similar entertainments together with a number of Victorian books with titles like 'What To Do On Cold Winter Evenings Given That We Haven't Invented Television Yet'.
- Debate physics with the help of the Institute blackboards.
- Listen to one of Mike's lectures inspired by the contents of the TTI Antiquarian Library such as *Richard Burton and the Source of the Nile* (Burton the Victorian explorer and polymath, not the one out of *Where Eagles Dare*..) or *Up The Orinoco with Alexander von Humboldt*.
- Spa treatments in the Bagni di Lucca 'Thermal resort'.
- Mike is translating some chapters of a book on the history of Vallico Sotto. If he's finished it by the time you visit, then walk around the village looking at the buildings and places it describes.

8.5 General

- Volunteer to help clear overgrown local woodland paths (and also to repair some of the ones that collapsed in the great storm of November 2013). Mike can supply gloves and tools..
- The Institute has a wildlife photography notice board. Prizes for the best entries, particularly if you can take a picture of one of the eagles that regular soar above Vallico or of the elusive *marmite*.
- The Towler Institute Exploration Society also has some photographic challenges available - see the web site for details.
- Revitalize the economy of Vallico Sotto. It's barely 40 years since 450 people lived here. Now less than 100 do so. Just because modern lazy teenagers want to be fashion models smoking drugs in Milan rather than having a nice healthy outdoor life, the population of rural Italy has been denuded. Let's bring back the time when all the mountain terraces were in production, packs of nice mules helped carry things, teams of volunteers kept paths and bridges open, and everyone knew how to bake chestnut cakes. All serious suggestions gratefully received.
- After the forthcoming Carrington Event (http://en.wikipedia.org/wiki/Solar_storm_of_1859) when all electricity supplies have permanently failed (or some similar apocalyptic event), Vallico Sotto will be the ideal place to shelter from marauding gangs and to begin to rebuild civilization. The recent book 'The Knowledge: how to rebuild our world from scratch, by Lewis Dartnell' explains how to do this. As an exercise, and to help Mike prepare, see if you can figure out how to do some of the essential things that we will need (rig a water-powered electricity supply; find edible plants; make limestone mortar; fortify the monastery against enemy incursion; stuff like that). Buy it here: http://www.amazon.co.uk/Knowledge-How-Rebuild-World-Scratch-ebook/dp/B00H4EM594/ref=sr_1_1?s=books&ie=UTF8&qid=1400500727&sr=1-1

9 TTI TECHNICAL EQUIPMENT

There are various laptop computers in the Institute available both for general use and for practical sessions. Most offer some recent version of Black Lab Linux (a derivative of Ubuntu) with only a few left (those kept out of the hands of our anti-Microsoft activist) still able to dual boot into Windows. There are no absolutely no Macs. The practical sessions will

be run under Linux. You may of course bring your own laptop if you wish. For QMC events involving the CASINO software it would help if you could set up a Fortran (95) compiler on it before arriving at the school (we recommend both GNU's gfortran and Intel's free ifort compiler - available for download on their websites). If you're a dedicated Windows user and you bring your own laptop, you also need to set up the Cygwin environment on it, see Q. A11 of the online FAQ: <http://vallico.net/casinoqmc/faqs/>. Please be careful of the electricians when plugging in your own machine in order to avoid shorting out the projector etc. - in fact, it's better to ask where to do so. Note that most of the available plug sockets in the lecture hall are of the *English* type, though some Italian ones and various adaptors are available.

All internet connections are made - via two dishes on the roof - through a high quality wireless network (the TTI infrastructure was comprehensively upgraded in June 2014, and again in June 2016). The SSID is 'TTI-Wifi' (TTI main building, and in and around the Doctor's House) with password 'ttivallico'. There is a second network 'TTI-Wife' (tech humour from the local computer shop - ha ha) which is intended to allow my wife to unfairly continue to watch TV when 50 other people are trying to use the network, and the password is a closely guarded secret.

Apart from computers and networking devices, we also have the following equipment available for conference participants to use:

- A HP Laserjet P3010 black and white laser printer (on a wireless print server at 172.16.0.201) in the attic of the main building. The relevant print queue is called 'hp'.
- A HP Laserjet Pro M127fw black and white laser printer/scanner (172.16.0.202 port 9100) located at the back of the church. The relevant print queue is called 'hp2'.
- Sony photo printer for instant printing of your photographs (you can plug in your camera directly - no need to go through a laptop - accepts all memory card formats that I am aware of). Note that we have limited supplies of the expensive paper and ribbons, so try not to print off your entire collection.
- Epson Perfection 4990 scanner (usually upstairs in main building near MDT's desk)
- A3 laminator
- Guillotine
- A HD video camera
- Four or five USB memory sticks (labelled TTI)
- A supply of writeable CD-Rs, CD-RWs and DVD-Rs.
- The usual stationery and staples etc..

There are also a very large number of scientific and technical books which may be borrowed (top floor and attic of the main building, and in the various bookshelves in the church). Please don't steal them when you go home; we've had a bit of an epidemic of this in the past and so these days I tend to check..

Please note that there is also a pigeon-hole bookcase intended for printouts of 'the literature', which may be used for various purposes at any given meeting.

10 INTERNET USE

TTI laptops are mainly black/grey Sony Vaios with a few red Acer Ferraris (note the difference in power supplies - the ones for the Ferraris have yellow ends, the Sony machines have black ones). All should connect themselves to the wireless network TTI-Wifi as soon as they've finished booting up.

All local machines have static IP addresses 172.16.0.2x on the TTI-Wifi network (where 2x is 20 plus the number of the machine - a red plastic label saying e.g. `tti_laptop9` implies 172.16.0.29) so they can all talk to each other via ssh or sftp etc. Machines automatically given addresses by DHCP will have addresses such as 172.16.1.xx.

Other network details for administrators: TTI-Wifi network 172.16.0.xx, Subnet mask 255.255.252.0 (not a misprint), Gateway 172.16.0.1, Primary DNS 185.37.37.37, Secondary DNS 185.37.39.39. This choice of DNS will in some cases make various external services believe that TTI is in the UK. Other equipment attached to the network: a phone adapter, Various Sonos wireless speakers, a wireless print server (172.16.0.201) for the print queue 'hp', and the 'hp2'

printer/scanner on 172.16.0.202), the wireless central heating controller (172.16.0.205), security cameras, and possibly the NEC projector on DHCP. Do not assign your own static IP number on personal hardware without consulting MDT.

There is a central file server (a Synology DS1513+ 5 Bay DiskStation Desktop NAS with 10 TB of storage) attached directly to the main router box on 172.16.0.200. This is generally used during summer schools to access common files via NFS (a 'summer_school' folder should appear on the desktop of TTI machines). It also acts as a web server - external access to which is through <http://vallico.it>. MDT's personal workstation - brutus - is on 172.16.0.199. This is a 24-core beast that may be used for larger calculations; the guest account is available on request.

Please be mindful of the needs of other users of the network. Although we have an excellent connection, it is clear that most people are now turning up with WiFi-enabled smartphones and tablets, and simultaneous use by up to 60 devices can in principle lead to certain issues.. The network was upgraded recently for this reason, but it is gently suggested that downloading Gb of files, playing streaming music or videos through your smartphones, enabling automatic software updates, might not be a good idea.. (Please install ad blocking software if you can). Remember we're in the middle of nowhere - it's amazing that it works at all.

Note also that currently there is network coverage only in the main TTI building and garden, in the Luxury Bedouin Tent (if erected), and in the Doctor's House, but not in any of the other houses we use for accommodation (Casa Franca, Casa Gianpiero, Casa Luciana, Casa Sarda, Casa Lontana, Casa Liana, Casa Giovanni, etc..). It may just be possible to boost it into Casa Sarda but I've never tried this..

The local network is normally configured to believe it is in England (via a smart DNS proxy) for purposes of watching TV etc.. It can also be convinced it is part of Cambridge University via its VPN service. This is very useful for e.g. accessing restricted content scientific articles. Sadly, Cambridge rules prevent us providing such access to TTI visitors, and so the VPN is normally turned off during conferences. Ask MDT if you want to make (indirect) use of this service.

11 PRESENTATION EQUIPMENT

The church is equipped with a good quality NEC MT1075 projector and an auxiliary Toshiba DPD TDP-T250U projector with DVI and regular RGB cabling . There is a giant 16' by 12' main screen, an Avervision document camera, various projection stands, a projection laptop, a DVD player with decent speakers, and various wireless control devices. (There was a 7'8 x 5'9 electric auxiliary screen on the side wall, but this was stored in the cellar during the 2016 refurbishment and hasn't yet re-emerged). There is a large blackboard in the church and a smaller one in the lower main corridor of the main building stolen from the TCM Seminar room in the Cavendish Laboratory. There are two blackboards outside, and a portable one which can be taken on excursions if you wish to debate physics in restaurants or up mountains.

The NEC projector is wireless capable, so you can beam your talk from your laptop straight to it from anywhere in the room, as well as with old-fashioned direct connection (technical specs on the TTI website). The Institute projection laptop - though normally bootable into either Linux or Windows - will normally be running under Windows because Linux Powerpoint viewers mostly do not display Microsoft-generated files correctly. Obviously it will accept CDs and memory sticks and have the usual software such as Acroread and Powerpoint. On balance if you are giving a presentation it is probably best to bring the file on a USB drive or email it to MDT beforehand and he will ensure that it is on the projection laptop ready for your talk. We would be grateful if you could leave your talk on the Desktop of this machine so that your talk can be made available (password protected if you request it) on the conference/school web page after you've all gone home.

The Avervision document camera is a sort of cool overhead projector. It will display any printed document, photo, slides, X-ray film or 3D object straight through the projector, so basically you can dissect a frog live on the wall. There is a Victorian microscope with an attachment that allows it to be connected to the Avervision, so biological people can project the microworld on the big screen. Although we have a table with a white square painted on it, non-electronic talks are probably better on white pieces of paper rather than on transparencies..

12 FOOD

In general breakfast will be taken in the Institute, lunch in the little bar in Vallico Sotto run by the lovely Monica, and dinner in some local restaurant generally outside the village.

In the institute some basic food staples will be provided which participants should feel free to fight over but in general you might like to buy your own food from local shops. Vallico Sotto's own food shop closed in late 2007 - much to the

consternation of the lovely Adelina relocated to a big new shop down in the main valley in Pian di Coreglia. To replace her, there are two food shops in Fabbriche di Vallico - a five minute drive downhill - and a giant Leclerc supermarket in Galliciano (twenty-five minutes drive). In principle there is also a tiny food shop in Vallico Sopra which seems to open 'on request' by ringing the bell, but I wouldn't rely on it.

To find the Vallico Sotto bar for lunch, go down the tunnel underneath the Doctor's house (the big house opposite the TTI church front door). Then take any path downwards until you get to the Vallico main square - the bar is just underneath that.. You are strongly encouraged to take your lunch here, as normally it doesn't serve food and Monica is doing us a big favour by buying food and preparing it - so we need to make it worth her while. Note you can also get beers, coffees, ice creams and so on here..

Note that people in local shops - or indeed anywhere round here - tend not to speak English, so learning some basic Italian food words before you come will help : *pane* = bread, *formaggio* = cheese, *prosciutto* = ham, *pomodori*=tomatoes, *birra* = beer, *vino* = wine, *caffè* = coffee, *latte* = milk, *grazie!* = thank you!

You are of course welcome to make use of the Institute's cooking facilities whenever you want. There is a big downstairs kitchen in the main building formerly run by a proper cook - who wrote the *Il Collegio Cookbook* whose recipes you are encouraged to try (it's in the little bookshelf in the kitchen). There are similar kitchen facilities in most of the other houses.

On the first evening a simple buffet dinner will be provided. Later in the week we will make use of the excellent local restaurants. Unless told otherwise, Mike will simply assume that you will all be coming to each evening meal and will make bookings accordingly (generally a few weeks in advance). These bookings can be changed but please give Mike plenty of notice. We have found that the best way of managing large groups is that you will not usually be given a choice of food (other than the option of being a vegetarian) and the waiters will simply bring a succession of courses. The price is fixed - usually at 20 euro per person - no matter what you eat and drink. This prevents endless discussions of who wants what or how much money is owed. Vegetarians should declare themselves at the start of the week, as the restaurants like to know in advance how many there will be (local people consider this a bewildering lifestyle choice..).

A FEW LOCAL RESTAURANTS

- Da Ramona (0583 1805897, Fabbriche di Vallico <http://vallico.it/da-ramona>)
- Il Molino Vecchio (3401557521 or 3471447248, Fabbriche di Vallico)
- Da Sandra (0583 761712 or 3403730040 on the road between Fabbriche di Vallico and Vallico Sotto).
- Il Canapale (0583 761829, Vallico Sopra)
- Al Laghetto (near the lake at the entrance to the Turrtecava valley)
- Alto Matanna (0584 776005, Matanna)

RESTAURANTS SLIGHTLY FURTHER AFIELD

- Circolo dei Forestieri, Bagni di Lucca
- Antica Trattoria dell'Eremita, Vergemoli
- Il Garfagnino, on the main road near Turrtecava
- MANY MORE

SPECIAL RESTAURANTS

- La Buca di Sant'Antonio, Lucca
- La Mora, Ponte a Moriano
- Butterfly, Lucca

See also the TTI Restaurant Guide page on the website.

13 CINEMA VALLICO

The requirements of modern science presentations means the Institute church is also the only cinema in the whole of the Apuan Alps - a fact that local people very much enjoy (since the opening presentation of *Cinema Paradiso* in August 2005). During the conference you are welcome to use the projectors and it is expected that movies will be shown on several nights. The Institute has an extensive DVD library which you are welcome to browse. Feel free also to bring your own movies that you think we might enjoy. (Note that while the internet connection can cope with streaming 1 or 2 movies simultaneously this is discouraged during mass participation events for obvious reasons).

14 NEWS FROM THE TOWLER INSTITUTE

MDT has on occasion written stories about events at the Institute and published them on the local Barga News website. See <http://barganews.com> and the "News from the Towler Institute" blog (or go to the TTI web site <http://vallico.net/tti/tti.html> and click on the relevant link in the left-hand column). So far these are mainly about cave explorations and similar adventures. However, Mike doesn't have a monopoly on this. If you wish to contribute your literary efforts then please send your stories about your adventures in Italy to him, and he will ask Keane the Editor to publish them on Barga News.

15 FOOTBALL MATCH: VALLICO SOTTO CONTRO IL MONDO

The thrusting young lads of Vallico Sotto often challenge the Rest of the World - i.e. large groups visiting TTI - to a game of 5-a-side football on the village pitch. This tradition - which we began many years ago - attracts a large crowd and we always get absolutely caned (even when I have had Brazilians and Spanish people available). Can a small mountain village with less than a hundred inhabitants continue to defy the other 6 billion of us? If you think you can stop them, please volunteer.

Volunteers:

NONE YET

16 MUSIC

After many years of patiently accumulating musical equipment, we have now acquired enough that the TTI church can in principle be used as a professional concert venue. Participants with musical talents are therefore encouraged to demonstrate them.. [New in 2016: theatre lights to illuminate the talented players on stage, and central heating so you can do it in the winter].

Our stringed instruments include a basic acoustic guitar, an Epiphone EJ-200CE electro-acoustic guitar, a Line 6 Variax 500 electric guitar, an electric violin, and an antique 17th century violin (currently broken). Note the Variax 500 is a *modelling guitar* (i.e. internal electronics process the sound from individual strings to supposedly model or replicate the sound of specific guitars and other instruments.)

We have two keyboards: (1) a top-of-the-range-in-1995 and still pretty good Technics KN3000 keyboard, which was also our principle source of drums until we bought a Boss DR-880 Dr.Rhythm Drum Machine, and (2) a beautiful red Nord Piano 2 HA 88 with triple pedal (MDT's pride and joy). This latter is one of the best available stage pianos (really, it's wasted on him) and despite his penchant for playing crude rock and roll songs, it's perfectly capable of having classical music played on it and sounding like a Bösendorfer Imperial Grand (not surprising, because it explicitly samples one, as well as things like Saloon bar honky-tonks). (<http://www.nordkeyboards.com/products/nord-piano-2>).

There are 4 microphones, 3 of good quality, including a retro-styled Shure Super 55 Deluxe used as a piano floor mike.

For amplification there is a Yamaha Stagepas-300 PA system with built-in mixer with multiple inputs. The Nord Piano has a couple of quality Electrovoice ZLX-12P powered loudspeakers which can act as monitors (there is also a basic wireless in-ear monitor system). There is also a Line 6 guitar amplifier (with built-in effects).

In his role of trainee Jerry Lee Lewis impersonator – limited by severe lack of time to practice – Dr. Towler has been threatening for years to attempt a full-on Fifties rock and roll concert (as detailed on the QMC web site at <http://>

//vallico.net/casinoqmc/music/). On payment of a suitable fee (such as a cigarette, which he only smokes during TTI meetings because of the stress), this might even happen - you never know.

17 HEALTH AND SAFETY

We should all recognise that climbing, mountaineering and caving are activities with a danger of personal injury or death. Participants in these activities during their stay at TTI are asked to be aware of and accept these risks and be responsible for their own actions.

The nearest Accident and Emergency Department is 25 minutes away in Barga Hospital (car drivers should satisfy themselves as to its location on Google Maps) - other hospitals are in Lucca (50 minutes) and Castelnuovo di Garfagnana (45 minutes). The Italian emergency telephone number is 112.

There is a large first aid kit in the TTI main building under the stairs above the washing machine on the middle floor, and a smaller one in the TTI green minibus.

Vallico Sotto is a mediaeval village built a thousand years ago on a steep slope with many steps, and naturally there no facilities whatsoever for the disabled; furthermore it seems that the builders of long ago have intentionally set traps designed to kill or injure them. However don't let this put you off; wheelchairs and so on can be manhandled up the hill with you in it if required, and of course we are happy to do this as a way of keeping fit.

TTI is a smoking venue and visitors may smoke as much as they like (ashtrays will be provided).

18 FINAL NOTE

Please address all local queries to Mike Towler whose email address is mdt26 at cam.ac.uk. For questions about the programme please write to Profs. Meuwly or von Lilienfeld.

HAVE FUN IN VALLICO SOTTO!