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Spring 2000, issue 38

Cover: Syagrus romanzoffiana, with the 5747m high Pico de Orizaba, Mexico, in background.

Chamaerops is the journal of The European Palm Society

c/o The Palm Centre
Ham Central Nursery
Ham Street, Ham
Richmond, Surrey, TW10 7HA, UK

Phone: +44 20 8255 6191
Fax: +44 20 8255 6192
E-mail: mail@palmsociety.org
Website: www.palmsociety.org

Editorial

• *Martin Gibbons, E-ditor, martin@palmsociety.org*

September is the cruellest month. Irrespective of how good or how bad the summer has been, it is the month that contains ‚that day' when for the first time in several months you step outside and in a split second realize that summer is over. There is a sharpness to the air, an edge to the temperature and you know that even though there may yet be a temporary reprieve, that, basically, is that. It is particularly cruel this year when summer, such as it was, was so long in coming, at least for us in northern Germany, France, the UK and the Low Countries. While people in the south of Europe were literally dying in the record breaking high's, we were shivering in our boots. A false dawn in March gave us a hot week, but April was the wettest April since records began (it rained *every single day* in England), May, June and much of July provided indifferent temperatures and things only started to improve in August, already way too late for it to make a significant difference. And now September, six entire months to go before we can expect to see any improvement again. Goodness, it's depressing!

I just returned from a vacation in Santa Fe, New Mexico, USA. It's a desert town, at 2000m above sea level. Here the climate is totally predictable (apart from some serious rain, the first in three months, that arrived as I did, but we'll ignore that). The summers are warm, but not unpleasantly hot. Unfortunately the winters are a bit parky, considerably more so than London, and an interesting example of the part that altitude can play in temperatures. Although it is on the same latitude as Gibraltar and Sicily, the average winter lows are –6's and –7's °C, as opposed to, say, Sicily's +8's and +10's. London's average minimum temperatures are also warmer for all but 2 months of the year, and during those 2 months (July and August) they are the same. This seems incredible when you consider that London is about 1000 miles further away from the equator. The two big differences are of course, our temperate, ocean influenced climate, and Santa Fe's altitude. God bless the Gulf Stream!

The other major difference is – you guessed – no palms! While their summers are entirely appropriate to the cultivation of palms, their winters are definitely not. The vegetation consists of small Colorado pines (pinyo), lots of a species of Yucca and a profusion of colourful wild flowers. Coyotes howl at night, huge jack-rabbits hop by day, under the watchful eye of eagle and buzzard. Nobody talks about global warming there, and as for palms, there is not one to be seen!

Talking of Yuccas, there is an excellent new book out on the subject. It is 'Agaves, Yuccas and Related Plants' by Mary & Gary Irish. It is a book that is sorely needed and long overdue. There is a colour photo of almost every species (over 100 are discussed) and keys to enable the reader to identify agave and yucca. Unfortunately, this did not work with my Santa Fe plant, and I still have no idea of its identity. That aside, it is a brilliant book, easy to use, using simple language and it is highly recommended. There are growing tips, chapters about propagation and winter protection, and watering regimes. I had to laugh when I read that in hot climates (and here the author is talking 100 deg F+) A. americana should be watered just twice per month! I guess that means that in the UK they probably *never* need watering! Each species is rated for cold hardiness and there is a chunky paragraph covering each and every plant's cultural requirements. All in all a great book, fairly priced at £25 and, spookily enough, available from The Palm Centre, but also, I am sure from Amazon.com who are undoubtedly more efficient!

A little space left for me to personally thank Toby Spanner and his brother Rudolph, for the enormous efforts they have both put in, in order to get our journal back on track. Well done and thanks for all your hard work. MG.

Seasonal Palm Growing

Nicholas Cock, Southend on sea, Essex

Palms in the winter

It's been almost 3 years now since I was „bitten by the bug" and took the first step of purchasing my first palm, a Dypsis Lutescens, which was summarily executed due to my lack of experience. I have, however, bounced back since those dark days and can now happily boast almost 100 palms in my collection, of every conceivable shape and size. It was about a year before I found out that there were mad men and women out there growing palms in their gardens, even over the winter. I decided to investigate further, which leads me to where I am today. I have developed the obsession of leaving these poor defenceless plants to the mercy of the weather and carefully recording exactly what effect our winter climate has on them, sometimes with unexpected results.

To start with I was dubious about leaving any palms in the garden—going out and spending a few hundred pounds on plants just to see them zapped into oblivion was not exactly my idea of enjoyable gardening—but once the palmophile comes out in you, you begin to notice palms that have been growing in your neighbourhood, right under your nose, many of them years old, and so I thought to myself, why not? I live in Southend on sea (South Essex riviera!!!) where I personally believe we have the best that the weather has to offer, especially when it comes to palm growing. Our yearly precipitation is the lowest in the UK, we have some of the highest summer temperatures, and winter temperatures don't drop too low. This past winter saw an absolute low of -4°C, and we only had to suffer a few nights of below 0 temperatures. Granted we don't get the full effect of the Gulf Stream that the South West gets, but, no offence to its people, it's too wet there! I feel the River Thames helps keep temperatures a degree or so higher, so I'm in no rush to move.

Although still a „beginner" by a lot of people's accounts, I've learned a tremendous amount over the last couple of years. The question of cold hardiness in palms is one of the subjects that fascinates me the most. The internet and various magazines are crammed full of information regarding hardiness and growing zones that our American cousins seem to covet so much, but I think here in the UK and Europe we have to look at things a different way. Technically where I live is situated in Zone 9 (which means a minimum winter temperature of -1 to -6°C), and being that -5°C is usually our absolute minimum, we feel that we can firmly place ourselves in that zone. However, compare that to another Zone 9 area such as Central and most of Southern Florida, and it doesn't take an expert to work out that there is no comparison when it comes to climate. Although Florida can get several degrees of frost overnight, this is usually followed by day temperatures of 15-20°C; in other words, back to the conditions palms are used to growing in.

Here in the UK we have to put up with 3-4 months of dull, cloudy days where the temperature rarely rises above 10°C and night temperatures usually fall to a few degrees above freezing. This leads me to believe that a palm's hardiness should be assessed by whether it can survive a British/European winter or not, and not purely by the figure of a minimum temperature.

I have lost many small palms due, I believe, to the lack of any real heat. I have a polytunnel where I try to prevent temperatures dropping more than a couple of degrees below 0, and a small greenhouse, where I keep my more tender palms frost free, though even here losses have been high. Although it can be disheartening to have these losses, I believe that I have learned a lot by experimenting in this way. For instance, I've learned that seed provenance can play a big part when trying new species. I have tried out many Copernicia seedlings this year, species including C. alba and C. prunifera, many of which have

< Geonoma weberbaueri, at 2700m in Ecuador.

succumbed to the low winter temperatures. However, I managed to obtain seed of Copernica macroglossa from the US from a parent that gets a regular frosting, sometimes as low as -7°C!!! Needless to say, I haven't lost a single seedling (yet) and I've allowed them to get frosted to -2°C. Watering is another area that needs to be observed as well. I tend to keep my palms very dry during the winter and water with a fungicide solution about once a month just to keep any root rot in check; it's amazing how a little moisture and cold temperatures can rot some palm roots in no time.

Other palms that have taken -2°C with little or no damage include Wallichia disticha and densiflora, Wodyetia bifurcata, Parajubaea cocoides, Dypsis decipiens, and Chamaedoria seifrizii and C. oblongata. Happily the garden and unprotected old favourites are doing well. Phoenix canariensis, Rhapis excelsa, Brahea armata, Brahea edulis, Trithrinax acanthocoma, and Washingtonia robusta and filifera have all come through our lowest night of -4°C so far without being scathed, although Livistona chinensis suffered slight tip burn. I was also shocked to find that same following morning that my heater had failed in the polytunnel. There was ice everywhere, which was soon defrosted by the fiery language that followed, of which I couldn't possibly repeat in a family magazine like this one. Ravenea rivularis and Coccothrinax barbadensis had been totally destroyed, with most of the leaves being lost to the low temperature. However, I think they will recover as the new spears seem to have remained intact. Howea forsteriana had suffered about 20% tip burn. It took me the following weekend to sift through the debris, but to my surprise I didn't lose a single palm, and a few weeks later, they still seem to be alive. All the other palms have come through OK. Caryota himalaya is actually growing, if very slowly; Syagrus romanzoffiana and Livistona Saribus look great, although they did sustain some damage; Phoenix roebelenii and P. theophrasti are untouched; as are Rhopalostylis sapida, Chamaedorea microspadix and C. radicalis, and an X Butiagrus hybrid.

Like most of you I long for spring and the return of warmer weather, watching as our beloved palms spring back into life, rewarding us with the new growth that we seem to have waited half a year for. But, call me mad, in a way I am looking forward to next winter so I can begin my experimentation process again! I'm looking forward to trying some of the Andean rain forest palms, such as the high altitude Ceroxylon varieties and some more unknown forms of Chamaedorea. Indeed there are quite a few species that look promising, such as Geonoma weberbaueri and jussieiana, found growing at elevations of over 3000m up in the Andean mountains where it is cool and cloudy for a good part of the year. Also worth trying are some varieties of Attalea, Allagoptera, and Acrocomia that come from various other locations in South America. Hedyscepe canterburyana and Lepidorrhachis mooreana from Lord Howe Island also seem to have a lot of promise. If I manage to obtain these palms, I will keep you posted on the results.

Palms in the summer

I personally think seed propagation is great when it comes to growing palms, and late winter/early spring is a time when I like to really get going sowing all those new palms seeds you just seem to keep acquiring. I've almost perfected the art of palm seed propagating (well I got there eventually), but there are a few rules to follow that you may well know. For those of you who don't, the most important rule of all is to buy fresh seed. The best sources are usually suppliers that sell them in bulk, or give an availability period, as they are more aware of the loss of viability in palm seed thus only keeping fresh stock at the times of year that they are available. Second, forget the myth that palm seed is impossible to germinate; about 95% of palm species will sprout without any problem at all. Personally I favour the sphagnum moss method: soak the seeds for a day or two in clean water, changing it every now and then (to remove any inhibitors) and checking that any old fruit flesh has been removed. Then take a zip bag, and half fill it with moss that has been soaked in water and then squeezed out (a rolling pin works well

here), and don't forget to"fluff" the moss back up before putting it in the bag. Once this is done, place the seeds in the bag and put them in a warm place (between 30-35°C).

I actually have a daylight lamp in my germinating cupboard as well, which prevents any seeds that come up from getting elongated. I usually check the seeds about once a week. If the moss starts to feel a bit dry, I just tip the lot out (carefully!!!) and re-moisten it.

I've found that 4-6 weeks is the usual incubation time, although some do take longer. These include Attalea, Acrocomia, Jubaea, and Allogoptera, which can take anything up to 2 years, although so far I have managed to get at least one of each to germinate in less than 6 months. Phoenix, Washingtonia, and Copernica seeds are about the easiest seeds I have ever germinated; they usually taking less than 4 weeks. Trachycarpus and Jubaea can be germinated in the same way although I would recommend a temperature of around 20-25°C, as they seem to germinate better. The only seeds I would recommend sowing in a soil based compost are those seeds that grow long tap roots, such as Borassus and Bismarckia. These need a deep root run into the soil, but can be fooled into thinking that the roots are deeper than what they actually are. The growers in the US actually use a process of raising Borassus seeds by growing them in pots about 18" deep. The tap root will eventually hit the bottom and form a „blob." The pot is then carefully knocked out, the seed and root are repotted with the blob just below the surface, and the seed is allowed to hang free attached to a frame or some other kind of support. The first leaf will then emerge from just below the surface allowing the root to grow down another 18". I have used this technique with some success, although the roots do tend to rot easily. However, damage to the tap root is not terminal as long as the seedling has developed some fine roots.

Bismarkia is similar in some respects and can be risen up, though they only require a root run of about 12" in the initial stages.

Living in our part of the world isn't such a bad thing. There are days when my enthusiasm subsides, but for the most part I'm always kept going by the fact that there is so much to learn and there are so many palms to try. The way global warming is coming along, in years to come maybe many of us won't have to worry about hard frosts threatening our prize palms. Who knows, maybe our part of the planet will become a flowering tropical oasis. But as for me, I can't wait that long. Experimentation is part of the fun, and as they say, „If you never try, you will never know."

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then the tomatoes were giants.

You know, we had very close relations with the Russians, also with their science. We don't know if our palms are the result of their science and therefore if even more incredibly hardy palms could be found there. I know that before 1956 it was an obligation for the scientists to develop subtropical plants that are able to live in our climates! In result there are many cold hardy plant species available now. In Bulgaria they tried to grow even Citrus and Date palms too, but soon gave up. The 4 original palms I mentioned could have been brought from Russia. Of course they could be from anywhere else. They also could have been developed here influenced by our local conditions. We do not know yet. But I have decided to realize my dream to see palms everywhere in Bulgaria.

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bright conditions, but protect them from full sun. Also, these plants enjoy plenty of water and higher humidity. I know some guys who have been growing this palm for many years in an east-facing window, so these species seem very adaptable for indoor cultivation as well.

Growing palms of this species is easy when the seeds are fresh. For many years I've had high-quality seeds from Toby Spanner, with very good germination rates. At first there is a well root growing, and after this, a red-brown sprout up to 10 cm develops. The first two-divided leaves develop soon after. Any questions about this really beautiful palm? Please contact me via e-mail at info@palms.de

Interview with the Editor

Imtiaz McDoom-Gafoor, London, UK

IMG: Another palm recently available is Trithrinax campestris. Where does it come from and what conditions does it grow in?

Martin: Trithrinax campestris is an absolutely beautiful palm, one of the most striking palms in the world I'd say. It has very stiff, very blue, fan shaped leaves and its trunk is covered in an intricate network of old leaf bases and fibres and spines - a very dramatic looking palm. It grows in the west of Argentina, near a place called Corrientes. It grows in a band 50 miles long and 20 miles wide and there are hundreds of thousands of trees in this band. Large parts of this area are being cleared for the planting of genetically modified foods like soya and sunflowers. The bulldozers are sent in, destroying all these venerable old trees, often 100 years old, in an area of a couple of square miles at a time. They are bulldozed into the middle of the field, poured diesel on and set light to and the ashes ploughed into the ground. Sunflower and soya seeds are then planted in their place. The bulldozers then move on to the next area and repeat the same thing. I have a contact there that gets in before the bulldozers and takes these Trithrinax out of the ground and reroots them over several months and ships them over to Europe. We had a container in the summer and they are growing well in our back field. They are dramatic in appearance, extremely wind resistant, surely one of the cold hardiest palms in the world, and a stunning addition to an exotic garden.

What is the most memorable palm trip you have been on?

It was rediscovering Medemia argun in the Sudan. It was last recorded in Egypt in 1964 (a solitary tree, now dead) and not recorded in Sudan since the 1920's or 30's. We mounted an expedition to try to find it. It was said to grow near a town called Murrat Wells, north of Khartoum. We arrived at a city called Atbara on the River Nile and showed photographs of Medemia argun but no one had heard of Murrat Wells until an old camel driver was summoned. He said not only did he know Murrat Wells but he also knew Medemia. Our excitement can only be imagined! After a couple of days in the desert we came to Murrat Wells and it became obvious why it was not on any modern map - it was a ghost town, an old gold mining town deserted when the gold ran out. Beyond the town the landscape changed and it became a long, low valley and right at the end we could see something through the heat haze that looked vaguely like a palm tree, maybe a Washingtonia or a Hyphaene. As we got closer we realised it was Medemia argun, it was just so exciting !

We saw a number of trees, some of which were heavy with thousands of big, plum sized, dark blue-black fruits. Two years later we returned and found perhaps a thousand trees in several scattered populations. Some were in good condition, others in very poor condition, and it suggests that the underground water, which keeps them alive, changed course over the years and deprived the palms of water and hence their poor condition. However, there were many and they were reproducing in the wild. I think their future is OK; they don't really have any natural enemies, but there is a suggestion that the whole area is much dryer than it was, so their long term security is not known. We were able to distribute these seeds to most of the botanical gardens in the world. It is the first time they have been introduced into cultivation outside of the Sudan and many are now growing around the world, wherever the habitat is suitable for them. It was a very exciting trip and we had the added bonus of being able to prove that this palm, which had previously been thought to be extinct, was alive and well.

Why are so many potentially cold hardy palms so poorly available in cultivation?

A lot of palms are obscure because they grow in places that are difficult to access. Many grow on borders, like Trachycarpus princeps in China,

< Medemia argun, Nubian desert, Sudan.

Burma, and Tibet. Likewise, Trachycarpus takil grows on the border between India and Nepal. These border areas are always very sensitive and both India and China are very touchy about their borders, so there are always personal risks involved in being in these areas. In addition to political problems, many palms grow on cliff faces which are difficult to climb. The locals may have cut down the more accessible palms, so getting to the remaining ones is often a physical challenge. You have to sometimes row across fast flowing rivers, climb up steep cliffs, and certainly climb trees. One trip in South America we invested in a pair of tree spikes, which are like spurs but with a spike on the inside and you strap these to your legs. You literally climb up the trees, with a safety harness, which would cushion you in the event of a fall. When the palm is 40 ft tall and it is a Ceroxylon whose trunk is covered in wax, it's a hairy experience. Other times we have been stuck in deep mud trying to cross the Andes. The higher you go the wetter it is. The roads are unmade and muddy and you are miles from anywhere. You have to make a decision: should we turn around or should we go for it, and always it seems we went for it! Stuck in mud at night at 3500m in the Andes, miles from civilisation, is not a lot of fun, but all part of the experience. More than once we've had to sleep in the car and go for help in the morning.

What is the most dangerous trip that you have been on?

The most dangerous place we have ever been to, and the country I was most glad to leave, was Colombia. We went there not knowing how dangerous it was, and once there we met a professor at the university in Bogota who was surprised that we appeared to be naive enough not to know how dangerous it was. We phoned up our respective embassies. I phoned up the British embassy and they said that under no circumstances should we travel by road. There have been several British nationals kidnapped already and some of them are still in captivity. The embassy staff doesn't travel by road unless it is absolutely necessary and then they go with bulletproof vehicles and police escort front and back. Toby phoned up the German embassy and was told a similar report: there had been twelve German nationals kidnapped so far that year, and kidnapping in Colombia is a huge business. And there we were in our shiny, bright green, brand new, obviously hired car, saying „Tourists - come and get us!" I was very nervous driving around the countryside in Colombia. In fact, we had planned to spend 10 days there, and 10 days in Ecuador. We spent just 3 days in Colombia and couldn't wait to leave. The extra 7 days we spent in Ecuador and it was absolutely not wasted.

Which countries would you like to visit that you have not previously been to?

I would like to go to Vietnam. North Vietnam is worth visiting although there are probably a few unexploded mines there which gives pause for thought. There has been very little botanical exploration and many parts are still undiscovered from a botanical viewpoint. I would also like to visit some other South American countries. We briefly visited Brazil but it is a vast country. I especially would like to see the temperate southern part, and I would like to explore that properly from a palm point of view. And of course, Burma, which I mentioned earlier.

You were involved in the formation of the European Palm Society. When was it formed and how has it evolved?

It was formed about 9 years ago based on the old Temperate Zone Chapter which was run by Tamar Myers in Ohio. She ran the magazine for many years and I was just absolutely hooked on it and used to read and devour and digest every word. It was a shock when Tamar said she was to stop producing it. So three of us got together, Tony King, John Churcher and myself, and decided to start up the European Palm Society. At that stage we didn't know what we would call the society or the magazine. We thought of calling it „Jubaea" but then it seemed logical to name it after a European palm and hence the name "Chamaerops". It now has nearly a thousand members.

How did the Palm Centre first begin?

The Palm Centre opened in 1989 after I started selling duplicate palm seedlings. Eventually my entire house and garden was filled with palms. I would have customers come round at weekend

and someone would ask for a palm and I would say, yes I think there is one in the second bedroom or one on the first landing. And so we would troop up the stairs and there would be another party coming down. It got ridiculous! I started buying from Spain and 40ft lorries would be pulling up outside and blocking up all the traffic. It was absurd and something had to be done. It took me a year to find suitable premises and I eventually found a small nursery, or shop and yard to be more accurate, in East Sheen, in West London, not far from Kew Gardens. I remembered driving out there for the first time and I thought that any minute I was going to drive off the edge of the world. It just seemed so remote.

I had sleepless nights for about the only time in my life worrying about the enormous expense of opening it. I would go to bed at 11 o'clock or midnight and would wake up at 2 o'clock in a cold sweat thinking, oh God this is the most stupid thing I have ever done, it's never going to work, everyone is going to laugh at me. But in fact it began well, and I've never really looked back.

Where do you source the wide and varied palms that you sell?

These days we get palms and other plants from the four corners of the world. We get tree ferns from New Zealand and Australia, big palms from Argentina in South America, from Costa Rica in Central America, a lot from the United States and from several countries in Europe, notably Spain but also Sicily. In fact, anywhere where there are commercial nurseries set up for the export of palms. Interestingly, I am always coming across new nurseries, new species to try. The range of species seems to be increasing whereas you would expect it to be finite.

The Palm Centre is now working closely with a nursery in Spain to increase the availability of hardy palms in Britain. Tell me about this venture.

It is so frustrating to go to some of the best nurseries in the world, say in Florida or California and find that they have just two or three plants of a rare hardy palm or four or five or some that they don't want to sell. There is no difficulty in growing these palms or getting hold of seed but you ask yourself why aren't they growing thousands of them instead of only two or three plants? It can't be because there is no demand. So a few years ago we started to supply large numbers of seeds to a nursery near Valencia in Spain which they are growing on for us. It now has about 30 or 40 species of cold hardy and cool hardy palms, about 150,000 rare young palms, which no one else in the world seems to be growing in commercial quantities. In a few years' time they will be available in good numbers and in reasonable sizes. As we have discovered, often the only way to get these palms in any numbers is to grow them yourself.

Do you obtain seeds from cultivated plants or from the wild?

All our seeds are collected from the wild. If anybody has any problem with the morality of collecting seeds in the wild I must say that a lot of seeds in the wild don't germinate, as the conditions are not right. A lot are also attacked by insects or animals and so don't germinate. I have no qualms about collecting seeds in the wild because that is often the only way that they will germinate. Also it is often the only way to introduce the palms into cultivation. I can't pretend that having people grow Medemia argun or Nannorrhops ritchiana in England will save them from extinction, but we do sell seeds around the world. A lot of them will go on to produce perhaps quite a sizeable population of these rare palms and it may have an effect on the future survival of the species.

The Palm Centre has expanded considerably. Tell me about it.

Martin: I opened up the nursery in Sheen in1989 having bought the lease from a gentleman who was moving to a larger nursery in nearby Ham. After a year I phoned him up and said could we meet, and he told me afterwards that he thought I was going to say that the Palm Centre is doing so badly would he like to take the lease back. In fact, I was saying to him that the Palm Centre is doing so well could I rent some space at his new nursery in Ham. So we have actually had a presence here in Ham where the nursery is currently situated for a number of years as we rented a part of the glasshouse. Very recently we had the opportunity to take over the whole site, about 5 acres.

At the old shop it was just me and one or two

Nannorrhops sp. in southern Iran (see Lackner's Letters on page 22 - Potos: Z. Mohammady)

people. These days it is over 20 people, 10 permanently on the payroll plus casuals, and it has turned into quite a sizeable business. It has expanded largely due in part to the effect of television programmes about garden makeovers. People see palms and bamboos and other exotics featured on these programmes and they want them. We are also wholesaling palms now to other garden centres and the demand is increasing. There is a general movement in the direction of exotic plants.

How long ago did you begin your garden, how has it developed over the years and what are some of the more unusual palms that you grow in it?

I began the garden at more or less the same time as the Palm Centre. It is situated in south London in a sheltered microclimate, since the north and east winds have to come over the city before reaching that area. There are many rare and unusual palms in it. Most of the Trachycarpus species are grown there, nanus, martianus, oreophilus, perhaps the largest oreophilus outside of Thailand. Lytocaryum weddellianum has been growing for three years and is not affected by the cold despite its delicate appearance. Cycas revoluta as well. Generally, Cycads don't do very well in this country as they need a certain level of heat, and duration of warm weather, before growing new fronds. When they do it is usually too late in the season. I have lots of bamboos, also Ceroxylons, and Guihaya argyrata, Chamaerops var. cerifera, several of the smaller Chamaedorea palms which are under-used in this country. Both Chamaedorea radicalis and Chamaedorea microspadix can recover from -8c. I am also growing Rhapis multifida outdoors which is growing well. Rhapis excelsa is the only commonly available Rhapis species in Britain, yet there at least 8 species and several obscure ones. Arenga engleri has also been undamaged by frost.

Trachycarpus fortunei and Chamaerops humilis have been the main palms for over 150 years. What do you consider will complement or supersede them in the 21st century?

Trachycarpus wagnerianus, and latisectus when they become more widely available. Also Chamaerops cerifera will become more popular than the green form although it is much slower growing. Maybe some of the more exotic palms like Plectocomia himalayana and Caryota ‚Himalaya'.

What do you consider to be your most important contribution to the world of hardy palms?

I suppose it is opening the Palm Centre and endeavouring to introduce new hardy palms into the country generally. I am constantly striving to increase the range of hardy palms available to the British and European public through a combination of seed collecting trips abroad supplemented by buying in palms from overseas. Also, by selling seeds to overseas nurseries for onward growing in other parts of the world, these palm collecting trips reach a wider market. Sometimes it's an uphill battle. Customers are sometimes reluctant to consider other palms and are resistant to change, preferring to choose only the familiar, common palms like Trachycarpus and Chamaerops. It can be so frustrating. I would like to change people's perception from seeing hardy palms as potted plants, to be stood outside for the summer only, to seeing them as garden trees, an integral part of the landscape. We are growing successfully many hardy palms that are not thought of as hardy like Plectocomia himalayana. If you give some palms minimum protection they grow very well like the Chamaedoreas. Also experiment with different species. If you have to protect them for a couple of weeks during the winter then fine. It is well worth the special attention because they are then there for the other 50 weeks of the year to enjoy. Instead of everybody waiting for everyone else, it needs a few pioneers to actually plant these palms and take a risk as there is always a risk involved. I wish people would grow more Jubaeas. I know they are very expensive, particularly reasonably sized ones. Everyone flocks to Cornwall to see the large one in Torquay with 20 ft of trunk but don't consider planting one themselves. If 99 more were planted 100 years ago there would have been 100 to admire today instead of just the one. There are lots more discoveries to be made. My mission is to get palms planted outdoors!

Thank you for the interview. It was interesting and I wish you well with the Palm Centre and future palm expeditions abroad.

Russian Science

Kiril Donov, 40 Brezovska St., fl.10, app.50, Plovdiv 4003, Bulgaria

Bulgaria is located in southeast Europe, north of Greece. I believe we have here the hardiest palm trees in the world. There are 4 trees (Trachycarpus fortunei) in the historical museum's yard in Plovdiv. Their age is about 50 years. They produce seeds every year, and occasionally something very funny happens - they change their sex in different years. The tallest palm, a male plant, has twice changed its sex and produced seeds, but all of the seeds have been lifeless. These 4 plants are the first palms living outdoors in Bulgaria. From their seeds we have our population of Trachycarpus, surviving with no problems at temperatures below -28C (-18,4F). The absolute minimum temperature in this area is -31,5C (-24,7F). Unfortunately, the people in the museum are not very friendly; if anyone visits the museum and wants to see the palms, he will meet a stone wall. They probably hate the palms because more people visit them than the museum! One version of how the palms came to be there is that a man who used to work there planted them. However, when I visited the museum again in the beginning of November and talked to the person in charge, he said that he planted the palms in 1973. When I visited the museum for the first time in 1989 he had said that nobody knows when they were planted, and that when the Russians had come in1944 the palms were already there. So, we really do not know what is the truth. For the last10 years he has been cutting the flowers and the palms haven't produced seeds, but last year I saw about 3000 seeds hanging on the female tree and arranged to buy all of them.

I was very surprised to see that each of the four palms grew more than1m trunk last summer. The highest palm is 7m tall and has been there for 50 years. A meter of growth is really amazing! How is this possible? Here's my theory. The city of Plovdiv was established by trackians some 4-5 thousands years ago, before the Greek and Rome empires. It is located in Trackian lowland at150 m above the sea level. The nearest mountain is15-km away (Rhodopa Mountain). But in Plovdiv there were 7 hills, with about 350-m height. The people have already destroyed 3 of them, but the other 4 still remain like mountains in the lowland. All buildings were located on the hills. The historical museum is on one of those hills, on a huge slope. There is a big support stone wall, 3m in height, and a small place with even surface. There live the palms. The climate in Plovdiv is very dry in summer and the palms have never been fertilized nor watered, or so said the staff there. But last summer they were provided with some water, as the whole year had a lot of rain and snow. Suddenly there were weeds like trees on the field. So, it is possible that the extremely slow growth of the palms is caused mainly by the drought, as any signs of cold damage are not often seen. The soil available to them is very limited, maybe no more than a big pot. It dries out very quickly when temperatures reach 25C (77F).

I have had the same experience with my own palms. During the first years I didn't provide any water or fertilizers in summer and they had very slow growth with small leaves. The last 2 years I made irrigation systems and they grew like crazy. Four years ago I gave a friend of mine 2 small palms, about 30cm tall, 3 years old. He planted them outside in late autumn. They survived with no problems at all. Today they have about 60cm of trunk and leaves probably bigger than the parent plants—in only 4 seasons! Those 2 palms came from seeds from the Four palms in Plovdiv. In those 4 winters they didn't have any leaf damage, even when the temperature was -22C

(-7,6F). We just didn't have lower temperatures to test them. Last thing ... many people say that palms should not be replanted in the ground any deeper or higher than they were found. I'd like to tell you that I always do this. If the soil is not very heavy, I always plant the young

palms 10-30cm deeper. In one year the plants grow over the surface again. I've found this is the best protection, and I'm doing it this year in my new palm nursery too. My friend planted his 2 palms more than 40 cm deeper.

Bulgaria, with an area of 42,855 square miles (110,994 square kilometers), is a little smaller than Greece. The country is divided into two parts by the east - west chain of the Balkan Mountains. The climate of Bulgaria is continental, with warm summers and cold winters. In the southern portion of the country, which is tempered by Mediterranean influences, and along Bulgaria's Black Sea coast the winters are comparatively mild. The climate is on the whole favorable for agriculture, but it is too cold for the growing of citrus trees. The summers in Bulgaria are very hot - daytime temperature +35 to +40C (95-105F) sometimes +45C (113F). The spring is quite short (1 month) and autumn quite mild. Our winters usually bring frosts with no more than -7 to -8C (16-20F), but it is normal for temperatures to drop down to -20 to -25C (-4 to -13F) at least once. Temperatures go down below -25C (13F) at least once per three winters, and once per 5-10 winters down to -28C (-18,4F) and below, although it is very unusual for these heavy frosts to last more than a week. Temperatures have been observed to drop down to -28C (-18,4F) not less than ten times during the last 40 years. My own palms once survived very successfully at -28C (-20F) and several times at temperatures down to - 25C (-13F). Generally, however, our winters are really mild: +5 to +15C (41-59F); but, with the above mentioned exceptions, we go directly into Europe's hardiness zone 6 and below.

It is not only my opinion that in Bulgaria we have developed a variety of Trachycarpus fortunei which could survive at lower temperatures than the original plants. All of the palms grown today in Bulgaria are produced from seeds that were produced by the palms in the historical museum's yard in Plovdiv. I wanted to have the same success with my Washingtonias, even with my Chamaerops humilis, but all of them died during the winter of 1998/99 at -22C (-7,6F). This year I am trying to grow Sabal minor, Jubaea chilensis, Butia capitata, Phoenix canariensis, Chamaerops humilis and Washingtonia filifera outdoors with some heating. The winter frost in Bulgaria is dry. Usually there is no need to use any protection, or else the results could be worse. The only protection I use for my palms is from the wind. I put hay or straw around the trunk and that is all. Of course the protection is not applied to Trachycarpus fortunei, but to any other palm. One-year seedlings could be used for planting outdoors, or even seeds, but when using 3 year or older plants, results will be much better and faster. We suppose that there is some genetic change, because 10% of the seedlings are not able to survive at very low temperatures (D.Kozarov, Ph.D. work in 1996). (Mr. Kozarov wrote in his Ph.D. work about Trachycarpus fortunei in Bulgaria that his palms have survived -29C (-20,2F), recorded at the palms location.) Also, different plants feel frost differently. Plants that are planted at the same age, on the same day, and in the same conditions are not developing equally.

I am so sure about palm hardiness, that last year I decided to create a hardy palm nursery. It's a kind of revolution for Bulgaria to grow palms in the open ground, but I'm growing all my palms outside after their second year of age. I grow the palms exactly like any other trees here. My nursery is located in the area of Plovdiv (4-5 km away from the city) in open field, with strong west winds and each year minimum temperatures of -20C (-4F). The absolute minimum temperature is -31,5C (-24,7F) recorded about 50 years ago. Average precipitation is 600 mm per year.

Two summers ago we had many strange things here. Many plants died at once with no reason. Other plants grew like crazy, like never before. There was a war in Kossovo, 500 km away from here. I read in newspapers that NATO used bombs containing uranium. I don't know if the bombs caused something (our government said nothing), but my Grandmother lost the tomatoes in her garden for first time in her life (75yrs.old). I just remember that the same happened when the nuclear reactor in Chernobyl exploded. But

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Musa basjoo, the famous Hardy Japanese Banana (article on next page) >

Musa basjoo

Angus White, Architectural Plants, Cook's Farm, Nuthurst, Sussex

A preposterous idea growing bananas outside in Britain? Bananas grow in the tropics - we're nearer the North Pole than the Equator. Ridiculous!

Well, yes, I must admit that of all the 'hardy' but exotic looking plants that one CAN grow at this latitude, the hardy banana stretches even my credibility more than any of the others. I agree, it is ridiculous. Every time I glance out of our office window at that great pile of paddle-shaped leaves, something seems to tell me, "no, it can't be true, they can't be bananas, not BANANAS. It's probably just some ghastly misunderstanding. Bananas grow in Colombia, Java, Fatu Hiva. Places like that. Not Sussex. Not English gardens."

Then the frost descends into this dreadful frost-pocket of ours in November and this wonderful (by now) mountain of monster leaves looks like a pile of boiled spinach. Then January comes, and February with severe ice and snow (last February we recorded -17°C) and by now there's nothing left, just bare earth, and it's so cold that if you were on a skiing holiday you'd probably decide to stay indoors and play 'racing demon,' and yes it was all a ghastly misunderstanding, and they'll never come back because they're totally dead, and you've been telling everyone that you can grow them outside and now you're really going to have egg on your face aren't you? You twit, you fool, you poltroon!

And then you forget about it. Best thing really - silly idea anyway. Hope nobody mentions it.

Then April comes and things start moving. Very busy in the nursery business, masses to do. Hardy bananas? Oh yes well of course they're not hardy everywhere - you don't happen to live well west of Penzance do you? They're quite good in conservatories actually.

And then someone says, "What are those great fleshy green things sticking out of the ground behind your office?" And you go off to have a look at some horrid new weed where your beloved bananas used to live.

YIKES!! They're back! Outrageous! They've done it again! I still can't believe it and yet, every year, without fail, those mad plants come - WHOOOMPH - up again.

The facts:

The plant under discussion is called MUSA BASJOO (formerly M. japonica). It's a native of the Ryukyu archipelago - a string of islands (part of Japan) between southern Japan and northern Taiwan, and has long been cultivated in Japan both as an ornamental and a provider of strong fibre. Botanically speaking it's not a tree, but a giant herb. It was first introduced into this country by Charles Maries in 1881.

We've already acknowledged the frost-tenderness of the above-ground parts of this plant but the Japanese have never stopped minor details like that from getting in the way of them growing what they like, where they like. Clearly Musa basjoo is cultivated as an ornamental even in the colder northern regions, and in order to preserve its size, the leaves are cut off following the first bad frost, and the stem (often 25/30cm in diameter at the base and 2.5m tall) is beautifully wrapped in rice straw to protect it during the winter.

The following spring the plant carries on, flowering, fruiting, and dying in the normal way as with any other banana. To answer the question that everyone asks: No, they are not edible, they're only 8 or 10cm long, but in conjunction with the flower itself, are an appropriately exotic-looking excrescence. The dead plant is, of course, replaced by one or more suckers from the base. In order to get Musa basjoo to reach flowering size, it must be protected if the winter is very cold, even in very mild areas (even in S.W. Cornwall they were flattened in February '91) and probably every winter in colder areas (ie. frost

pockets in Sussex). The resourceful exoticist will find a way; there's someone down the road in Horsham who (much to my astonishment and nothing to do with us) grows Musa basjoo and protects it every winter by slipping what looks like a grey 25cm plastic drainpipe over it. Very effective and much easier to get hold of than rice straw, though not a pretty sight. So far, here at Cooks Farm, we've never used any winter protection, BUT we do observe certain golden rules about positioning, and soil conditions.

Where & How

Number one priority is to grow it where it's very, very well protected from the wind in the summer. The winter will only matter if it retains its leaves, and that will only happen if the temperature doesn't drop below about -2°C. A combination of such mildness and lack of damaging wind will probably only happen during a mild winter in central London, or deep in a wood on the Atlantic Seaboard.

Next thing is to choose somewhere quite shady, as too much sun will cause the leaves to take on a slightly yellow look, whereas some shade will cause the leaves to be a lush, dark green. They also need to be hidden during the winter when they're rarely a pretty sight - behind something low and evergreen. A position so that you'll only see those wonderful big leaves sticking up from behind something when they're worth looking at - and not when they're not.

Next thing is to make sure they're going to grow at the fastest rate possible - the faster they grow, the bigger and better they'll look. As with all gross feeders (and these are definitely gross feeders) they need to go into very deep and very rich soil, given frequent top dressings of a high-nitrogen feed (we use 'blood, fish & bone') and have all competition from other plants kept to an absolute minimum. Oh, and plenty of water in summer.

Right little fuss-pots. The wind is the most important; they really look a terrible mess when ripped to pieces.

First encounters

The first encounter with a plant you didn't know existed is memorable.Very memorable. June 1985, Ventnor Botanic garden, Isle of Wight. A huge clump of something that looked absurdly like a banana plant, some trunks 4m or more high, some of which had great rude dangly things hanging off them and little fruits that looked like bananas. But this was England. Impossible.

Utterly intrigued by this sight, I soon scoured the botanical reference books to satisfy my curiosity. At the time, my main source of interesting plants was the plants sales area at Wisley. I approached the man in charge and taxed him on the subject of this implausible sounding 'hardy banana'. "Oh yes, there's a clump of them growing up behind the glass houses." He didn't sound too interested in them, and I thought I'd mis-heard him. "You mean growing IN the glasshouses?" I said. No, I hadn't mis-heard, there they were, a great mass of broken leaves, in a windy, southfacing narrow border by a glass house miles from anywhere, where no-one ever went. Been there for years, he said. Ten miles from Guildford. A great clump of bananas. Outrageous. And nobody cared. Except me.

Later, he kindly let me have a division. This eventually became our stock plant from which we now produce hundreds of babies in a laboratory, by micro-propogation. Bananas for the people.

Other places where well-established clumps of Musa basjoo can be seen: Trebah gardens, Mawnan Smith, near Falmouth in Cornwall, and Fox Rosehill Garden, a public garden in Falmouth. Undoubtedly there are masses of others. I've only mentioned the ones I've seen. On trips to northern Italy, I've seen them not infrequently in Venice and quite a long way north of there in the foothills of the Dolomites - also in an area of Tuscany not far from Florence. Both of these areas suffer from frequent severe frosts in winter but, it should also be remembered, hot summers, for rapid banana growth. Because these specimens have been observed from a car window, they are highly visible, and as with anything that's highly visible, they are also extremely exposed. Thus they often present a pretty forlorn aspect, their enormous leaves smashed to pieces by the

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Palm Archives

Jörg Schumann, Rathausplatz 2, 09247 Röhrsdorf, Germany

"Palm Archives" is a new feature of CHAMAEROPS. Starting in this issue, some palms and other exotics will be presented which are relatively unknown or unusual in cultivation. There is little information about these plants in palm literature, and we think they are worth a closer look. In the new CHAMAEROPS Palm Archives, cold hardy palms are included as well as tropical palms and plants from temperate zones.

Palm Archive No. 1 - Salacca zalacca

Never before have I seen a faster germinating and growing palm! Some years ago I bought tropical fruits in the supermarket. Among them were some mysterious fruits; they were a little bit smaller than an apple with snakelike skin. They were offered as "Maracujas." I know what a Maracuja looks like; this wasn't it. I was curious about what would happen if I planted them, as in a German palm book I saw a photo of these same fruits. According to the book, they should be Salacca edulis, but I wasn't sure. Inside the fruits were brownish seeds, about 2-3 cm, irregulary formed. After only three days the first seeds germinated, and four weeks later the first sprout appeared. After 6-8 weeks the first two-divided leaf was complete; now it was clear that this was Salacca zalacca, formerly known as Salacca edulis.

Salacca zalacca is widely grown in Southeast Asia, especially for its fruits. Salacca zalacca doesn't develop a stem, but the leaves can reach about 6m. Nearly all parts of the plants are very spiny, except the leaf surfaces. The sprouts look like a Calamus, and in truth both species are related. The leaves show a waxy, glossy surface and are light to dark green and silvery beneath. Even with the second leaf the plant can reach 30-40 cm, and the first mature leaves come soon. The flowers and the fruits develop directly over the ground. Salacca grows mostly in wet areas, so they prefer regular watering and higher humidity. Semi-shade to shade is best for growing these palms; protect them from full sun. Salacca also grows indoors, when given enough humidity.

Salacca zalacca belongs to Calamoidae, so there is a relation to Calamus, Raphia, Metroxylon, Plectocomia, Mauritia and others. Have a look at the seeds, and you will note this. Another characteristic feature are the spines, which we know from the Rattan palms like Calamus, Plectocomia and Daemonorrhops. In my opinion this palm is worth trying for indoor cultivation, as they are fast growing and adaptable to these conditions. For further information send me an e-mail at info@palms.de

Palm Archive No. 2 - Socratea exorrhiza

This palm is well known as the "stilt root palm," but there are many palms developing stilt roots, like Wettinia, Iriartea, Dictyocaryum, and many more. Socratea, however, develops the most impressive stilt roots; sometimes they are so high that you can walk through them! But these stilt roots are only one characteristic feature of the genus, which includes 5 different species. The name "Socratea" was taken from the Greek philosopher Socrates.

Socratea exorrhiza is the most widespread species; its habitat is from Nicaragua to nearly all parts of South America. This species grows up to 1000 m, but mostly on the lowlands. If anyone has seen this plant at maturity, you may understand my enthusiasm. There are the dark brown, spiny roots, and, much more impressive, the fantastic crown. The leaflets are arranged in different planes and also divided in segments, so the leaves look plumose.

Socratea exorrhiza is a single stemmed species and grows up to 20m, but mostly up to 12m. The ripe fruits are yellowish, round to ovoid, and about 3x2cm. They grow best in semi-shade to

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Lackner's Letters

Dear Chamaerops,

We have recently moved into our new house and we're just conjuring up a tropical paradise in the garden. As far as my palms are concerned, everything is fine. The Washingtonia robusta looks splendid, as does my „large" Jubaea (5 foot).

I purchased more than 30 bamboo plants in an Italian bamboo centre and planted two quite long hedges with these. I also bought the following species:

Phyllostachys viridiglaucescens
P. vivax aureocaulis
P. nuda localis
P. bisettii
P. aureosulcata aureocaulis
P. aureosulcata spectabilis.
A friend of mine will also give me some of his black bamboos (P.nigra).

All these types are exceedingly hardy and should not require any protection even during the most serious of winters.

Additionally I have planted some palms and other exotic plants already:

3 Trachycarpus takil (60 - 80 cm)
1 Trachycarpus wagnerianus (130 cm trunk, 200 - 220 cm total height)
1 Chamaerops humilis var. cerifera (50 - 60 cm)
2 Butia capitata (150-160 cm, very stiff and tough leaves and a thick base)
2 Camellia japonica
2 Viburnum tinus.

In the next few weeks they will be followed by Albizzia julibrissin „rosea" (170 cm), Musa basjoo, and various Yuccas (Y.baccata, Y.gloriosa, Y.gloriosa >Variegata<). Can Albizzia be planted close to a house, or do they have strong roots which could cause havoc at the cellar ?

I'm still thinking of planting out my large Sabal minor (150 cm) and Nannorrhops ritchiana (green form, 100 cm height, with one side-shoot already). Although the green Nanny should be hardy enough, it is the only one of this size I have and that's why I still hesitate.

Nannorrhops „arabica":

My Nannorrhops „arabica" are still exceedingly blue-white and my largest plant is already 30-40 cm in height with 3 divided fans. I think it will become much larger this year. They are growing really fast with heat. By means of email I got in contact with someone from southern Austria who has visited this area where Nannorrhops arabica grows (he said it is called East-Hormozgan-Highland). His wife is from Iran and he made some scientific tests in this area and therefore he needed exact weather data, which he passed to me. Allegedly the AVERAGE LOW where these Nannies grow is -22°C (!!!!!!!), whereas the average high is +43°C. If you're interested in more detailed data, this is what he wrote to me (translated from German):

Town: Zahedan
elev: 1373 m
average day temp: 26,5°C (year)
average night temp: 9,6°C (year)
average absolute min: -22,0°C
average absolute max: 43,0°C
mean annual temp: 18,1°C
prec:: 83 mm
days with frost frost: 56.

He wrote that in this area a wind from Afghanistan -Pamir occurs, which they call the „cow-killing-wind". It occurs nearly every year in winter and with it the temperatures fall rapidly from 0°C below -20°C. And with strong wind this can last up to 3 days. The cooling is so enormous that a large lake (Hamoun) receives an ice-cover up to 10 cm thick. He also said that in this area Nannies (called Daz-palm by locals) with blue colour grow which have a height up to 2 meters. I have no idea where this area is. I do not have a map from Iran where I can see these details. But I'm sure you can tell me whether these statistics are true. Are they ?

Robert Lackner

Dear Robert,

Zahedan is in the south-east of Iran close to the border with Pakistan. Nannorrhops does indeed grow in this area but the information you got on the temperatures there sounds just a little too good to be true. I have precise climatic data from a town called Seistan just north of Zahedan at 610m a.s.l.:

average annual maximum: 28,3°C
average annual minimum: 13,3°C
absolute minimum: -11,1°C
absolute maximum: 48,3°C
mean annual temp: 20,8°C
precipitation: 80 mm

As you can see the data are very similar, the slightly higher temperatures at Seistan resulting from its lower elevation, but the absolute minima differ vastly (it must be the absolute minimum, not average absolute minimum as you say, as that would be even more unbelievable). This leads me to believe that the absolute minimum at Zahedan (the lowest temperature ever recorded there) is no lower than about -16°C. Not bad either, really. However, please also take into account that the cold spells there only last for a few days, that the climate is VERY dry and that the average maximum in January there is about 10°C in the shade, at least twice that in the sun where Nannorrhops grow, so on a regular day plants can warm up considerably during the day. This is a very different climate from ours in Europe and plants will have to be tried outside here before one can say how much of our winter weather they are able to survive. TS

Dear Chamaerops,

Thanks for your answer. These data sound quite reasonable if you take the latitude of this place into account. And the average low was certainly a misinterprtation of mine, because the -22°C were marked as T min and not as „Æ T min". The reason why I interpreted it wrong was because Bernhard wrote „It occurs almost yearly in winter, that the temperatures drop quickly from around 0°C to below -20°C" and „These temperatures occur regularily". Because of the word "yearly" I considered the T min to be the average absolute minimum and not the absolute minimum. So this is EXACTLY how I received the climatic data:

Town: Zahedan
elev.: 1373
Æ day T: 26,5
Æ night T: 9,6
T min: -22,0
T max: 43,0
Æ year T: 18,1
prec.: 83
frost x: 56

But what sounds a bit strange is that Bernhard wrote: „The cooling is so enormous that a large lake (Hamoun) receives an ice-covers up to 10 cm thick." That doesn't sound like it's warming up during the day too much, but I don't know where he has the data from. The dangerous thing about weather statistics is that they can easily be misinterpreted if not studied carefully. Just take the „average annual maximum" you wrote. I know that it means the average day temp, but it could also be interpreted as the average maximum over a number of years. But that wouldn't correspond with the other data, especially the mean annual temp. Anyway, Nannorrhops ritchiana and the „Iran"-form are interesting palms. And even if the Iran-Nanny is not fully hardy it is certainly the palm with the most beautiful colouring I have, because its blue-white is even more intese than that of Brahea armata.

Best wishes, Robert Lackner

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wind. So it's interesting to know that they survive (indeed, grow up to 5m very often) in these cold districts, but they also serve as a reminder that they're only worth growing if they're extremely well protected from damaging wind. In winter they look even worse with their dead, frosted brown leaves hanging down by the stems - possibly affording protection to the trunk itself.

Further proof, I hope, that it's worth observing some of the suggestions made earlier for successful Musa basjoo cultivation.