

Newsletter 32

| March 2016 |

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Welcome note

Welcome to the 32nd issue of our Newsletter where we present our associates in Nigeria and our Purchasing Manager.

We also have a feature article on Green Monday.

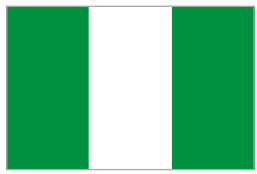
In our Environmental Issues we report on the problem of nitrogen dioxide (NO₂) pollution and the utilisation of solar thermal energy. In the ABC of Pharmacy we have the second part of our article on "Medicinal Dosage Forms".

In Corporate Social Responsibility we have our donations to various Food Banks and to the Pattihis Senior Citizens' Centre, our financial aid to the Karaiskakio Foundation, our voluntary blood donation and the donation of pharmaceuticals to social clinics.

In Remedica News our main focus is the presentation to Remedica of the Cyprus Export Award for the 8th time, and we also report on the retirement of two colleagues, our participation in medical conferences, our fight against counterfeit pharmaceuticals and the presentation of two lectures at the Cyprus University of Technology by the Head of our Drug Safety department. ■

Charalambos Pattihis
 Group CEO

Remedica Worldwide: DONY TRIUMPH NIGERIA LTD, Nigeria



The Federal Republic of Nigeria, commonly referred to as Nigeria, is a federal constitutional republic in West Africa, bordering

Benin in the west, Chad and Cameroon in the east, and Niger in the north. Its southern coast lies on the Gulf of Guinea in the Atlantic Ocean. It comprises 36 states and the Federal Capital Territory, where the capital, Abuja is located. Nigeria is officially a democratic secular country. It is classified as a mixed economy emerging market, and has already reached lower middle income status according to the World Bank, with its abundant supply of natural resources, well-developed financial, legal, communications, transport sectors and stock exchange (the Nigerian Stock Exchange), which is the second largest in Africa. Nigeria was ranked 30th in the world in terms of GDP (PPP) in 2012.

Dony Triumph is committed to the distribution of quality and innovative pharmaceutical products and services to all parts of Nigeria and West-African sub region. The company introduced Remedica products into the Nigerian market in 1998 with a consignment of Spirolon® 25mg tablets. Afterwards, the company expanded into Antibiotics, Antidiabetics and Cardiovasculars.

Prior to the era of the strict drug regulation policy by the Nigeria government, Dony Triumph, with the assistance of Remedica, commenced the registration of Spirolon®, Clarem®, Metformin®, Acetazolamide and Epistron® with NAFDAC in Nigeria. Completion of this process redefined the operations of the organisation, whereby technocrats and professionals in the medical field were engaged to harmonise the activities of the whole company. Currently, Dony Triumph has fifty employees of which a substantial proportion work in the marketing department.

In its quest for excellence in the ever-saturated, challenging and competitive Nigerian pharmaceutical market, Dony Triumph adopted the FORCE strategy (Focus, Optimism, Responsiveness, Customer Oriented and Empathy), aggressive marketing as well as a keen interest and proper evaluation of competitor's activities with the view of turning perceived threats into opportunities.

The company, in its bid to acquire fair share of the market, embarked on further registration of Remedica products and currently has a range of more than 30 products on the market. These products account for Dony's market dominance and geographical spread as the company is present in all 36 states plus the federal capital territory, Abuja. Remedica products are available and well-known in State and Federal medical Institutions throughout all of Nigeria.

Dony Triumph has successfully carved a niche for itself by prioritising ethical practices and the provision of Remedica's high quality products, which has earned it the name of "Apostle of Hope" by medical practitioners in Nigeria's health sector. The company's pro-active strategies and leverage on the synergies with Remedica are instrumental in the realisation of its fundamental goal of becoming one of the most reputable providers of quality healthcare products in Nigeria. ■



The ABC of Pharmacy:

Medicinal Dosage Forms – Part Two

In the previous edition of the Remedica Newsletter a brief overview was presented of the various types of dosage form that can be used to deliver a drug so that it can exert its intended action. In this article, some of those dosage forms will be described in more detail in order to give some insight on how they are designed and achieve their goals.

Oral Liquids

These can either be simple or complex solutions or suspensions of solid particles or dispersions of oil droplets, in which case they are referred to as emulsions (those that look like milk). The most common vehicle is water but mixtures of other solvents can be used, for example alcohol is often added to water to enhance the solubility of poorly soluble substances. A number of excipients (see Remedica Newsletter No 14) can be added to the formulation in order to improve the quality, stability and palatability of the product. Such things include buffering, wetting and antimicrobial agents and other ingredients like colouring, sweetening and flavouring agents. When presented as suspensions it is often the case that the particles will settle on standing but these should disperse readily with gentle shaking. Similarly, an emulsion which might show signs of creaming should be equally, easily capable of being homogenised by the patient prior to administration. These products are normally packed in multi-dose containers and individual doses are measured with a graduated plastic spoon or cup which must be supplied in the final packaging. A liquid medicine is almost always supplied in a glass bottle which in itself provides a challenge since they are fragile and have to be packed accordingly for shipping and their weight contributes to the distribution costs. Because the drug is in solution and is more likely to degrade, it has to be formulated in such a way as to maintain its stability. It is because of this potential problem that some medicines (especially antibiotics) are formulated as dry powders to which water is added by the pharmacist immediately prior to dispensing. The prime advantage of all oral liquid products is that because the drug is in solution when it is swallowed, then it is in the ideal form to be quickly absorbed



from the stomach. One disadvantage is that if the active ingredient has a bitter taste then it will be very noticeable to the patient and this has to be counteracted by the addition of an appropriate flavouring agent.

Eye Drops

Medicines that are intended for administration to the eye to treat local conditions, such as inflammation or infection, as well as more chronic conditions such as glaucoma can either be aqueous or oily solutions, or suspensions. The main difference from oral liquids is that they have to be sterile and the excipients used must always be kept to the minimum and should be selected from those known to be tolerated by the eyes, which are very sensitive in respect. Those commonly used are agents that alter the viscosity which has implications for dosing through its effect on drop size and pH adjusters which may affect both the solubility of the drug and the stability of the product. If at all possible, it is advisable to add excipients which render the solution isotonic with blood plasma as this will also enhance tolerability.



Eye drops can be packaged in single or multi-dose containers but, if it is the latter, then it is essential that a preservative (anti-microbial agent) is included in the formulation. The function of the preservative is to maintain the sterility of the solution throughout the in-use lifetime of the product which is conventionally limited to 7 days after opening. In addition, the patient needs to be counselled in the safe use of the product particularly when the delivery system is the traditional glass bottle equipped with a dropper. The selection of the correct preservative is essential as it needs to be compatible with the other excipients as well as being well tolerated by the eye: some preservatives have been precluded from use in eye drops. When single dose containers are used there is no need to include a preservative and preservative-free multi-dose containers have recently been introduced although they have not been universally accepted.

The self-administration of eye drops is one of the most difficult procedures that patients are expected to be able to do. It requires considerable dexterity to get a drop into the eye particularly when it is considerably larger than the volume that the eye can accommodate (50 μ l as opposed to 10 μ l). This results in much of the dose running down the cheeks and consequently being wasted. Since the eye has a very efficient mechanism for the removal of any foreign bodies, then effective treatment may require dosing as frequently as every 3 - 4 hours. These two factors present an

insurmountable problem for the elderly who, paradoxically, are those who are more likely to need to use eye drops: the aid of a partner or carer is the obvious but not always available solution to the problem.

Suspension of the drug as particles in the liquid vehicle is claimed to be a means of prolonging residence in the eye although evidence for this activity is by no means convincing.

Nasal and Ear Drops

The principles relating to the formulation of nose and ear drops are essentially similar to those for eye drops. The main difference is that they do not need to be sterile and only those packaged in multi-dose containers need to include an effective anti-microbial agent. However, ear drops that are used prior to surgery or when the ear is damaged, must be sterile and presented in unit dose containers.

Parenteral Solutions

As before, liquids which are intended to be administered by injection or infusion into the body are formulated using the basic principles described above but in this case they must be sterile and be packed in containers which are transparent so that the presence of any particles may be detected by the naked eye. These containers may be made from glass or plastic and usually take the form of bottles which must be sealed sufficiently well to prevent the ingress of microbial organisms. For multi-dose formulations, the seal must be made from a material that will allow the insertion and withdrawal of a hypodermic needle without compromising its integrity and thus permit the contents to be contaminated in any way. For single dose preparations it has become common practice to use prefilled syringes where the needle, if desired, can be an integral part of the device.

Solutions for parenteral use have to be prepared in facilities which have been specially designed so as to ensure that the end product is sterile: this may include a terminal sterilisation process or they can be prepared aseptically. The water used to prepare parenteral solutions must be sterile and the permitted level of pyrogens (substances which are derived from the breakdown of biological organisms or cells and which induce a rise in body temperature) is very strictly limited. Although preservatives may be included in the formulation of multi-dose injections, their use in single dose preparations is restricted to those which cannot be terminally sterilised and where the volume is less than 15 ml. Preservatives are prohibited in any injection which may come into contact with the cerebrospinal fluid such as sub-arachnoid and epidural injections. Finally all parenteral products should be isotonic with blood plasma unless this is unfeasible because the introduction of a non-isotonic injection into the blood stream can have fatal consequences. ■



www.lethow.com



www.netdoctor.co.uk

Remedica People

In this issue we present our Purchasing Manager, Mr. Ioannis Mitsingas.



After completing his Bachelor and Master's degrees in Civil and Environmental Engineering at UCL, he started his career in one of Europe's largest engineering consultancy firms, called Atkins. Later he returned to Cyprus where he worked for 8 years in Cybarco, a well-known construction and real estate development company where he started as a civil engineer and after one year was promoted to the position of Purchasing Manager.

While working, he attended classes at the Imperial University and obtained a Master of Business Administration (MBA) with specialisation in Investment Management and Risk and graduated with honors (Distinction).

In 2015 he applied to and was employed by Remedica as a Purchasing Manager. During his career he has attended various conferences in addition to exhibitions in Dubai, Shanghai, Paris, Madrid, Milan and London amongst other cities through which he has kept up to date with regards to the latest trends in materials and suppliers. ■



www.autoblog.gr

Environmental Issues:

Nitrogen dioxide (NO₂) pollution

According to the US Environmental Protection Agency, nitrogen dioxide (NO₂) belongs to a group of highly reactive gases called nitrogen oxides (NO_x). NO₂ is a highly reactive brownish gas with a distinctive suffocating odour. Although NO₂ occurs naturally in the atmosphere where it is produced by plants, soil and water yet, as Australia's Department of Environment suggests, only 1% of the total amount of NO₂ occurring in cities comes from nature.

According to the European Environment Agency the dominant source of NO_x is the combustion of fossil fuels, used for electricity production or for transport purposes. The emission of NO_x in the atmosphere contributes to the phenomenon of acid deposition (also known as acid rain) where rain droplets become more acidic than clean water, and oxidise materials with which they come into contact. As *Wright* and *Nebel* describe, acid deposition forms mainly due to the formation of nitric acid in the atmosphere, as a product of the reaction of NO_x with hydroxyl radicals occurring in the troposphere. Following this, nitric acid dissolves in water droplets, changing their acidity. Consequently these acid droplets fall onto the earth in the form of rain causing damage to buildings and the natural environment especially in the case of ancient monuments and preserved buildings.

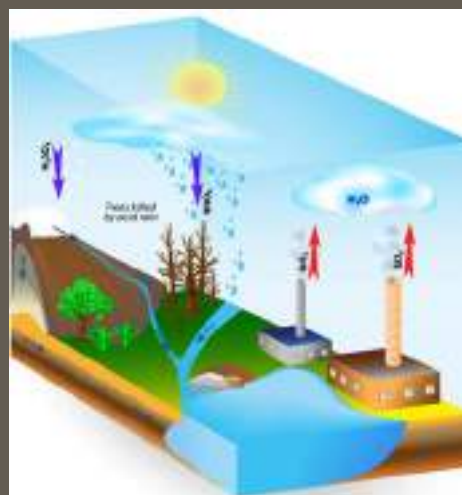
Acid deposition also contributes to the impairment of the health of ecosystems via eutrophication, where the presence of nitrates in high concentrations favours the differential growth of algae in water bodies like rivers and lakes. This ecosystem imbalance leads to the suffocation of other living organisms present in the water body, all oxygen required to sustain animals is consumed by the high number of algae.

In addition, the European Environment Agency warns that NO₂ pollution impacts directly on human health as it can cause inflammation of the respiratory system. Moreover NO₂ pollution is a precursor of secondary hazardous particulates and tropospheric ozone which are toxic to human health and the environment.

The European Union has implemented a number of Directives and policies in order to tackle NO_x emissions. According to the European Environment Agency, NO_x emissions from diesel vehicles have been regulated since the early 1990s and have led to improvements in the quality of petrol and diesel fuels. Other notable Directives include the Large Combustion Plant Directive which sets restrictions on NO_x, SO₂ and dust from combustion plants having a thermal capacity equal to or greater than 50 MW, and the Directive on Integrated Pollution Prevention and Control which aims to prevent or minimise pollution to air, water or land from various industrial sources.

In addition, EU aims to further reduce NO_x pollution by implementing the EU National Emission Ceilings Directive, which sets strict targets for reductions in NO_x emissions which must be achieved by 2020. For example, Cyprus which emitted 23 kilotons of NO_x in 2010, is now obliged to cut these by almost a half to 12 kilotons by 2020.

Although the EU has taken ambitious legislative measures to tackle NO₂ pollution, yet further actions are required on a global scale in order to overcome this crucial environmental issue. ■



Utilisation of solar thermal energy in industry: the paradigm of Remedica

As the Euro observer's report for Cyprus (2015) suggests, solar thermal energy remains the most important renewable energy contribution to local energy balance. This is mainly achieved via solar water heaters, which provided 3% of the EU-27 solar thermal energy consumption in 2012's figures. This figure is equivalent to 63 ktoe which means that 63 thousand tons of oil have been conserved since the switch was made to the use of solar power.

Nevertheless, Remedica has gone one step further by utilising solar power to produce heat required for industrial purposes and thus further reducing the combustion of fossil fuels. This is achieved through the installation of a system of solar panels, which collect and transfer heat energy required for hot water production which is essential for the operation of Heating, Ventilating and Air Conditioning (HVAC) systems. Consequently hot water is produced with the minimum use of fossil fuels, thereby drastically reducing the environmental impact of this process.

In detail, solar radiation is absorbed by two hundred solar panels through which water pipelines run. Therefore the heat absorbed by the panels is transferred to the water running through the pipes essentially acting like a heat exchanger. Heated water is then fed into solar buffer storage tanks until it is then transferred to the HVAC systems where the heated water is used to control the humidity within production process areas. As a result, only a minimal amount of fuel is required for the HVAC humidity control process, in comparison to a conventional hot water generator.

Conservative estimations suggest that the two hundred installed panels exposed to Limassol's average daily solar radiation, can be expected to produce energy equivalent to approximately 470,000 KWh per annum. If this energy were to be produced by conventional fuel, then approximate 48,500 litres of diesel would have been burnt resulting in the emission of approximately 130,000 metric kilograms of carbon dioxide per annum.



Consequently, not only has a significant reduction in fossil fuel consumption been achieved as a result of the utilisation of solar energy, but also the emission of hazardous air pollutants such as sulphur dioxide, carbon monoxide and diesel particulate matter has also been avoided and makes a contribution to the reduction of local air pollution.

Furthermore, it also assists in meeting the national goals set out for the reduction of energy dependency on fossil fuels and the further use of renewable sources of energy as described by the Renewable Energy Roadmap for the Republic of Cyprus (2015).

In conclusion, the adoption of solar energy for industrial processes by Remedica illustrates that sustainable initiatives taken by private organisations could play a vital role in tackling both global and local environmental issues such as climate change and air pollution. What's more, Remedica has paved the way for other organisations to act as responsibly and help towards the achievement of a common sustainable future. ■



Corporate Social Responsibility: Remedica Cares

1) Donations to Food Banks. (photo 1)

As in previous years, Remedica, instead of holding a staff party, has donated money to worthwhile social causes including Food Banks on the Island. Specifically, monetary contributions were made to the Food Banks of the Archbishopric (in Nicosia), the Municipalities of Pafos, Larnaka and Limassol, the Bishopric of Konstandia and Free Famagusta, and the Cyprus Red Cross.

2) Donation to the Pattihis Senior Citizens' Centre.

Like other years, Remedica has sponsored this Centre which is unique in its kind in Cyprus and for many years has made a valuable contribution to senior citizens of Limassol. Its main aim is to provide entertainment and a variety of other services to its members in order that they may be helped to become more active citizens.

3) Financial aid to the Karaiskakio Foundation. (photo 2)

In the context of its social responsibility, Remedica provided financial aid to the Karaiskakio Foundation with a donation of € 2,000 at the annual charity dinner held at the Presidential Palace, under the auspices of the President of the Cyprus Republic, Mr. Nicos Anastasiades. The Karaiskakio Foundation is a charitable, non-profit organisation established for the purpose of running a bone marrow Donor Bank to offer hope for life in our fellow human beings.

4) Voluntary blood donation. (photo 3)

With the slogan "Be a Hero, Give Blood" Remedica organised a voluntary blood donation session in which more than 85 employees participated. The purpose of the blood donation was to boost the Limassol General Hospital Blood Bank. In addition, 66 volunteers gave a sample to the Bone Marrow Bank of the Karaiskakio Foundation. Within the framework of social contribution, Remedica organises blood donations twice a year donation.

5) Donation to social clinics. (photo 4)

Having social solidarity in mind and caring about human health, Remedica donated pharmaceuticals to social clinics to help to fulfil the needs of poor and destitute patients. Social clinics such as those of the Cyprus Volunteer Doctors, of the Larnaca municipality and others, provide free services mainly to unemployed and citizens on low incomes and vulnerable groups of people who find themselves in difficult financial situations. ■



Pattihis Family Scholarship

for the academic year
2016/17

for the MSc Management degree in the department of
Management Science and Innovation at
University College London (UCL).



 **Remedica**

Remedica News



1) Remedica wins the Cyprus Export Award for the 8th time. (photo 1)

On 26th February 2016 the official ceremony for the presentation of the Cyprus Export Award 2014 took place; this is the 8th time that Remedica has won this award. The President of the Republic Mr. Nicos Anastasiades congratulated the winners stating that "Export Awards gain, in my view, even more importance, marking the beginning of a new development course for Cyprus, at a turning point in our efforts to revive the economy and modernisation of our State emphasising the importance of Cyprus as a well-established regional business centre". The award was received by our Chief Executive Officer Mr. Charalambos Pattihis from the President of the Cyprus Republic. In addition to the President of the Republic, present at the ceremony were the Minister of Energy, Commerce, Industry and Tourism, Yiorgos Lakkotrypis, The Health Minister, Mr. George Pamborides, the President of the Cyprus Chamber of Commerce and Industry, Phedias Pilides, the President of the Export Award selection Committee, Mr. Panayiotis Loizidis, Members of Parliament, Ambassadors and numerous business people. Following the ceremony, the Award winners were invited by the President to an official lunch.



2) Retirement of colleagues. (photo 2, 3)

Urania Zorpidou and Elpida Orfanidou, two colleagues from the Packing Department, retired recently after more than 2 decades of service with Remedica. Both expressed their gratitude towards Remedica's Management and stated that they have been very happy with their employment all these years. Finally, they wished the company and their colleagues even greater accomplishments and success.



3) Medical Conferences.

Remedica's local sales team attended 6 conferences where participants (doctors and other health care professionals) had the opportunity to be briefed on both new and existing Remedica products.

4) Remedica fights counterfeit pharmaceuticals. (photo 4)

Remedica hosted a working group meeting with all stakeholders organised by the Cyprus Association of Pharmaceutical Manufacturers, with the aim of discussing the provisions and consequences of the



new legislation on anti-counterfeiting (Directive 211/62/EU) and to decide on the way forward. Present were representatives from the Pharmaceutical services of the Cyprus Ministry of Health, the Cyprus Association of Pharmaceutical Manufacturers (CYPHAMA), the Pharmaceutical and Chemical Industries Association (PharChem), the Cyprus Association of Pharmaceutical Companies (SFEK), the Cyprus Association of Research and Development Pharmaceutical Companies (KEFEA), the Cyprus Pharmacists Association and the Pharmaceutical Wholesalers (Pharmalink, Mefal, KEDIFAP, Marathon). The meeting was heralded as a success and made a good start to what promises to be a long and difficult way ahead but everyone agreed that the cultivation of a "pharmaceutical culture" is of paramount importance and this encompasses measures to ensure the protection of patients from counterfeit/falsified medicinal products. It is estimated that every year 10% of the medicinal products that they find their way to the worldwide market are counterfeit/falsified with a total cost of \$80 billion.

5) Cyprus University of Technology: Lectures by Remedica. (photo 5)

As part of the collaboration between Remedica and the Cyprus University of Technology (CUT), on 22/02/2016 and 29/02/2016 two lectures were presented by the Head of our Drug Safety Department/QPPV (Mr. Andreas Vasiliou) to the students of the postgraduate programme 'Advanced Oncology Nursing'. The issues discussed were pharmacovigilance and the contribution of health professionals to patient safety, as well as the serious problem of falsified medicinal products. ■



Feature article: ASH (GREEN) MONDAY

Ash Monday (or Clean / Green Monday) is the first day of the Orthodox Christian Great Lent and at the same time this day is also the end of Carnival. It was given this name by the Christians since it is considered to be a day of "cleansing" since Christians were considered to be "cleaned up" both spiritually and physically. It is therefore a day of fasting as well as being a public holiday for Christians. The fast lasts for 40 days, the same as the duration of the period of Jesus Christ fasted in the desert. Ash Monday is celebrated 48 days before Easter Sunday.

On Ash Monday we usually eat our favorite "lagana" (unleavened bread that is made especially for this day) and refers to the "unleavened" of the Old Testament. All the foods eaten on this day are "clean" and from this derives the phrase used in Cyprus "we will cut the nose of the Lent" (literal translation of the phrase "tha kopsoume tin moutti tis Sarakostis", "θα κόψουμε την μούττη της Σαρακοστής"). Examples of what is eaten on this day are every vegetable we can think of, casseroled food of every sort, molluscs and many delicious appetizers.

According to the annalist Christakis Savvides, the tradition of Ash Monday or, as has been mentioned above, "the cut of the nose of Lent", is one of the most beautiful of our country, the roots of which are based in ancient mythology. This tradition has two aspects; the first is the expression of love towards nature which with its growth it becomes all "dressed-up" and people enjoy every single part of it as much as they can. The second is the Christian one, where the Church calls upon believers to prepare their bodies and souls through spiritual cleansing by attending the masses of Great Lent in preparation for the acceptance of the Holy Week of Jesus Christ's Sufferings

and His glorious Resurrection. Just as the Ancient Greeks celebrated the coming of spring, which coincides with the beginning of March and the return of Persephone, Demetra's daughter and the goddess of agriculture, from Hades (the underworld) to Earth, with dancing and singing, nowadays our nation celebrates Ash Monday in the same way. On this day, we forget about all those things that make us sad and worried and enjoy nature in all its burgeoning glory, the singing of the birds, and the smell of fresh air. We also thank our Creator for everything he has given us and for his generosity and love.

Ash Monday is mainly celebrated with excursions up to the woods and forests. The camping sites in the highlands of the Troodos mountains, become crowded on that day and people dance and sing all day long whilst eating food that specially prepared in order to continue the traditions of Ash Monday. It is also of interest that the tradition of celebrating Ash Monday in the woods is also called Koulouma (=Κούλουμα). The word either gets its meaning from the Latin columna (column) or cumulus (peak) or the Albanian kolum (clean).

Many villages and small communities put on events, as well as traditional Ash Monday games and competitions and singing. As the weather is usually good at this time of the year, many people take the opportunity to pass their day by the beach in order to practice what has become the traditional Ash Monday pastime of kite flying. The result is a beautiful feast of colours and patterns which seem to rise right up into the sky. It is a tradition that can be practiced by Cypriots of all ages and enables them to escape all the worries of the world and celebrate the coming of Spring with its beautiful weather. It is rumoured that the

kite was invented in the East where the art of manufacturing kites has been perfected to the point that they could create "flying" dragons, birds, fish, and animals. They decorated them with wishes and desires, and sent them high into the air with an eagle so that they would be as close as possible to God. However, in Cyprus, the children manufacture their kites from simple materials such as paper, reed or string and newspapers as well as anything left of the carnival ribbons.

It is worth noting that the kite has different names in the various countries of the World and these are based upon the culture and the beliefs of the people that fly it. For example, in English, the word kite is the name of a beautiful bird of prey which can hover in the air. In Japan, the word tako means "octopus" and apparently, the reason that it resembles an octopus and because it needs the assistance of many strings in order to manipulate its complicated shape. In German, the word drachen means "dragon" which is considered to be a name that was adopted in the years when German kites took the form of wild animals that blew fire out of their mouths.

So, let's take the opportunity and with a positive frame of mind, a clean spirit and body accompanied by a big smile, run up to the mountains to enjoy this day far away from anything that causes stress and worry. Wishing a good Great Lent to all of you! ■

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