



A Media TRANSASIA publication



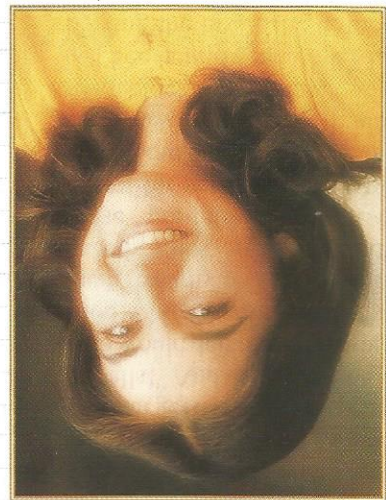
# SWAGAT

APRIL 2002

Rajin

## THE PEAK SEASON

Stunning new vistas leap into focus as former ambassador **Deb Mukharji** trains his camera on the Supreme Subject—the Himalayas



# A STRAND OF LIFE

Ahimsa silk is produced without killing silkworms

**M**ost people quickly tire of hearing about cruelty, especially when it is related to products they use and enjoy. This is why it is important to explain that a cruelty-free lifestyle is not about doing without but about intelligent substitution. For every animal-derived product, there are emerging non-violent alternatives. And given a choice, I would like to believe that most sensible people would opt for products untainted by suffering and death.

Many people who object to wearing leather because it is made by killing and skinning animals, don't think twice about wearing silk. Even religious people who would faint at the sight of meat being offered to God, don't consider the offering or wearing of silk as violent.

Few people know that silkworms wrap themselves up in cocoons made of layers of thread to protect themselves from predators while they mature into butterfly babies and moths. It is this butterfly that is boiled or steamed alive in its cocoon and its thread used for silk. It takes the life of 15 silkworms to produce 1 gram of woven silk. To produce 100 grams of pure silk approximately 1,500 chrysalis have to die. One sari uses up to 50,000 dead creatures.

India has 700 silk producing centres spread over 17 states. The total production in 1994-95 was 13,879 tonnes. Calculate that in terms of butterfly lives.

Those of who revel in the rustle, colour, shimmer and splendour of silk should know how it is produced. Here is the life cycle of the little creature sacrificed for each strand.

It begins with the mating of full-grown sexually active moths. After mating, the live male moths are caught, dumped into a basket and thrown outside silk manufacturing centres. The waste pupae are used as animal feed.

The eggs hatch in four to five days to produce tiny larvae which feed on mulberry leaves. The little larvae gently grow into caterpillars in about a month's time. The fully-grown caterpillar wraps itself in layers of a filament made of saliva emitted from its mouth to form a cocoon to protect itself during its transition from caterpillar to chrysalis to moth. But far from protecting the tiny creature, it is this cocoon that causes its death. For man has discovered that this protein shell is actually made up of fine silk threads.

To emerge it has to cut through the cocoon, ruining the filament. This is prevented in the most savage manner. When the cocoon is ready and the pupa is fully grown inside it and just seven days away from the final metamorphosis into a beautiful butterfly, the gruesome process of silk extraction begins. The cocoons are collected and put inside heat chambers to stifle the pupa inside under temperatures ranging from 70 to 90 degrees celsius for 3 to 4 hours.

During this time, the pupa slowly suffocates, crumples and roasts to death. Its dying screams are muffled in the sheath it had so diligently built for its own protection, its cocoon



**Those who revel in the rustle and splendour of silk should know how it is produced.**

During this time, the pupa slowly suffocates, crumples and roasts to death. Its dying screams are muffled in the sheath it had so diligently built for its own protection, its cocoon

turned into its own death shroud.

After this tortuous process, the cocoons are further boiled with the dead pupa—still inside—to extract the silk thread. Nor is this the only cruelty involved. Only half of the moths reared in silk centres are silk producing.

The others are pupae which are allowed to grow into moths, which are used to produce the eggs. In an obsession to obtain finer silk, the wings of these moths are cut off during copulation to prevent contact and contamination. After they lay eggs, these too are killed since

microscope. Silk oil and silk powder made of dead silkmoths are used by the cosmetic industry in products for moisturising and conditioning the skin and hair, in hair styling mousse, in some face powders and eye shadows, and even in some soaps.

Nor is it just cruelty that is involved here. The massive wiping out of these tiny insects adversely affects the ecological balance. Butterflies pollinate many tubular flowers, orchids, for example, cannot grow without them. They devour plant pests like aphids and destroy weeds. In Australia, for example, the

I myself would not want to be part of this torture and haven't worn silk for almost 20 years now. However, I realise that asking people to give up silk is difficult since society has made it into such a status symbol that it is worn for occasions even when the temperature is above 30 degrees celsius. So I have looked around for an alternative. There is a kind of silk known as Eri silk which is being produced in Assam. Its production process does not involve murdering helpless creatures.

**N**ow I am happy to introduce something called Ahimsa silk which is being made and marketed by Shri Kusuma Rajaiah (contact address given below). A senior technical assistant with APCO, Rajaiah became interested in the concept when on subsequent occasions, Janaki Venkataraman and then Amala Akkineni came to APCO looking for cruelty-free silk.

Ahimsa silk uses cocoons through which the worm has pierced and escaped. Rajaiah procures these cocoons from Pulamaneru in Chittoor district and the silk is woven in Chandigarh. The process is certainly more laborious and requires many more cocoons than regular silk. As a result, Ahimsa silk is slightly more expensive than other silk. However in no other way does it look or feel different. And for those who understand the value of life, money is but a small price to pay. Ahimsa saris, angavastrams and silk are available from Design Weaves, H.No 2-2-1105/5/37/E, II Floor, Tilaknagar (Nallakunta), (Opp Lane of Tilaknagar Hospital), Hyderabad-500044, Tel:7552112.

*The author is the chairperson of People for Animals. For information, contact: 14, Ashoka Road, New Delhi-1100011. Ph: 3355883; Fax: 3354321.*



Asking people to give up silk is difficult, finding alternatives is the solution

they can produce only once in their lifetime.

The method of identifying and isolating diseased moths is equally crude—it consists of cutting off the moth's tail to examine it under a

cactus moth has been used to clear 60 million acres of prickly pear cactus for farming. Moths are in turn eaten by lizards, spiders, bats and monkeys. So every yard of silk has wrapped up in it the lives of all these creatures.

Boris Becker On The Many Aces Up His Sleeve

SEPTEMBER 2002

RS. 40

A MAGNA PUBLICATION

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# Society

**Suchitra Krishnamurthy**

Denies Rumours

Of A Split

With **Shekhar Kapoor**

**Shattered Dreams:**

**Farrukh Dhondy**

On Why He's At War

With **Sir Andrew**

**Llyod Webber**

**Conflicting Interests:**

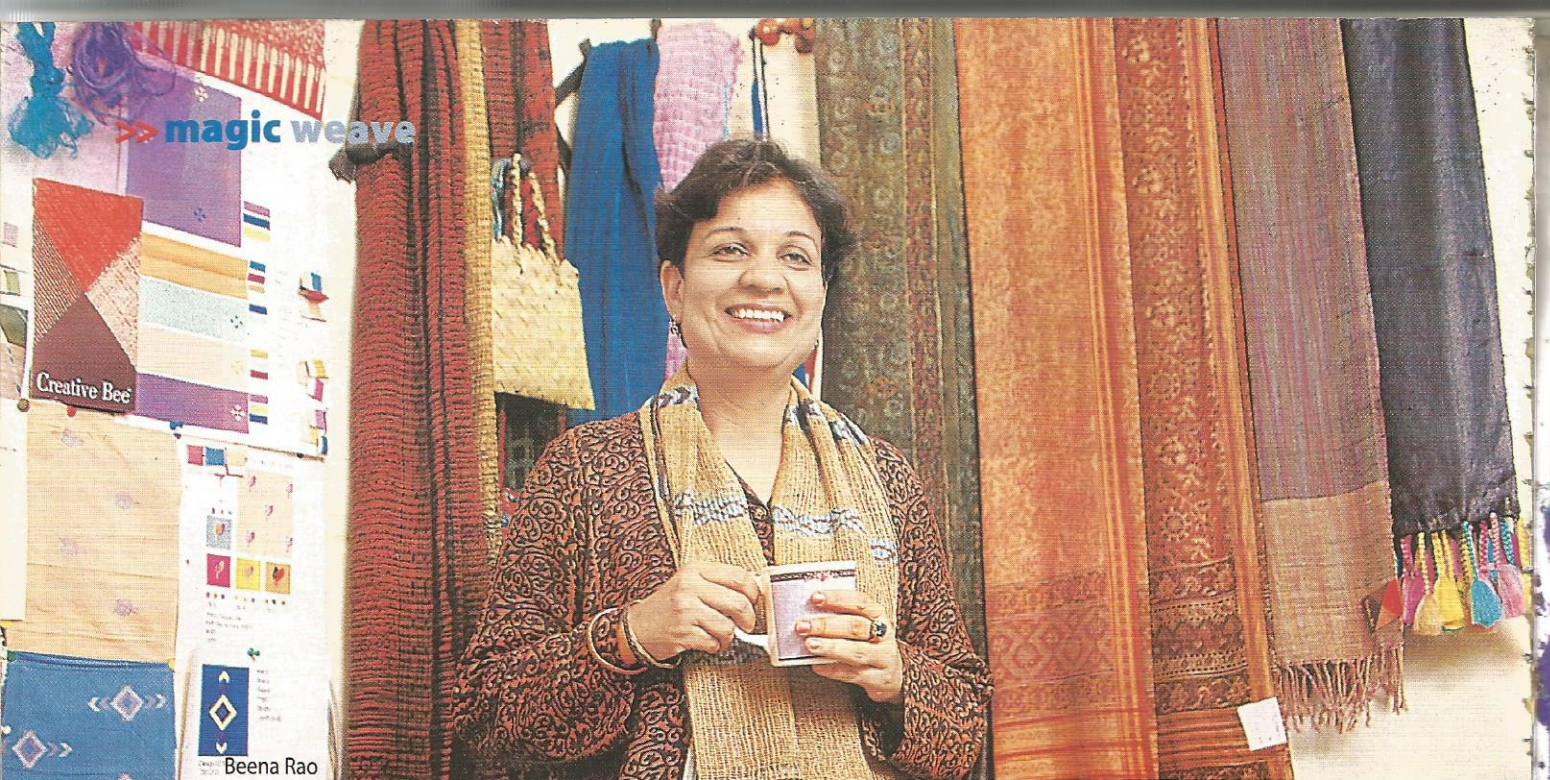
Who Will Inherit

**Souza's Millions?**

**"I am Not A Page-3 Person."**

**Pramod  
Mahajan**

**TAKES ON HIS DETRACTORS**



# fabric fables

The traditional  
*Ikat* and  
*Kalamkari*  
weavers from  
Andhra Pradesh  
work their magic  
on the *White*  
*House* with a little  
help from  
designer Beena  
Rao. Nandini  
Penna finds out  
where they are  
headed next

After Cyberabad, it's time for Andhra Pradesh's exquisite fabrics to create a flutter in the world. Beena Rao, well-known designer from Hyderabad (of *Creative Bee*) recently created furnishing fabric and designs for the *White House*. The last time that the warp and weft of India weaved its way into international homes was in the 10th and 11th century. The hand-made fabrics were much sought after in the Far East and Arab world and later in Europe.

"Long ago, the white *rajas* (the English men as they were called) furnished their houses with *Kalamkari* fabrics of Hyderabad. When they left India, they took it along. The fabrics have made quite a comeback and are once more gaining world-wide popularity," says Beena. *Chintz*, as the fabric is known is a variation of the Hindi term *chint* or *chitta* meaning spotted, variegated or sprinkled all over. *Chintz* and plain dyed *Calico* were first imported into England in 1619 by the *East India Company* and sold for household use as curtains, covers and bed furnishings.

"As the advisor and designer for the

*Andhra Pradesh State Handloom Weavers Co-operative Society (APCO)*, I work on all their international projects," reveals Beena. "My association with *APCO* began 13 years back when I decided to settle in Hyderabad. When the Ministry of Textiles (Delhi) approached us with an order, they said it was for the houses of foreign diplomats and we had no clue that it would include the *White House* too. An exquisite luxurious fabric was chosen for the drapes and upholstery. I chose *Dupion* silk, which has a rich and elegant look and the *ikat* weave renders a traditional Indian touch, contemporary in style. I worked on the design to ensure that the essence of the weave is not lost, the contemporary style is retained and that the product retains its ethnic appeal and elegance. The fabrics are in pastel earth tones matching international standards in terms of quality."

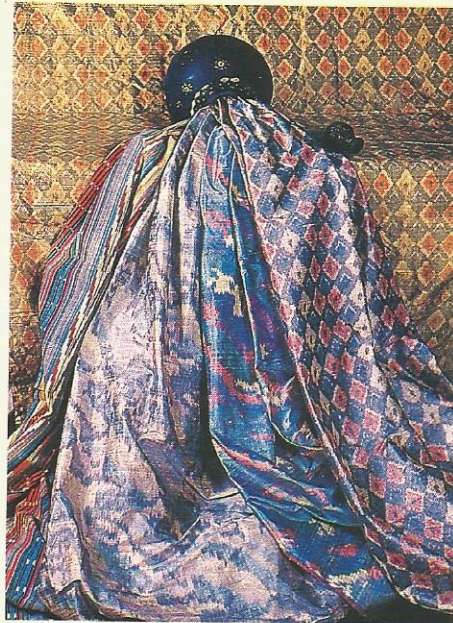
Beena, a freelance textile designer is heavily into reviving old and ancient weaves. She feels that the project will give the handlooms of Andhra Pradesh and *APCO* the much-needed exposure. "Actually, we would have created a better collection if they had

informed us that it was for the *White House*. I think Indian fabrics need exposure in the world market. If we display our weaves and techniques more often in the international exhibitions, I am sure our weavers will not have to struggle for work. We are in no way inferior in design, quality and appeal. In fact, we are much better than other Asian countries. I work on a lot of assignments for the international market so I know about the market trends. However, only the government can reach out to the remote villages, an impossible feat for foreigners or NGOs."

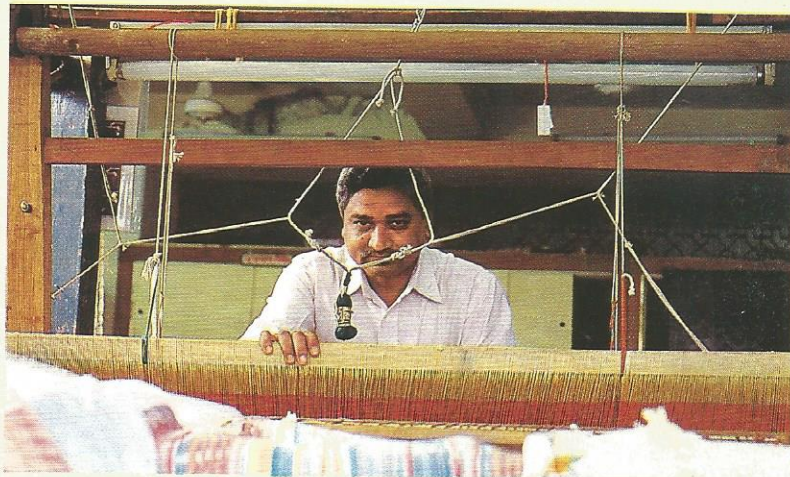
The collection for the *White House* includes fabric for drapes and bed linen made of *Dupion* from *Pochampalli* and *Koyakot* table linen from *Koyalaguddam*. A similar project was carried out around 20 years ago when the handlooms from Andhra Pradesh were selected to furnish the *White House*.

Rajaiah, a member technician at APCO says, "I was part of a similar assignment in 1980 when a Kolkata based agency got a bulk order with their designs for the *White House*. Even the London based *Oxfam* would order fabric in bulk from Andhra Pradesh. I am happy that once again they have chosen this fabric. *Dupion* is actually silk made of waste—either picked up from the leftover threads on the cocoons or from those found on spoiled cocoons. But it is equally expensive because of its weight. Here the warp thread is 'filiature' silk or *Khatan* (pure) silk and the weft is *Dupion* silk. The material is rough but has an elegant and plush look."

According to Beena, the credit of the recent international foray goes to B.P. Acharya, Secretary, Industries & Commerce, Government of Andhra Pradesh who is determined to put the handlooms of Andhra Pradesh on the world map. "APCO faced a lot of problem for some years with low sales but now we are revamping the whole system. We found that the handloom sector was suffering and the weavers had no work because they were still following the traditional designs, which had no demand. They were either making *dhotis*, *sarees* with traditional *buttas* or handkerchiefs. So, we got profes-



(left) Revival of the ethnic magic  
(below) Spinning a yarn



sional designers like Beena to create new designs that would find buyers either in India or abroad. We also invited students from the *National Institute of Fashion Technology (NIFT)* to spend the summer with the weavers and create new designs. After bagging this prestigious project (*White House* furnishings) we are really creating waves in the market." Today, even the Indian bureaucrats seem to have realised the uniqueness of the traditional Indian fabrics spun on handlooms. The *Raj Bhavan* has approached APCO for an exclusive collection of upholstery. With an increasing number of high-end clients, *Ikat* sure seems to have created quite a 'weave' wave. <<

Vol. 25 No. 3 Monsoon 2002



# COMPASSIONATE FRIEND

JOURNAL OF BEAUTY WITHOUT CRUELTY INDIA

Read About ...

- Silk ..... p 12
- BWC's Website ... p 8



The Silk Moth:  
s(moth)ered for vanity?

AVL  
Order Form  
Inside



## Applications of Silk

### Attire:

All manners of dresses for both men and women, including pooja clothes (imagine the bad vibrations from the living world while communing with our creator)! Other than as the main material of the dress, look also for silk linings and trimmings.

Footwear—in the form of mojadis or open shoes—can also be made of silk.

### Accessories:

Handbags both as lining and trimming, ribbons

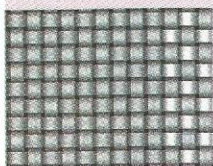
### Household items:

Soft furnishings: Upholstery, curtains, bedsheets, carpets, wall-hangings, lamp-shades

### Medicine:

Thread used for surgical sutures.

### Khadi Silk



The fabric called Khadi Silk presents a unique picture: in one direction runs the thread that reminds us

of the father of our nation who revived the use of the material from almost its deathbed to win us our freedom and in the other direction runs the thread that comes from killing thousands of living creatures for vanity, thus violating the spirit of non-violence so dear to him. The poser in this case is whether the resulting cloth is ethical to wear or not. **BWC's** answer is unequivocal: no material which has caused needless pain is ethical to use. Mixing silk threads with khadi is to adulterate the latter, to spoil the purity of khadi for the temptation of more money. While the desire for an increased income is natural and understandable, it is the means adopted that attract ethical scrutiny. It is not the purpose here to pass judgement upon the morals of the weaver, rather upon those of the wearers for creating the demand for a substance which can only be obtained by killing

## Ahimsak silk

One extremely important development in the world of cruelty-free products is that of *ahimsak* silk. Known variously in different parts of the world as ahimsak silk, peace silk, or vegetarian or vegan silk, this product is an effort to eliminate the main killing involved in the silk-making process. As we have seen, silk-making kills the newborn moth by boiling alive, the female egg-laying moth by crushing, and the males by abandonment. Ahimsak silk eliminates the boiling alive of the newborn moth by letting it emerge from the cocoon and fly away—an act to which it has a birthright. The smaller filaments from the broken cocoon are then collected and spun to yield 'spun silk'. This silk is not as lustrous and smooth as 'reeled silk'—that formed by reeling the entire unbroken filament—but is often more fluffy and soft. It is therefore usually not suited for making saris but is used instead for shirtings, ties, and furnishings. In India, ahimsak cultivated silk has only recently been developed by Shri Kusuma Rajaiiah of Andhra Pradesh Cooperative Society (APCO).

While **BWC** commends Shri Rajaiiah for his development—a large step in the right direction—it cautions readers against patronising this allegedly ahimsak silk because our past research shows that even to spin the broken filament pieces, a longer, unbroken filament is used to hold them together. Besides, if the source of the cocoons is the same old silk farm, then the fate of the female moth after laying eggs and the male moth after mating remain the same.

Even if someone were to take the trouble to avoid all those man-inflicted cruelties and still make silk, **BWC** would still hesitate to recommend its use because encouraging the use of animal products for vanity inevitably leads to someone realising the commercial potential in 'short cutting' the ethics and concentrating on efficiency and profitability, reinventing the cruelties in some other age. Better to let the filament protect the creature Nature intended it to and using plant sources for our adornment and protection.

*Continued on page 20...*

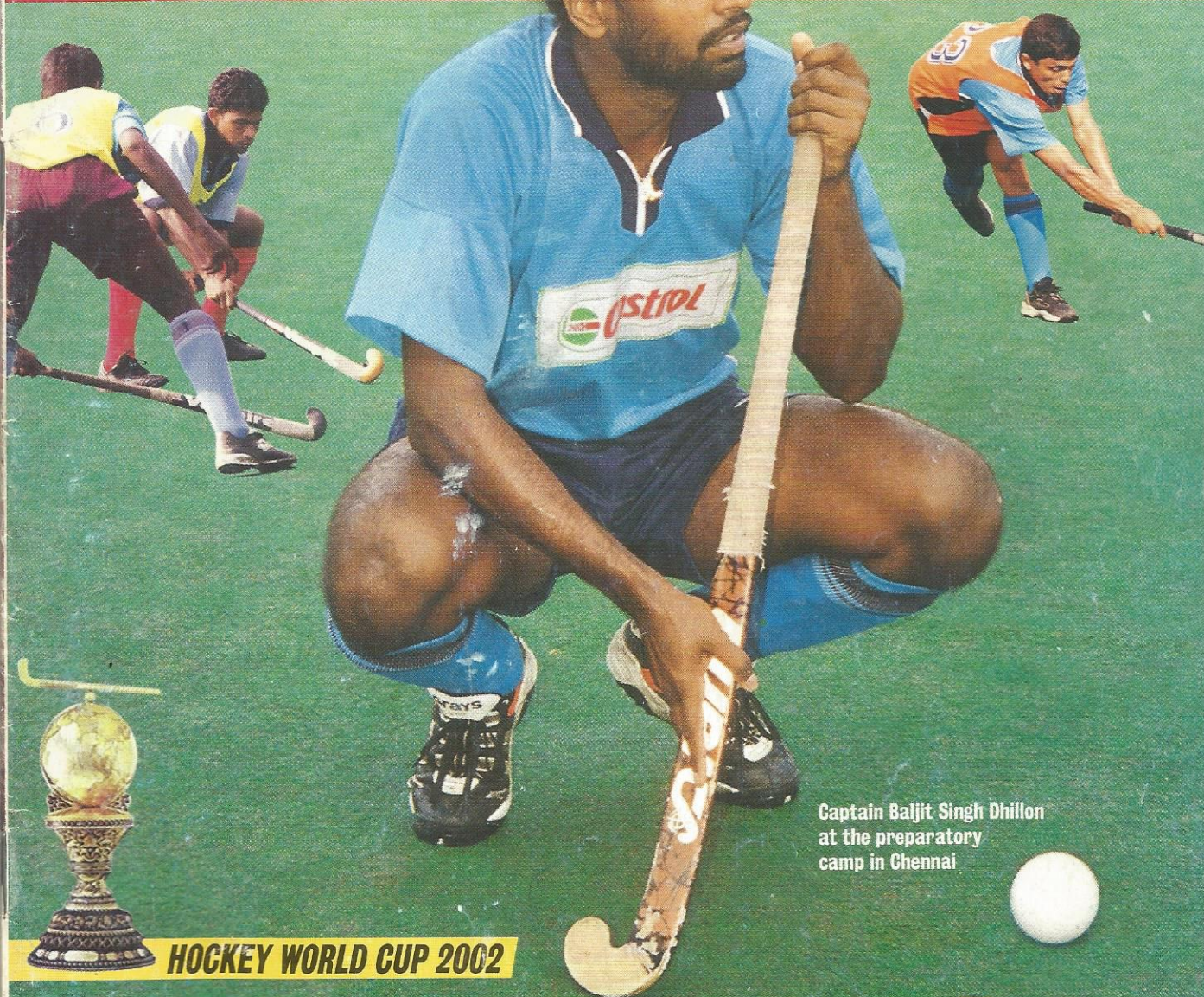


• Psst... Want a kidney? Rs 40,000 only • Exclusive short story

THE WEEK STUDY: PANEL DISCUSSION ON DOMESTIC VIOLENCE

FEB 3 2002 ■ Rs 10

# The Week



Captain Baljit Singh Dhillon  
at the preparatory  
camp in Chennai

**HOCKEY WORLD CUP 2002**

## *Raring to win*

*A gung-ho team trains hard to repeat the 1975 win at the same venue  
Plus: Interviews with captain and coach*

“With the launch of SMS in a local language, we will now be making this technological innovation available to the vast majority of our subscribers who are more comfortable in their mother tongue,” says F.B. Cardoso, executive director & CEO of BPL Mobile. BPL now has Malayalam messaging and is planning to launch Marathi and Konkani SMS.

And this could be just the beginning. BPL Mobile in Mumbai is looking at converting the mobile into a credit card, allowing the customer to pay for services by just sending an SMS. Birla-Tata-AT&T is planning to offer its subscribers in Maharashtra information on services using their SMS. If they want to find out the nearest pizza shop, they can SMS for details. Hutchison already has a service where the user can send messages to get news, weather and stock quotes. The Delhi police have also launched an SMS service. “The basic objective of the SMS centre would be to provide aid and assistance to the investigating officers for making queries online,” says Delhi Police Special Commissioner K.K. Paul.

Nokia, the biggest mobile phone manufacturer, has been driving SMS aggressively. “Picture messaging, a new concept, is a big business opportunity,” says Advani. Nokia’s new 5510 model is designed to make SMS-ing easier with a full keyboard; a study had shown that messaging was the mobile service of the future, yet restricted by the difficulty in punching in messages using the 12-key dialpad. Soon SMS will evolve into multimedia messaging, which uses not just text, but a mix of sound, pictures and text. Many companies are probing the possibility of using SMS as an advertising medium.

“SMS will eventually become UMS or ‘unified messaging service’, where there would be one way of doing many services,” says a Hutchison-Essar official. “Convergence will finally take place. You wouldn’t need a watch, music system, credit card or organiser—everything will be included in your mobile phone, and most services will be accessible through SMS.” So, r u hookd 2 the futur of msging? c u there!

**K. Sunil Thomas**



Photo/Ramchander Pentuker

**Reformed weaver:** Rajaiah with his colourful ahimsa sari

## New silk route

### No more dead silkworms for a sari

**K**usuma Rajaiah was perturbed when Janaki Venkataraman, wife of former President R. Venkataraman, left the Andhra Pradesh Handloom Weavers Cooperative Society showroom (APCO) without purchasing a single silk sari. She didn’t believe in killing silkworms! And then in came actress/dancer Amala Akineni asking for a custom designed *ahimsa* sari for a dance performance in Australia.

This made Rajaiah, senior technical assistant with APCO, determined to take up the challenge of producing a silk sari the non-violent way, without killing a single silkworm.

A 5.5 metre silk sari is produced from 1,500 worms. The farmer grows the greyish-yellow worms artificially by keeping the eggs in bamboo baskets and feeding the hatched worms mulberry leaves. As the silkworm consumes the leaves, a thread-like filament (fibroid) oozes out and slowly grows into a bundle to form a cocoon, imprisoning the worm inside. Since the worm produces as much as it eats, it is constantly fed mulberry leaves. When the cocoon is complete, the worm goes into hibernation for 10 to 15 days.

If nature were to take its natural course, the worm would pierce its way out of the silken mesh and turn into a butterfly. These ‘pierced cocoons’ are generally not preferred for the loom as the thread breaks easily. The silk farmers sell the cocoons to the reeler during the hibernation period. The regular silk is attained by placing these live cocoons in boiling water to extract the silk thread in a single piece—a process which kills the worm. A boiled cocoon allows thread-stretching for over a kilometre.

Rajaiah was determined to produce at least a few silk saris without killing the worm. “The process is not possible for bulk production, but I believe that *ahimsa* should be promoted,” says Rajaiah.

The production is costly and time-consuming. Rajaiah took 100 kg of pierced cocoons purchased from a seed unit at Pulamaneru in Chittoor district to a spinning mill at Raipur in Chattisgarh. It took almost four months for the yarn to be processed, ultimately yielding only 16 kg yarn! And for each kilo, he doled out a processing charge of Rs 1,000.

Rajaiah’s premier work is stocked in a small outlet, *Designer Weaves*, located at home. Despite the laborious process, he has attractive, colourful results to show. And from now on he will not have to turn away special guests.

**Lalita Iyer**

asian sources

# Fashion *Again* Accessories & Supplies

February 2003

## Leather handbags

Operational changes  
spawn reduced prices



## Polyester fabric

Comfortable for wearers,  
safe for environment



## Children's wear

Designs continue to  
mimic adult fashions

## Sewing thread

Low prices, hot models  
can make sourcing for  
bargains a breeze

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for fashion accessories  
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◀ continued from page 187

The industry expects Taiwan makers to form more strategic alliances with internationally renowned companies to enhance development capability. It is predicted that eventually regular fabric will no longer be manufactured in Taiwan. Production of low-end and midrange fabric is being relocated to makers' offshore facilities in the mainland and Southeast Asia.

Meanwhile, makers are intensifying their efforts to bring manufacturing processes into compliance with environment, health and safety standards. **Formosa Taffeta Co. Ltd** is the first Asian maker to produce fabrics approved by Switzerland's bluesign technologies ag, which has set an internationally recognized code developed by academic, industrial and environmental protection sectors and consumers.

"This environmental code ensures that the production of fabric, from raw material to finished product, is free of toxic substances," Formosa Taffeta R&D specialist Chang Chun-lin said. "Thus the fabric is guaranteed safe for the environment and especially suitable for making fashion, casual, sports and children's wear."

A subsidiary of Taiwan plastics giant Formosa Plastics Group, the company operates a streamlined production system that carries out spinning, texturizing, weaving, dyeing, finishing, printing and special treatments. Its bluesign-approved polyester fabric series is made from raw polyester filament free of toxic residue, carcinogenic substances and heavy metals.

One of its latest offerings is the Dry polyester fabric. "This product has three functional properties in it," Chang said. "It is breathable, repels water and dirt externally, and imports moisture quickly from the inside to the outside."

**Ecotex Textile Co. Ltd**, which is also in Taiwan, has introduced environment-friendly fabric. Its Petspun polyester fabric contains fiber made from recycled PET bottles. The fabric

## Peace silk for soft feel, clear conscience



Though ahimsa fabric is slightly less lustrous than regular silk, it is said to be even softer to the touch.

A fabric manufacturer in India has developed a special kind of material called ahimsa silk and is planning to expand marketing of the unique new product after further research.

The Hindi word "ahimsa" means nonviolence. It is used to describe this innovation because the fabric is manufactured via a process where silkworms are not killed.

For this reason, the product is also known as peace silk.

Ahimsa silk is extracted after the silkworm has completed metamorphosis and emerged from the cocoon. Considering the increased awareness of animal protectionism around the world, silk extracted in this manner might have market potential once researchers can bring production costs down.

Kusuma Rajaiah, a senior technical assistant with a government organization in India, is tasked with the responsibility of developing ahimsa silk into a viable commercial product. He has started his own company, **Designer Weaves**, which will manufacture peace silk for export and domestic markets.

There are many types of silkworms, but *Bombyx mori* is mainly used for commercial cultivation. The process involves placing silkworms into bamboo baskets and feeding them mulberry leaves. As they consume the leaves, the insects exude viscous fluids through head glands.

These substances are fibroin (raw silk) and sericin (bonding gum). The two components harden upon contact with air, forming the basic silk filament, which is a combination of two fibers held together

by the gum. The silkworm oozes out the fibroin continuously for about 1,000 yards, forming an oval nest or cocoon.

But as the worm is still alive inside the cocoon, this poses a problem for devotees of Hinduism who respect all living things big and small. In the production of regular silk, the cocoons are immersed in boiling water to kill the worms and spool the silk yarn.

With ahimsa silk, however, cocoons are left alone for seven to 10 days. Once the worms mature, they are allowed to pierce the cocoons and fly away as moths. Only then does the manufacture of peace silk begin.

Each cocoon is checked individually to ensure that the moth has escaped before the silk thread is spun.

Rajaiah said spinning takes around two months and weaving another month. In other words, shipments can be ready three months after the moths escape. He added that Designer Weaves can produce up to 2,000m per month.

Ahimsa silk is promoted as having the popular properties of regular silk. Even though it is slightly less lustrous, it is even softer to the touch. Currently, it remains a niche product due to its higher price tag. While normal silk fabric of the 8g/m variety is priced at \$5 per meter, ahimsa of the same quality can cost up to \$10 per meter.

"People are becoming more environmentally aware and compassionate to animals. "Though ahimsa may not replace regular silk, I am confident it will be adopted by those who are concerned about animals," Rajaiah said.



After silkworms leave their cocoons, the silk threads are spun into yarn. The yarn, in cone and hank forms, is woven into silk fabric for garments such as the traditional Hindu sari.

can be used for uniforms, backpacks, and can be produced in Petspun rayon and plain weaves, jacquard models.

With a metric ton, three local spinning Executive company Petspun and finished

Knitted functions 14001-c **Enterprise** factories functional fabric. The knitted facility

"Our polyester raw material sales

Among used by polyester and break Polydrom waterproof properties

**Argu Techno** knitted flax at \$2. Many by his 50 percent He predicted industry

Argu meters of to Europe restricted products are priced counter

THE WEEKLY NEWSMAGAZINE

July 30, 2007 Rs 20

DOGS ON NATIONAL DUTY

BIG B'S  
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REVELATIONS

# OUTLOOK

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INDIAN ECONOMY



## COOLING DOWN

*The government is convinced it has to regulate India's overheated growth. But will its policies hurt in the long run?*

MAKING A DIFFERENCE

# SILK ROUTE FOR THE PACIFIC

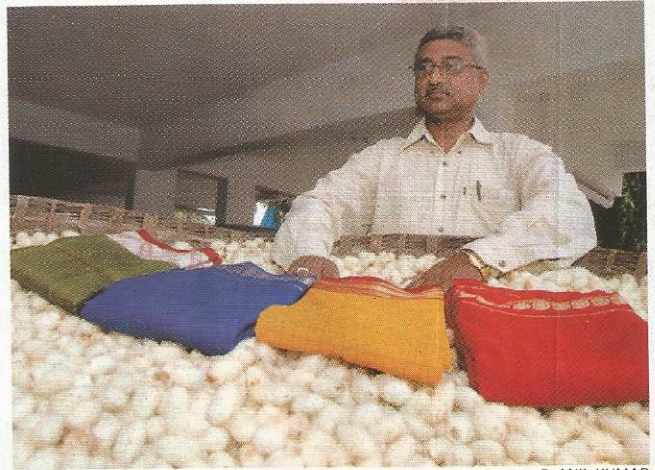
*A carnage of silkworms makes a saree. An entrepreneur now weaves ahimsa in it.*

by Mythily Ramachandran

**D** ID YOU KNOW THAT 15 SILKWORMS ARE KILLED TO PRODUCE 1 gram of silk? A silk sari with all its elegance and shimmer comes at a price of 50,000 silk worms. While you do hear animal rights groups protesting the use of leather products, we seldom hear a voice against the manner in which silk is produced.

One little known voice of compassion comes from Hyderabad, where Kusuma Rajaiah—after years of research—now produces silk without killing the worms. A senior technical officer with APCO (Andhra Pradesh Handloom Weaver's Cooperative Society), Kusuma's search for eco-friendly and humane silk dates back to the '90s when Janaki Venkataraman, wife of former president R. Venkataraman, asked for a silk sari that did not involve the killing of worms on her visit to APCO. The same request cropped up in 2000, when Amala Akkineni, actress/dancer and animal activist, visited APCO.

Silk comes from the cocoons of the silk worm (*bombyx mori*). In the silk industry, cocoons are killed by steaming or dropping them into boiling water when they are ten days old, before they metamorphose into a moth. The silk is believed to be the finest at this stage. This is preferred because when the cocoons open naturally at one end, to release the moth, the continuity of the fibre is lost. But maybe not, thought Kusuma.



P. ANIL KUMAR

Kusuma with cocoons, finished products at his residence

He purchases cocoons from mulberry farms in Chittoor district. The yellow coloured cocoons are reared in large cane baskets at his residence in Hyderabad. The moths emerge after 8-10 days, piercing the cocoon at one end. "The adult moths have a short life span of four days. During this time they mate and die naturally," Kusuma explains. The pierced cocoons are spun into yarn. This is then woven into fabrics. Weavers of Nalgonda and Ananthpur district of Andhra Pradesh produce dhotis while fabrics, including saris, are woven by the weavers of Karimnagar district. "All my products are done on handlooms and benefits several weaver families," says Kusuma. Inspired by Mahatma Gandhi, he calls this silk ahimsa. While ahimsa silk may lack the shine of regular silk, it is comfortable to wear. It's also wrinkle-free and has a better fall.

Kusuma received the patent for the eco-friendly silk last year. The new silk is favoured by the likes of Sheila Dixit and Maneka Gandhi. If the rustle of silk still distracts you, it's time you met Kusuma Rajaiah. ■

**CONTACT** Kusuma Rajaiah, G-3, Sai Nivas Enclave, Ramanthapur, Hyderabad-500013. Ph: 9989392461. [designer\\_weaves@rediffmail.com](mailto:designer_weaves@rediffmail.com)

CROSSINGS

**MURDERED**



P.C. RAM, an FCI executive director (NE), abducted on April 17 allegedly by the ULFA. Was reported "killed" earlier but died in a crossfire on July 11.

**IMPLICATED**



Indian peacekeepers in the North Kivu province, eastern Congo, in a 'gold for rations' racket with Rwandan Hutu rebels. The UN has ordered a probe.

**ROCKED**



A pair of 6.8 quakes in central Japan kill 14, leave thousands of people homeless. It also led to "small leaks" at the world's largest N-plant, in Kashiwazaki.

**INVOKED**



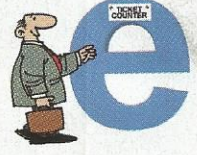
The US Senate opens with a Hindu prayer, the first time it's strayed the course in 218 years. The Christian Right is furious, everyone else says peace.

**STIRRED**



Sebastian Faulks is to pen a 007 book, *Devil May Care*, to coincide with Ian Fleming's centenary in '08. James Bond will be back, "aging, but highly sexed".

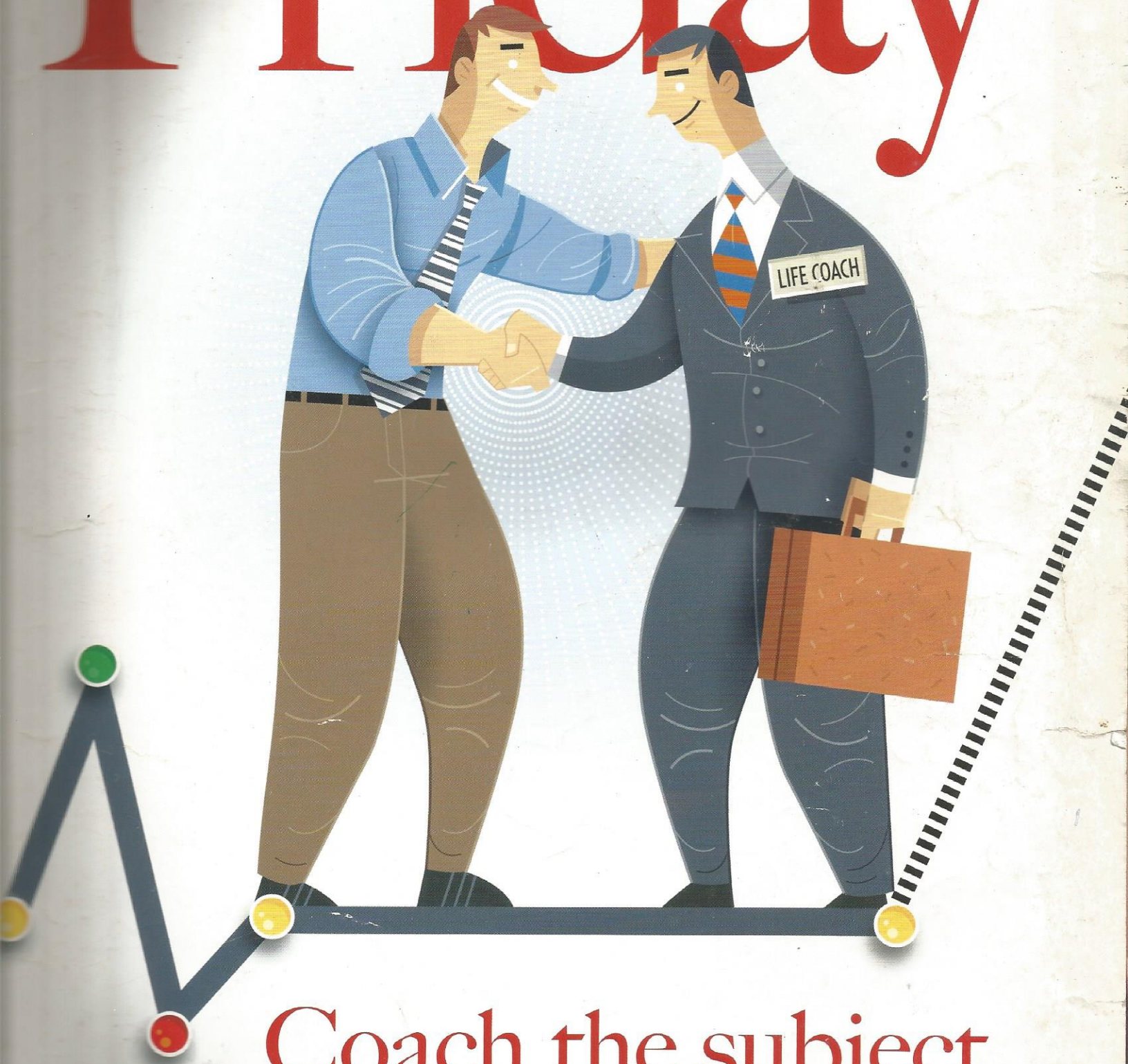
**BOOKED**



E-ticketing is a success story in India, with 73% of air tickets bought online in 2006-07. Global deadline for all booking to go online: Mar 31, '08.

# Friday

AUGUST 10-16, 2007



## Coach the subject

It's easy when you know how to go about it 38



**P**EOPLE LIKE SILK GARMENTS. But they come at a cost – 50,000 silkworms for a sari. Mythily Ramachandran meets Kusuma Rajaiah, whose ahimsa silk initiative has revolutionised the industry. Photos by Roshini R.



# Threads of hope

It all started almost 5,000 years ago in a Chinese garden. Legend has it that silk was discovered by a Chinese empress when she plucked a cocoon from a mulberry tree and it accidentally fell into her cup of tea. She watched amazed as a strong white thread unravelled. This incident saw the birth of silk. Due to its desirable properties and reputation as a luxury fibre, silk became a sought after commodity and soon spread to other parts of the world.

Since its discovery the lives of the silkworms hang on a strand of thread. Literally so, when you look at the statistics: 15 silkworms are killed to produce one gram of woven silk. Around 1,500 pupae are put in boiling water to yield 100 grams of silk. The production of a silk sari costs the lives of 50,000 worms.

For all the shimmer, elegance and rustle of silk that most of us covet, little do we know that as we bask in its

shining glory, it comes tainted with the shame of killing numerous, helpless silkworms.

Fortunately these worms have found a sympathiser in Kusuma Rajaiah of Hyderabad, who produces eco-friendly ahimsa silk. It is called ahimsa silk because its production process does not entail killing the worms.

Meeting Rajaiah at his house in Hyderabad you can't miss the large wicker baskets storing thousands of





**“Though ahimsa silk is not as shiny as regular silk it is wrinkle free, has better drapability and is comfortable to wear,” says Kusuma Rajaiah.**

cream cocoons. A close look reveals a few moths that have just emerged from their cocoons.

Warm and friendly, Rajaiah points to the opening at one end of the cocoon pierced open by a moth. A cluster of tiny yellow eggs is spread on another cocoon.

“The adult moths have a short life span, around 3-5 days. During this time they mate and die naturally,” says this senior technical officer working at the Andhra Pradesh Handloom Weavers Cooperative Society (APCO).

#### **Silk without violence**

It is these pierced cocoons that Rajaiah uses for the manufacture of silk, unlike the conventional method used in the silk industry, where cocoons carrying

the worms are destroyed.

In silk manufacturing units, cocoons are purchased from farmers when they are 10 days old and just a week before the moth emerges. The silk filament is believed to be at its finest at this stage. These cocoons are steamed or put into a bath of boiling water at a temperature of 70-90°C. The silk is reeled from the cocoon and subsequently processed into yarn.

“They prefer this treatment because when the cocoons open naturally to release the moth, the continuity of the fibre is lost. It cannot be reeled and leads to wastage,” explains the 52-year-old crusader for silkworms.

But Rajaiah inspired by Mahatma Gandhi’s philosophy was keen to find an alternative to this conventional

method that eliminated thousands of worms.

He says, “In the 1990s Janaki Venkataraman, wife of the former President of India, R. Venkataraman, visited Hyderabad and during this trip she came to APCO and wanted to buy a silk sari. But the problem is she was not just looking for an ordinary silk sari, she wanted one that did not involve the killing of silkworms. Unfortunately, we didn’t have any and she left disappointed,” he says.

A couple of years later, actress and animal activist Amala Akkineni came looking for the same silk.

Rajaiah, who has always been keen to take up new challenges, saw this as an opportunity to advance his philosophy of non-violence and cruelty to animals.

#### **The beginning**

Thus he began researching and looking into the possibilities of producing silk without having to kill the silkworms. His project kickstarted in 2000.

With a loan from his Provident fund he purchased his first batch of cocoons from a farm in Chittoor district and reared them at home. However, he had overlooked certain factors in the line of production. “When the moths emerged and the cocoons were ready to be spun into yarn, I discovered that there was no unit in Andhra Pradesh equipped for this kind of work,” he recalls.

Not one to give up, Rajaiah’s search took him to Chattisgarh where the cocoons were spun into yarn by machines. Well, just as he thought he had everything covered he was in for a surprise.

“I only got 16 kg of yarn from 100 kg of cocoons delivered. I later learnt that when the cocoons are pierced the continuity of the filament is lost, hence the silk cannot be reeled. The silk that is drawn out looks more like clumps of cotton. It is twisted, finer and more elastic and can only be machine spun into yarn. A lot of wastage is inevitable. And that explains the higher tag on ‘Ahimsa silk’, compared to regular silk”, says Rajaiah.

It wasn’t easy for Rajaiah to juggle his home experiment and work. However, he was rewarded for his hard work when he produced the first four saris.

“This first batch gave me fulfilment and energy to forge ahead. It enabled me to live by my principle. I realised after all it was possible to produce this lovely fabric without killing the worms.



**The silk road ... 1.** A moth lays eggs that hatch after 4-5 days producing tiny larvae, which in turn secrete fibroin and wrap themselves into cocoons.

**2.** A moth emerges from a cocoon after 15-17 days.

**3.** Threads from 10 cocoons are wound together to form one strong fibre. Then the silk fibres can be dyed, woven or knitted into fabric for garments such as saris and kurtas.

Well, this eco-friendly silk may not be as shiny as regular silk but it is wrinkle free and has better drapability. Besides being porous it is comfortable to wear," he says.

He called his creation ahimsa silk. Amala Akkineni purchased one of the saris. By 2001 he had produced more saris and put them on the market.

As the business grew he decided to apply for a patent in 2002. He finally received the document in 2006 giving him the right to produce and market the eco-friendly silk for the next 20 years.

His wife Savithri helps by sorting out the cocoons and moths while daughter Avani, 21, chips in with ideas on designing.

#### Clientele

His customers include well-known personalities such as animal activist Maneka Gandhi and Sheila Dixit, Chief Minister, Delhi, as well as other animal rights activists. And yes, Janaki Venkataraman received one when she visited Hyderabad.

Megawati Sukarnoputri, former Indonesian President, purchased six saris in 2002 at a symposium in Jakarta. Jennifer Yost, who fondly calls him *appa* and Gina Moore, both from the US, ordered ahimsa silk for their wedding gowns.

"People are becoming aware of this eco-friendly silk thanks to the media and exhibitions I hold alongside APCO. Customers often approach me after



## HOW IS SILK OBTAINED?

There are many types of silkworms, but *Bombyx mori* is mainly used for commercial cultivation. (The production of cultivated silk is known as sericulture.) The first stage of silk production is mating. After mating the adult moths lay eggs which hatch in 4-5 days producing tiny larvae. These worms are placed in bamboo baskets and fed on mulberry leaves.

As the larvae feed on the

leaves, they produce a viscous fluid in the two glands in their head. At the end of the fifth instar, the worm stops eating. That is the signal for the farmers to transfer larvae to specially-constructed frames which will provide support for the worm's construction of its protective cocoon.

At this stage the worm's two silk glands are fully developed, and it begins to exude silk (fibroin) from both at the same time, as well as a sticky substance called sericin to bind the two threads together. The silk is

liquid in the worm's body, but hardens into a thread when it comes in contact with the air as the larva moves its head in a characteristic figure eight pattern. A healthy cocoon yields 500 metres of filament.

Inside the cocoon the worm metamorphoses into a pupa and then into an adult moth. The moth emerges by piercing one end by secreting an alkaline fluid that dissolves the cocoon. However, this breaks the continuity of the filament and silk becomes lower quality. To prevent this, silk manufacturers resort to killing the worms while in the cocoon stage so that the silk filament can be reeled without suffering much wastage. However, some silkworms are allowed to live to be used for breeding.

In ahimsa silk production the process begins when the silkworm has completed metamorphosis and emerged from the cocoon.

To transform cocoons into cloth, they are boiled to release the sticky sericin on the outside. Since an individual silk thread is too fine to handle, the threads from 10 cocoons are wound together onto a reel, sticking together to form one long, strong thread. From then on, the silk can be treated as any ordinary fibre, either woven or knitted with the possibility of a wide range of textures and quality.

visiting my website. For instance, recently Pascal and Guitha Samy, designers from Geneva and Nerul Rodriguez, a designer from Paris, came down to India to discuss the possibilities of establishing a business dealing in ahimsa silk products in Europe.

"Since the business is growing I have increased production to 1,000m of ahimsa silk per month on average. However, if there are more orders I can go as high as 5,000m," he says

Rajaiah has a range of 30 designs and his saris include Kanchipuram, Kalakshetra, Ikkat, Jamdani and Kalamkari. Customised orders are also taken. Besides saris he also makes dupattas, stoles, dhotis and fabrics from ahimsa silk.

"From the wastage we produce ahimsa noil that is used for making shirts and kurtas," says Rajaiah. While he owns a shirt and pair of trousers made of ahimsa silk other family members don't.

"Ahimsa silk is expensive, however when my business improves I will design a sari for my wife. Maybe this Dussehra (a festival in October) I will surprise her," says Rajaiah.

Someday Rajaiah dreams of setting up a unit where everything will be done under one roof, from rearing the cocoons to spinning, processing and marketing the products. **E**

You can contact Kusuma Rajaiah at: [designer\\_weaves@rediffmail.com](mailto:designer_weaves@rediffmail.com) or [rajaiahk@gmail.com](mailto:rajaiahk@gmail.com) or visit his website: [www.ahimsasilks.com](http://www.ahimsasilks.com)

# VERVE

THE  
SPIRIT  
OF  
TODAY'S  
WOMAN

**DOSTANA  
SPECIAL**

**MIAMI SPICE**

**BIG  
TREND**

**SKIRT SUITS**

**ON THE  
GLOBAL  
RAMP**

SABYASACHI  
ANAND KABRA  
NARENDRA KUMAR  
RAJESH PRATAP SINGH

OFF THE BEATEN TRACK  
PRAGUE, PARIS

STAR-STUDED  
PARTIES

Priyanka  
Chopra  
Dazzles in Dior



# Saving the silkworm

*Kusuma Rajaiah, a technical officer, creates silk without cruelty and gains accolades from the international fashion community, discovers*  
**PREETI VERMA LAL**

**Y**OU LOVE THE RUSTLE OF SILK, THAT sheen of a fabric for which kings were once ready to barter their fiefdoms. So precious was silk that the Chinese guarded the secret for centuries until an impish princess stealthily hid a silkworm in her coiffeur before heading to the home of her betrothed.

Exquisite fabric. Intriguing story. However, somewhere between the sheen and the grace, you missed the sweat of a silkworm. The tiny silkworm that relentlessly spins a cocoon for itself out of gossamer thread. But before the worm breaks the chrysalis to turn into a moth, it gets thrown in boiling water and dies a painful death. For a 'fashionable' reason - so that we get the best silk. Nearly 15 silkworms are killed to get one gram of silk; imagine how many get killed to make that long chic silk skirt and that shimmering trousseau. Perhaps a thousand. Perhaps thousands.

For centuries that is how silk has been produced. Few cried hoarse about the cruelty against the silkworms. No laws were enacted, no campaigns

launched. Times changed, technology upgraded, but the fate remained callous to the silkworms. Until that day when Janaki Venkataraman, the then First Lady, walked into the office of Andhra Pradesh Handloom Weavers Cooperative Society (APCO) in Hyderabad and asked for a silk sari that was made without any cruelty to the silkworms. APCO rummaged its shelves but there was not an inch of fabric which could be termed 'non-violent'.

That one wish of the First Lady prodded Kusuma Rajaiah, a technical officer in APCO to experimenting. Armed with a degree from the Indian Institute of Handloom Technology, Salem, Rajaiah knew that an arduous task lay ahead. If he let the caterpillar crack out of the cocoon it would break the continuity of the yarn that can be unspooled to nearly 600 metres. Riddled with an 'either/or' choice, he chose the path less travelled and patented a new technique that makes silk without killing the silkworm.

Traditionally, cocoons with live silkworms inside are thrown in boiling water to maintain the continuity of the yarn. However, what Rajaiah does is to let the silkworm break the chrysalis and slip out alive before boiling the cocoons. The continuity of the yarn is broken and there is a lot of wastage but Rajaiah would rather have less silk than thousands of dead silkworms. The process is non-violent and Rajaiah calls it Ahimsa Silk, taking a cue from Mahatma Gandhi's non-violent methods.

Since there is a lot of wasted yarn, Ahimsa Silk is more expensive than regular silk. However, with the price tag comes the convenience of no wrinkles, durability and the 80 gram per metre weight. At present, Rajaiah has 30 designs in his repertoire, ranging from traditional saris, *dhotis*, *angavatram* and fabric for dresses. To keep pace

with the times, he has branched off to include trendy ties and tees. You can pick from the colour palette available or have it custom dyed. And remember, no chemical dyes here. Vegetable dyes extracted from plants and mineral sources are used - the purples, black and greys come from logwood; evening reds from Brazilwood, oranges from madder root, brown from catechu...

This ingenious method of making silk has found a lot of takers. Orders are pouring in from the West, specially the US and Europe where animal lovers have taken to this silk with great joy. Business propositions are looking possible what with Pascal and Guitha Samy, designers from Geneva and Nerul Rodriguez, a Parisian designer having flown into Hyderabad to discuss Ahimsa silk. The fabric has found favour with religious communities that adhere to non-violence to all human beings. So grateful is the Jain community for this invention that they recently honoured Rajaiah with a prestigious award.

That is not all on the who's who list, though. Danseuse and activist Amala is a regular Ahimsa silk buyer, so are Delhi's chief minister Sheila Dikshit and activist Maneka Gandhi. At a symposium in Jakarta, Megawati Sukarnoputri, the former Indonesian president, picked up six Ahimsa silk saris. In a commendation letter, Amita Desai, executive director, Association of German Culture, writes, '...not only promotes a non-violent option to the present day processes of producing silk but will also promote the harmonious coexistence of various forms of life'.

Next time, beautifully draped in silk, you do not have to hear the wail of a silkworm that was killed callously. Make a non-violent fashion statement. You have a choice And, you sure would look more elegant. **V**