

ENSHŪ TEXTILES

MADE IN JAPAN

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Discover the
charm of Enshū textiles
from our videos!



< Published by >

Enshū Textiles Promotion Committee
(Bureau of Hamamatsu City Industrial Department, Industrial Promotion Division)

This English edition has been compiled based on source material from
『遠州さんち—広幅機屋のこと—』、『遠州さんち—染織整理加工のこと—』、『遠州さんち—細幅のこと—』
and 『遠州さんち—布の教科書—』, which are currently in distribution.

What are Enshū textiles?



Enshū textiles comprise a diverse array of fabrics woven mainly from natural fibers, such as cotton and linen, and produced in the Enshū region of Japan. Many textile mills employ traditional shuttle looms, which create textiles of such fine and pleasing texture they have attracted worldwide attention.

The start of the Meiji period in 1868 brought exciting new developments in textiles for the Enshū region. In 1896, Sakichi Toyoda, who was born in Kosai City and would go on to found Toyota Industries Corporation, invented Japan's first automatic loom. In 1911, Michio Suzuki, founder of Suzuki Motor Corporation, invented a revolutionary loom which was capable of efficiently weaving complex checked patterns. In addition, the Hamamatsu-based company Nihon Keisen Co.,Ltd. achieved the mechanization of cloth and yarn dyeing, which along with the aforementioned inventions, helped dramatically transform the Enshū region into one of the top three textile production hubs in the country, along with Senshū (Osaka Prefecture) and Mikawa (Aichi Prefecture).



Sakichi Toyoda
photo credit
Toyota Industries Corporation

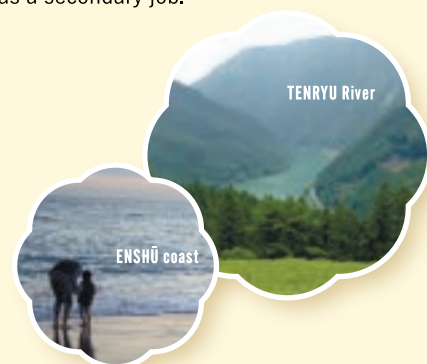


In the post-WWII era, the outbreak of the Korean War in 1950 created an exceptionally high demand for textiles, and business was so lucrative that every click or clack of the loom shaft was akin to the ringing of a cash register. It was boom times for textiles, and the rapid development of mechanical technology led directly to the development of motorcycles and automobiles. Automobile manufactured renowned the world over, such as Toyota, Suzuki, Honda and Yamaha were all born in the Enshū region. The textile industry, along with musical instrument and motorcycle production, would become a driving force of the regional economy.

In time, however, this growth would begin to slow down due to trade friction between Japan and the U.S. along with the rise of developing countries. As the Japanese yen continued to appreciate in value, textile production shrank, while large amounts of affordable textiles were imported from overseas. In the 1990s, Japan's high-growth "bubble economy" came to an abrupt end, and the country entered a prolonged period of economic malaise. However, it was during this downturn that small-scale textile mills began to emerge, which could provide high-quality fabrics only available to professionals with a long history and the superior technology and knowhow it affords. These unique fabrics gained international attention and are now used by luxury brands throughout Europe and around the world, even included in collections in Paris and Milan. Together, these small-scale textile mills create the rich tapestry that is Enshū textiles.



Enshū is the name given to a region of western Shizuoka Prefecture, home of Mt. Fuji, which is situated about halfway between Tokyo and Osaka. The area enjoys ample sunshine throughout the year, relatively warm winter weather, and abundant groundwater from the Tenryū River and Magome River. Therefore, the Enshū region also boasts a long history of cotton cultivation, with farmers in the mid-Edo period (1690~1780) often weaving cotton fabrics as a secondary job.



The Rich Tapestry of Textiles

Textiles can be classified by the width they are woven. The three main types produced in the Enshū region include narrow-woven cloth, used in traditional kimono, yukata and small hand towels; broad-woven cloth, used in Western-style clothing; and bands used for cords and seatbelts.



Bands

Width: <13cm

Used as tape, cords and seatbelts along with other industrial and medical applications, as well as material in fashion accessories.



Narrow-woven Cloth

Width: <51cm

Used in traditional Japanese fabrics for yukata, kimono and other garments.



Broad-woven Cloth

Width: >51cm
(commonly 110cm~145cm)

Used in Western-style fabrics, interior design, stationery, handbags, towels, filter cloth, and more.



Broad-woven Cloth

In the Enshū region, production of wide-width cloth surged during the Taishō period (1912~1926) due to a shift in preference towards Western clothing among the Japanese people coupled with declining production of European fabrics caused by World War I. In 1913, there were only 338 looms for the production of broad-woven cloth, but by 1926, this number had risen to 6858—a 20-fold increase. Even today, a wide variety of broad looms are in use, mainly for cotton and linen.



Textiles Woven in the Enshū Region

Broadcloth



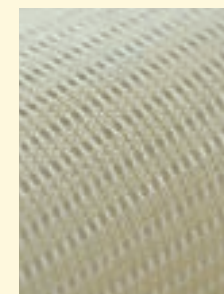
Soft and lustrous, broadcloth is defined by its highly dense weave of fine yarns. The Enshū region is renowned for its broadcloth, which is often used as fabric in high-quality shirts.

Linen



Enshū is said to be the top producer of linen in Japan. Linen has a reputation for being brittle and difficult to weave, and so, requires a high degree of technical skill.

Karami Weave



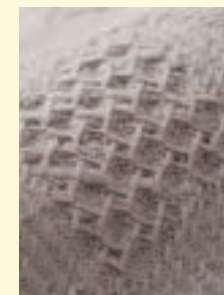
This style employs a wide weave which creates a breathable fabric with a soothing touch. The roots of Karami weave are in the production of fishing nets for use in the Enshū Sea and Lake Hamana.

Velveteen / Corduroy



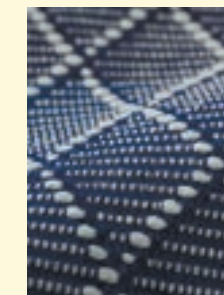
Classified as pile fabrics, velveteen and corduroy production began in Japan in the Fukude area of Iwata City, which has produced over 90% of the country's supply since the Meiji period.

Jacquard



Using a Jacquard loom, the warp threads are woven one thread at a time to create intricate patterns with a three-dimensional effect.

Sashiko Weave



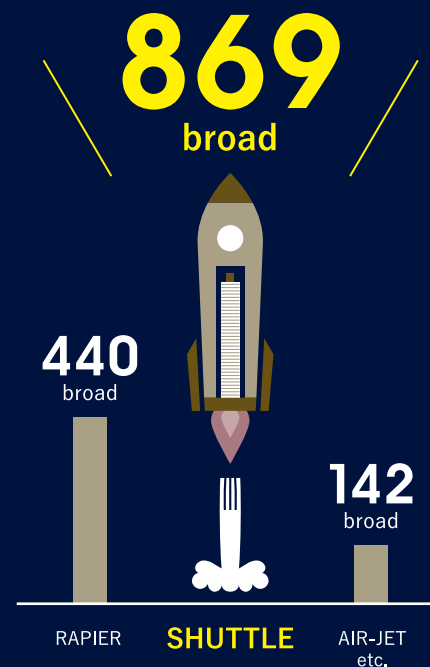
The term sashiko refers to the embroidery of lines and designs into a fabric using a loom.

Shuttle Looms

Shuttle looms use a shuttle to hold the weft yarn and carry it through the warp yarn. Overseas, it is more common to see shuttleless looms, such as rapier looms, which use more advanced methods to weave the yarns together. While shuttle looms are slower and less productive, they place less stress on the yarns and create a fluffier, more textured fabric, which is highly durable due to its extra high-density weave.

Of the 1,451 broad looms used in the Enshū region, 869 (roughly 60%) are shuttle looms, comprising one of the largest collections in all of Japan.

※as of 2019

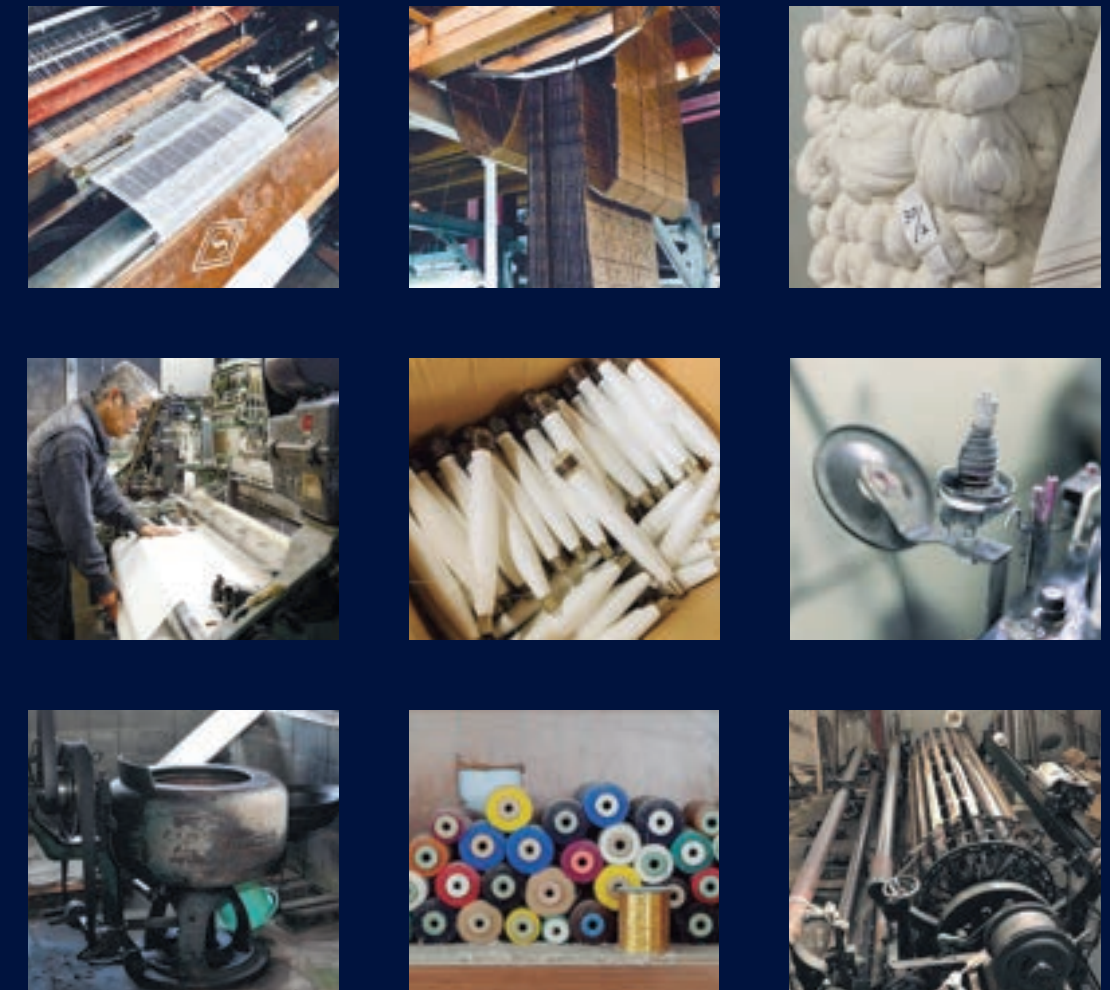


Finishing & Post-processing

Production does not end with the weaving of fabric—the process is only complete once any pretreatment paste is removed, material width is aligned, and the proper attributes such as softness, texture, waterproofing and lustre, are realized in the fabric. This is what we call finishing and post-processing.

Check out our video to see the difference in texture!

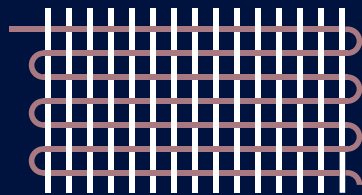
For fabrics, texture mainly refers to comfort and the feel against your skin. Enshū fabrics, in particular, are known for having fleecy, smooth and firm textures.



Shuttle Loom

Uses a shuttle to carry yarns

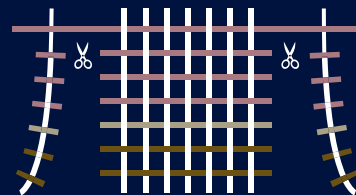
The weft yarn is fed into the shuttle, which carries it back and forth through the warp yarns. The weft yarns are connected to form selvages, or seamless edges, on the fabric.



Rapier Loom

Uses little needles (rapiers) to carry yarns

Weaves faster than shuttle looms. The needles (rapiers) on either side carry the weft yarns and weave them into the warp yarns.



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How Fabrics for Apparel are Made

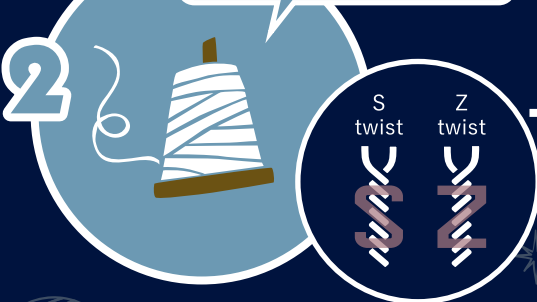
Enshū textiles are characterized not only by the weaving and dyeing techniques used, but also the specific and intricate processes that ultimately determine the texture of the fabric which are employed starting from pre-production to the finished product and beyond. Each process is conducted by highly skilled craftsmen, who together, form the backbone of Enshū textiles.

Spinning
Lumps of cotton are unraveled and stretched into thin strands.



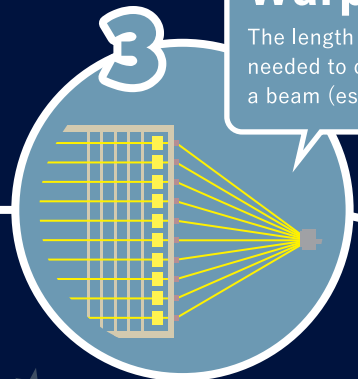
Cotton can have different texture depending on the country of origin.

Twisting
Yarns are twisted together to strengthen them.

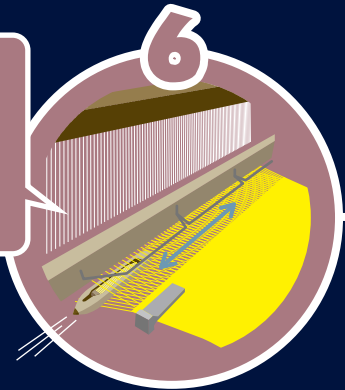


Dyeing
The dyeing process can be categorized by the stage in production at which it takes place. In pre-dyeing (yarn dyeing), the yarns are dyed directly before weaving them together; in post-dyeing (fabric dyeing), the woven fabric is dyed; and in product dyeing, the finished product (e.g., a t-shirt) is dyed.

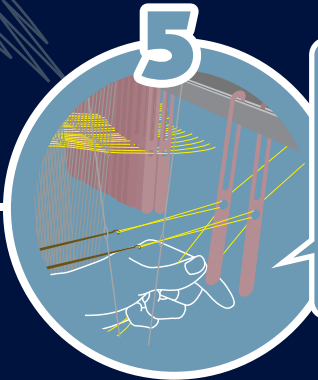
Warping
The length and number of warp threads needed to complete a fabric are wound onto a beam (essentially, a large bobbin).



Weaving
The warp yarns are spread vertically creating an opening through which to weave in weft yarns. The reed drives the warp into the body of the fabric creating a tight weave with no gaps.



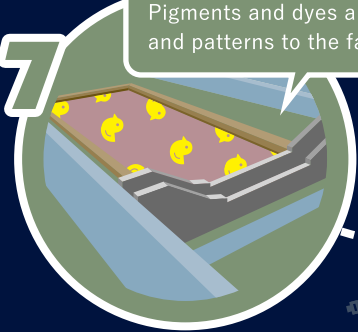
Heddling
Warp yarns are passed one at a time by hand through the dropper, heddle and reed as needed to complete the fabric.



Sizing
An adhesive is applied to warp yarns to reduce fraying and breakage caused by friction.

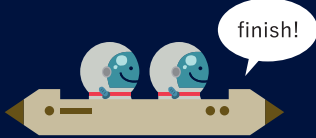
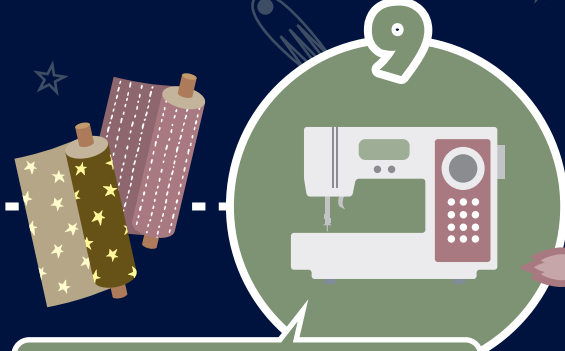


Dyeing
Pigments and dyes are used to add color and patterns to the fabric.



Finishing
Various processes are used to remove the protective adhesive, add texture and appearance, and enhance functionality.

Sewing
The cloth is cut and sewn together to form clothing and other products.



Textile Dyeing



Dyes not only allow one to add a diverse array of colors and patterns, but also makes the fabric itself more durable. Water is an essential part of the dyeing process, and the Enshū region benefits from the long, flowing Tenryū River and ample sources of groundwater. The high number of clear, sunny days along with the region's biting winter winds also provide the perfect environment for drying out dyed fabric. The geography and climate of Enshū is almost perfectly tailored to support the textile industry.



Dyeing Process

※An example of post-dyeing, where the fabric is dyed after being woven



Pre-treatment

Removes impurities from the fibres (or woven fabric) to improve dye affinity and fastness (resistance to color fading).

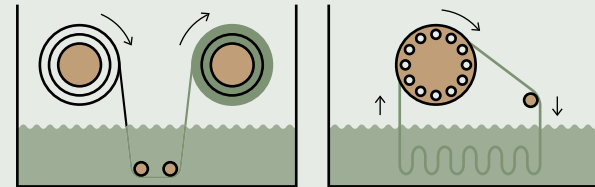
Example Pre-treatment Process

- **Singeing** The fabric surface is heated by flame to remove loose hairy fibres.
- **Desizing** A chemical wash is used to remove protective adhesives applied to the warp yarns during weaving.
- **Scouring** A chemical wash is used to remove natural wax and impurities from the fibres or woven fabric.
- **Bleaching** Breaks down natural coloration to improve whiteness of the fabric.
- **Mercerizing** Gives the surface a lustrous appearance while tightening the fabric and improving dye affinity.

Dyeing

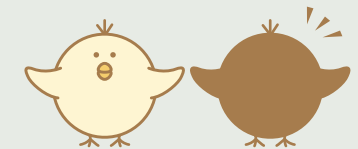
The dyeing process is performed on woven fabric using pigments, dyes and stencils. Specifically, dip-dyeing is uniformly bonding a colored solution to the material, while textile printing involves the application of multiple colors or patterns to specific areas.

Dip-dyeing



The fabric is soaked in a solution containing dye in order to bond the color evenly throughout the material. Plain dyeing (uniformly dyeing white fabric one solid color) is the most common application, but patterns can be made by binding areas with thread or covering them with protective adhesive so they remain undyed.

Textile Printing



Printing only dyes the surface of the fabric, which allows for multiple colors and differing patterns on the right and wrong side. There are a wide variety of methods available, including the use of stencils.

Finishing & Post-processing

The ends of the fabric are stretched and set to a specific width. A variety of other processes are often used to improve color-fastness, prevent fading and soften the texture.

Example Finishing Process

Product Names	Characteristics
Woody River	A long-time favorite, the fabric is printed with a wood grain pattern that looks like a flowing river.
Baby Loose	Plush and puffy like baby cheeks.
Absolute Zero	The moisture and heat absorbing effects of xylitol give the fabric a long-lasting cool sensation.

What is Chūsen-some, traditional Hamamatsu fabric dyeing?

Hamamatsu Chūsen-some (literally, pour dyeing) is a form of stencil dyeing unique to Japan that began in the Meiji period. A long piece of fabric is folded, then a paper stencil is used to apply a dye-resistant paste, after which the material is dyed. The technique is so named because it uses a kettle to pour dye onto the fabric through a long, narrow spout. Fabric dyed in this fashion has a dreamlike appearance with harmonious blurring of colors and freeform patterns with no distinct right and wrong side.

Chūsen-some dyeing has been used in Hamamatsu to produce tenugui (hand towels) since the Meiji period (1887), and yukata since the Taishō period (1912). Hamamatsu is one of three major production centers of Chūsen-some yukata, along with Tokyo and Osaka. In 2001, Chūsen-some dyeing was officially designated a local artisanal handicraft by the governor of Shizuoka Prefecture.

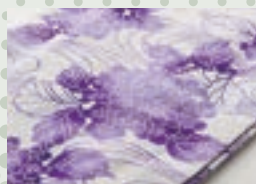


Products using Hamamatsu Chūsen-some

Originally developed as a technique for dyeing tenugui (hand towels) and yukata (light, summertime robes), Hamamatsu Chūsen-some is known for producing highly-breathable clothing with supple textures. In recent years, this unique dyeing method has been used to design many products from shirts to handbags. In addition to the appeal of color schemes steeped in tradition, the interplay of colors blurring and leaching into one another creates alluring patterns and gorgeous, colorful designs.



Blurring and leaching of colors



Reversible dyeing patterns



1 Stencil Creation



Ise-katagami are paper stencils made in Suzuka City, Mie Prefecture, which allow for intricate patterns.

2 Scouring, Rolling



After protective adhesive paste is removed, the fabric is stretched to remove creases and rolled into more easily workable sections 10-25 meters long.

3 Pattern Gluing



A wooden frame containing the paper stencil is lowered down atop the fabric. Then, a large, wooden spatula is used to spread a dye-resistant paste over the surface of the stencil, which creates a pattern on the fabric. The fabric is unrolled and each section is folded over the previous one as paste is applied to the full length of the roll.

4 Forming a Buffer



For multi-colored patterns, extra paste is applied around the borders to ensure colors do not mix.

5 Pouring of Dye



A kettle is used to pour dye and color the areas not covered by dye-resistant paste. Drawing in the dye from beneath the fabric ensures the color permeates the entire thickness of the material. Multiple colors can be used simultaneously to create a beautiful gradation effect, called bokashi.

6 Washing



The dyed fabric is washed with plenty of water to remove any remaining paste or excess dye.

7 Drying



Completed fabrics are hung 6-7 meters high to air dry, creating a captivating sight as their colorful patterns sway in the breeze.

8 Finishing



The fabric is dried and rolled up.

Hamamatsu Chūsen-some Businesses

Scan the QR Code on the right for information on businesses that utilize techniques and offer products related to Hamamatsu Chūsen-some. Experience the magic of Chūsen-some for yourself!



ENSHŪ MAP



a Sakichi Toyoda Memorial Museum



At the birthplace of Sakichi Toyoda, the founder of Toyota Industries Corporation, looms and other machines are on display, allowing visitors to experience the spirit of crafting.

©Toyota Commemorative Museum of Industry and Technology

b Suzuki Plaza



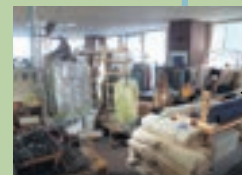
Exhibits include the loom invented by Suzuki founder Michio Suzuki, along with an assortment of motorcycles and automobiles from throughout the company's history.

c Ubuginu Shrine



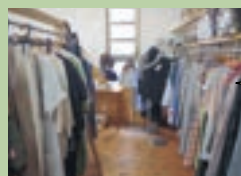
For over 800 years, this shrine has provided kanmiso (garments as offerings to deities) for use at Ise Grand Shrine, one of the most sacred sites of the Shinto religion. The garments are ceremonially delivered as part of the Onzo Festival every April.

d Enshū Textiles Center



Contains the offices for the Enshū Textiles Industry Cooperative. Various fabrics and products using Enshū textiles can also be purchased here.

e Corduroy House



Contains the offices for the Tenryūsha Textiles Industry Cooperative. Various fabrics and products using Enshū textiles can also be purchased here.

f Enshū Textiles Co-Lab.



Exhibits provided by the Shizuoka Prefecture Textile Association feature the history of textiles in the Enshū region along with traditional looms and other products.

g Hamamatsu Municipal Museum Hamakita



Here, visitors can see a variety of tools used throughout the weaving process and even try weaving coasters on a loom.



Enshū textiles — Where to purchase, view and experience for yourself



The Enshū region is the area of Shizuoka Prefecture west of Oigawa River. Located here are many shops that sell products made in Enshū using local materials and traditional weaving and dyeing methods. You can even view the Hamamatsu Chūsen—some dyeing process and try it out for yourself!