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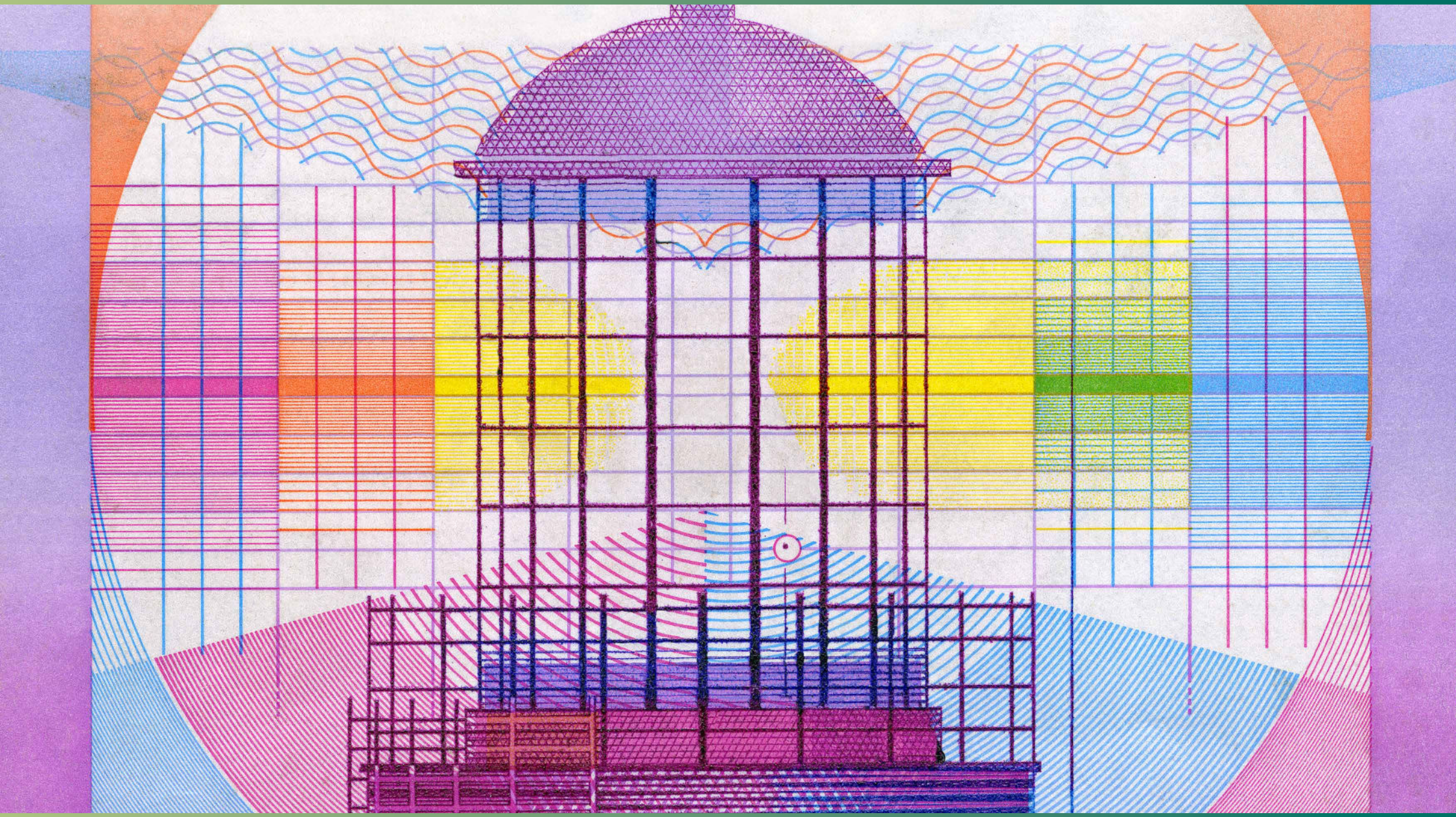
Joh. Enschedé

Intaglio Printing



A Mastercraft since 1859

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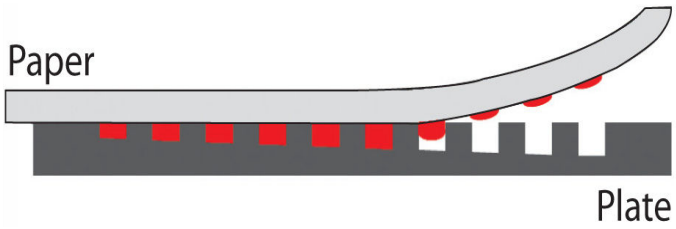
WHAT IS INTAGLIO PRINTING?

Intaglio printing is a special form of printing and one of the main printing techniques; letterpress, gravure, planographic and screen printing. With this printing technique, the image engraved into the metal plate. Chromed printing plates are then mounted on a cylinder in the plate printing press. Ink is applied with rollers, covering the engraving with ink. A wiping system scrapes the excess ink from the plate with ink remaining in the engraving. Because the cylinder has a temperature between 80°C and 90°C, the viscosity of the ink becomes more liquid.

The paper is fed under high compressive stress between the printing plate and the counter pressure cylinder. The ink remains on top of the paper, this causes the relief that can be felt. Intaglio printing is most often used to print in one color, but printing in multiple colors is also possible. Variations in the width and depth of the engraving can create very subtle color gradients, for example from red to light pink. You can't achieve these refined aesthetic results with offset.

MICROSCOPIC

In intaglio printing, very small texts can be printed that are barely legible with the naked eye, but can be read with a microscope. These microtexts provide, together with the tactility of the ink, very good security for instance for passports, banknotes, tax stamps, certificates and postage stamps.



LABORIOUS AND EXPENSIVE

Intaglio printing is a laborious and expensive process. Setting up the press is more than a day's work. It is a combination of historical craftsmanship and modern technology. The printing plates used to be crafted by experienced engravers who engraved gouge lines very accurately in in a metal plate, often copper, iron or brass. Today, the lines are etched into the plate with a computer controlled laser, the direct laser engraver with an accuracy of 12,700 dots per inch, or almost 4,000 dots per centimeter. The process has become much less labor intensive and much faster than 50 years ago.

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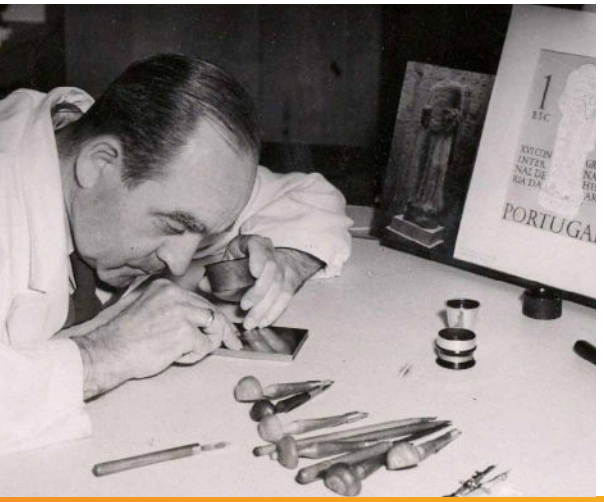
THE HISTORY OF INTAGLIO PRINTING

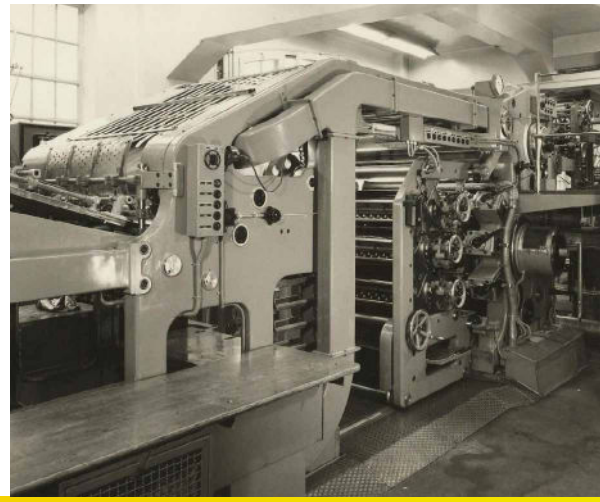
For a long time plate printing was the most common technique for images and individual pictures. Intaglio printing has been around since about 1430 and was used in England for the first engravings, being further developed by the german artist Albrecht Dürer in the late 13th century.

The editions of the Banque Royale by John Law (1718-1720) are an early example of intaglio printed paper money. But also Rembrandt made his famous etchings with this technique. Intaglio printing was industrialised on scale around 1820 and Royal Joh. Enschedé started using intaglio printing in 1859 as one of the first security printing techniques on banknotes.



PHOTOMECHANICAL

After manual intaglio printing, a photomechanical version was developed at the end of the nineteenth century: helio-gravure and the derived 'copper intaglio' or rotogravure. This allows photos and illustrations to be reproduced on cylinders in all grayscales. This copper plate printing technique was used by Enschedé from 1924 for stamps, but also for special books.
As an illustration technique for books, the copper intaglio printing was too expensive and disappeared from the scene around 1975. Today intaglio printing is still widely used for postage stamps, tax stamps, certificates and banknotes and it is still one of the better security features on printed matter.



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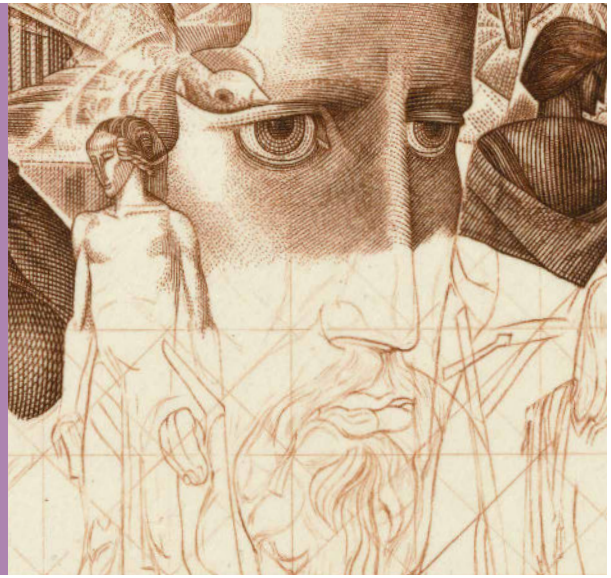
THE DESIGN OF INTAGLIO PRINTING

In order to properly protect printed matter, various security features must be applied in design and production. This requires real craftmanship.
The engravers from home and abroad who worked at Enschedé were real specialists. They made very detailed images from rough sketches based on lines and dots.

Manual engraving is still often used for stamps when the authentic character of the engraving process plays an important role and makes the stamp more valuable.



RECOGNITION

Since with intaglio printing the ink can be felt on the paper, it is often applied at the edges of banknotes. This allows blind and partially sighted people to recognize the banknote. Intaglio printing in stamps has a more aesthetic purpose. The combination of the 'matt' intaglio ink on the offset gives a beautiful result and is particularly popular in philately.

RELIEF ENGRAVING AND GUILLOCHE

For security paper designers, the relief engraving and guilloche are very interesting. Both are now mechanically manufactured, which are hard to imitate due to the high degree of perfection of the machines that are used. Engraving machines were developed at the beginning of the nineteenth century. Enschedé bought them in 1859 from the Berlin engraver and machine builder F. G. Wagner. The relief engraving machine is a forerunner of today's scanner. The variance in the distance of the fine lines creates tonal differences: if the lines diverge from each other, the image becomes lighter, if are closer to each other, it becomes darker. The guilloche is an excellent anticounterfeiting tool. When reproduced, the very fine line structure disappears.

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INTAGLIO PRINTING APPLICATIONS

BANKNOTES

The plate printing technique was introduced at Enschedé in 1859 as one of the measures against counterfeiting of banknotes.
Intaglio printing is still used in banknotes today because it is one of the better security techniques. Intaglio printing is also used so that blind and partially sighted people can feel and recognize the banknote.

POSTAGE STAMPS

The vast majority of stamps are printed with the offset press in cmyk and pms colours, but plate printing is also used for the production of special stamps. The combination of the matte plate printing on offset gives a beautiful result and in some cases a sense of depth. The degree of detail in intaglio printing also gives a stamp its added value; the smallest texts remain legible using a microscope.

TAX STAMPS

Just like on banknotes, intaglio printing on tax stamps has a functional purpose. It is a first-line security feature because you can feel the authenticity. This belongs to the public features as they do not require any equipment to be inspected. Due to the development of track and trace systems, tax stamps are becoming less dependent on the intaglio application.

CERTIFICATES

Many certificates and diplomas worldwide are counterfeited. A lucrative trade and the consequences for institutions and companies are enormous. With the addition of intaglio printing in the design, reproduction becomes almost impossible and no longer profitable for criminals. In addition, intaglio printing gives cachet to the document of value. Enschedé has been printing the most diverse certificates and diplomas for various countries for decades.

PASSPORTS AND MORE

Intaglio printing can be added to any document of value. It gives a very good first-line security feature.
For example for passports, vouchers, immigration labels (visa stickers and residence permits) and even stationery for public figures.

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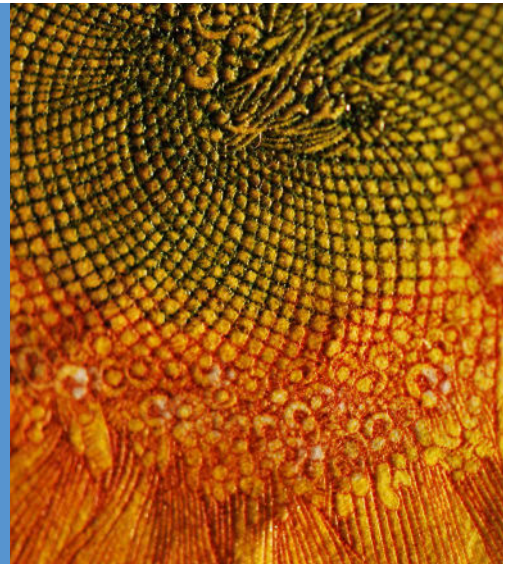
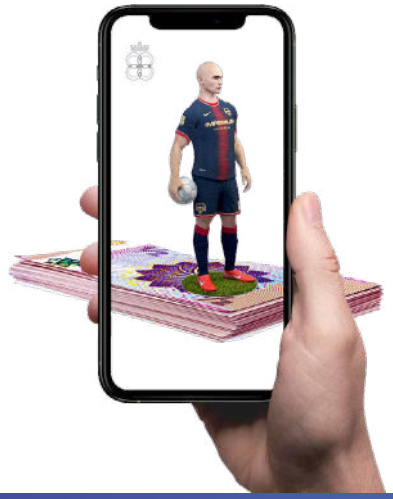
INTAGLIO PRINTING ON SPECIAL BANKNOTES

Up until 2016, banknotes were printed at Enschedé, including the Euro, but also countries outside the EU chose to have their money printed at Enschedé. Today, Enschedé produces banknotes especially for events, tourist hotspots, celebrities and people who simply want to have their own banknotes.

Intaglio printing is a printing technique that should not be missing on a banknote. It is a very good security feature due to its characteristic tactility, but it also gives the note a high artistic value. In the Netherlands, Enschedé is the only printing company for secure printing that has this technology in-house.





SPECIAL PRODUCTIONS FOR SPECIAL CUSTOMERS

Enschedé still designs and produces banknotes, but very special ones. For example “My Personal Banknote” for celebrities and “MyEventNote” for amusement parks, museums and festivals with plenty of options; as a means of payment, as communication tool, as an admission ticket and of course as a unique souvenir. For retailers, the note is suitable for launching special savings campaigns.

And by adding Augmented Reality (AR) and an app on your smartphone, the banknote even comes to life! The combination of the ticket with AR and the app offers limitless possibilities to connect and captivate customers.

YOUR OWN BANKNOTE?

Enschedé’s specialists will work with you to develop a completely unique banknote, with or without AR. We are happy to tell you more about the possibilities.

Have a look on our website, LinkedIn or contact us.

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