## **Winston Ingram**

Few would disagree that the Periodic Table of Chemical Elements is one of the most significant achievements in science, capturing, as it does, the essence not only of chemistry, but also of physics and biology. And it just so happens that 2019 marks 150 years since Russian chemist Dmitri Ivanovich Mendeleev created his table, with its symbols and numbers revealing the atomic relationships between the known chemical elements and enabling predictions to be made about the existence of as-yet undiscovered elements. 2019 has also been designated by UNESCO as the International Year of the Periodic Table.

To celebrate this landmark anniversary, regular infocus contributor Winston Ingram set about capturing exciting images of no fewer than 85 different elements, using a wide range of different microscopical techniques.

We are very pleased to feature a selection of these in the first instalment of a special, two-part tribute to Mendeleev's unique achievement: The Periodic Table.



"I have taken a selection of 85 different elements at sizes of between 0.05mm to 3cm and using magnifications of 2x to 200x.

I photographed them with a large variety of techniques in both single and multiple forms to colour the subjects.

These techniques include polarisation, brightfield, darkfield, phase contrast, DIC, Hoffman modulation contrast, Rheinberg filters, and one microscope fitted with a Heine condenser.

To enable me to excite the gases, I used three different circuits I built to allow current to pass through the glass tubes containing the gases, and I also used radio waves and radioactivity.

I made 3" x I" standard microscope slides for some of the samples; others were used as supplied in small pieces.

To obtain some effects I used a thermal imaging technique so I could photograph the heat signatures of the subject, shown up in various colours."



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Germanium: Polarisation.



79 Au GOLD 196.96







Ne NEON

<sup>25</sup>Mn

MANGANESE

Mercury: Darkfield.

## About the author

early age developed an interest in Science and retired in 2002 and started producing books using Photography.

freelance for various companies, and teaching and also mix the various facilities available.

Winston Ingram was born in 1940, and from an scientific, medical and technical photography. He photo microscopy as an art form. He likes to He went into private practice in 1978, working explore different techniques with the microscope,

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