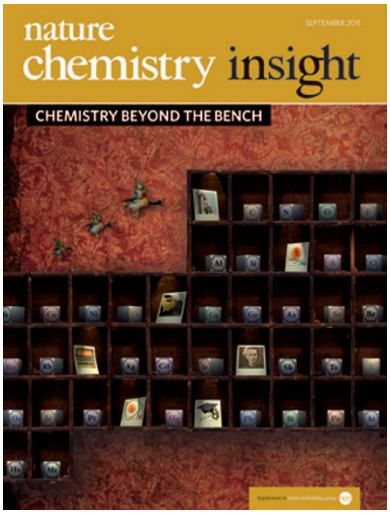

COVER IMAGE

The designation of 2011 as the International Year of Chemistry by the United Nations offers our community an opportunity not only to celebrate its successes, but also to look critically at the challenges it faces.

COVER DESIGN: ALEX WING. IMAGES: DUCKS, © HEATHER BUCKLEY, WWW.HEATHERBUCKLEY.CO.UK; MARIE CURIE, © PHOTOS.COM/THINKSTOCK. OTHERS: © ISTOCKPHOTO.COM/ L TO R: JAVARMAN3; MAREK ULIASZ; OLIVIER LANTZENDÖRFFER; CATENARYMEDIA; CHRISTIAN WAADT; BANKSPHOTOS; JAMEY EKINS & ANDREY PROKHOROV; UYEN LE.

Chemistry beyond the bench

The designation of 2011 as the International Year of Chemistry (IYC) by IUPAC and UNESCO provides an ideal time for chemists to take stock: to examine their place in the wider world, reflect on chemistry's history and look ahead to future opportunities and challenges. Inspired by the themes that IUPAC has created for the IYC, this collection of Commentaries considers a broad spectrum of the issues facing chemistry today.

Chemistry needs to improve its relationship with the wider public, many of whom seem unaware of its benefits, and even suffer from 'chemophobia'. And with this image problem, what can be done to inspire the next generation of chemists to study what can seem like a daunting and demanding discipline? Once their studies are over, how can new chemistry graduates and postgraduates respond to the changing industrial job market?

Although there have been many chemical triumphs in the design and production of new medicines over the past century, there are constant worries that the drug pipeline may be running dry. Will a better understanding of the physical chemical behaviour that underpins human biochemistry improve the drug-discovery process? New drugs aren't the only things in short supply: recent concerns over the scarcity of rare-earth metals have highlighted the limited availability of many mineral resources.

How can the inadequate educational resources be improved in developing countries? This problem, in addition to poor general infrastructure, severely restricts access to the many potential benefits that chemistry offers to improve people's lives. Even in more developed countries, other barriers have hindered access for around half of the population; how have things changed for female chemists in the 100 years since Marie Curie was awarded the Nobel Prize in Chemistry?

Chemistry has achieved great things in the past century, playing a large part in creating the modern world as we know it. But improvements in communication, education and accessibility are needed to ensure that chemistry has a global and sustainable future in the next 100 years and beyond.

International Year of CHEMISTRY 2011

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COMMENTARIES