

Editorial

We are aiming at producing two newsletters a year and as the last was in early Autumn, here now is that for (very) early Spring. It also gives details of forthcoming meetings, which I hope you will take note of and do your best to attend.

We had our AGM at the Carbon Foresight meeting at the IOP on September 30th and this issue contains Malcolm Heggie's address from the Chair. It's written in his inimitable style and gives a very good feel for how the year went. I have to acknowledge with blushes, his recognition of my labours! Two new members were elected to the Committee, two retired and the existing officers were re-elected.

I would draw your attention to the BCG Spring meeting in Brighton, which looks as though it has a very interesting programme with a strong team of speakers. Full details of the meeting and a registration form are contained in the newsletter. We are also sponsoring a meeting jointly with the HSE (Nuclear Inspectorate) in November on Management of Ageing Graphite-reactor Cores¹, of which Tony Wickham is the organiser. This is a very timely meeting on a subject that is drawing increased attention in this country both because of the finite life of the earliest reactors but also from an increasing realisation of the potential importance of nuclear energy as part of our energy resource. The meeting has already attracted important industry sponsorship and if the attendance at the Nuclear Graphite Specialists' gathering of which Tony gives an account here, is anything to go by, it should be well-supported.

We are also holding the next in the now world-renowned series of meetings of carbon nanotechnology, NanoteC05, this time back at Sussex after last year's excursion to France for NanoteC04. There are two reviews of this meeting, the second being received anonymously by your Editor but whose author was so lightly disguised both by his idiosyncratic style and the fact that it arrived from Sussex, that he has been credited, if that's the word, with the authorship.

Carbon 2005 takes place in Korea this year. Prof. Chong Rae Park has sent details of the programme so far and an account of the main themes of the meeting.

The more general articles give a good idea of the range of interest in our subject element ranging as they do from of the latest high technology in making artificial diamonds for advanced industrial applications dealt with in the last newsletter to one the oldest industries in these islands, the ancient art of charcoal burning, described in this one.

As ever, your Editor is always very glad to receive any possible contributions to the Group newsletter, whether it be in the form of articles, expressions of opinion, letters or even simply pointing me in the direction of potential areas of interest to our members.

Norman Parkyns

norman.parkyns@tesco.net

¹ Actually, it says Ageing Management of Graphite-Reactor Cores, which sounds a bit pejorative to me. I know we're all getting older, but still.....

Chairman's report
British Carbon Group Annual General Meeting
IoP HQ, 76, Portland Place
5.30pm 30 September 2004

I would like to be brief. It is very good of you all to attend and my first task is remind you of the mission of the British Carbon Group – to promote carbon science. This embraces both education and research, which we have achieved this year by the organization of conferences and award of bursaries.

Our last AGM was held during NanoteC03 – which has now become an annual conference on nanotechnology in carbon and related materials. It is an international conference and attracted 90 participants in 2003, when it was co-organised with the Groupe Francais de Carbone (GFEC).

Our next conference was an international symposium on Adsorbent Carbons organized at Robert Gordon University in April this year (28-29th). Highly successful as a small meeting of 30 participants and a good rehearsal for Carbon 2006.

Tony Wickham initiated and organized a series of conferences on nuclear graphite: The International Nuclear Graphite Specialists Meeting. The fifth in this series, INGSM V, was held in Maentwrog, Snowdonia, Wales in September and attracted over 70 participants from all over the world. BCG was pleased to be a co-sponsor of this meeting.

I am very pleased that you have come to this workshop on 'Foresight Carbon' and I thank heartily the speakers, John Robertson, Nicole Grobert, John Dennis, Chris Wort and Tony Wickham for giving us their well informed visions of the present and future of carbon materials.

The next NanoteC (NanoteC04) is being held in France in October, organized primarily by GFEC, but with input from BCG. It promises to be the biggest NanoteC yet and we wish the GFEC the best of luck for this conference.

Finally on the subject of conferences, I draw to your attention that most of the committee's efforts this year have been directed to organizing the international carbon conference to be held in Aberdeen in July 2006. This is a large and important conference in carbon research which cycles around three continents (America, Europe and Asia) each year, in the US this year and in Korea next year. The whole BCG committee takes on the role of conference organizer with me as Chair, but much of the work devolves upon the local organizer, Bob Bradley, and, Conference Manager, Tony Wickham, in whom we have great confidence.

It is a great pleasure to thank our Honorary Newsletter Editor (Norman Parkyns) for the production of the BCG newsletters during the year and to acknowledge the invaluable work of the Honorary Secretary, John Fisher, and Honorary Treasurer, Chris Hindmarsh. I should like to thank all the committee, especially the new members who have given

freely of their themselves at demanding time in their careers and injected so much enthusiasm. Especial mention to Chris Ewels, whose 'can-do' attitude is matched by his unparalleled computing and web skills. Indeed, the committee has been working extremely well together as a team this year, helped in large part by the energy of the new generation carbon researchers.

I feel I must also mention Tony Wickham in dispatches. He has two roles, first as a committee member and secondly employed as Conference Manager for Carbon 2006. Both roles he discharges with vigour, dedication and professionalism. His voluntary administration of other of our conferences greatly facilitates the organization of BCG conferences. It is difficult to imagine BCG without him and his rather endearing irascibility ☺.

When it comes to the election of officers and committee members, I would encourage everyone to participate and, if you are not involved in this AGM, to consider putting yourselves forward for next AGM. We welcome new blood and I am glad to see that we have new nominations for election to the committee.

Two of our committee members must step down this year, Mark Thomas and Gareth Neighbour. They were both active and valued members of the committee and deserve our gratitude for their work in the year. Unusually, because they have key roles in the organization of C2006 (as Chairman and Vice-Chairman, respectively, of the Programme Committee), we are glad to be able to co-opt them onto the committee for the coming year in those roles.

To close, I would like to wish all of us, and BCG in particular, a happy and successful year.

Prof. Malcolm Heggie

AGEING MANAGEMENT OF GRAPHITE-REACTOR CORES

A Conference to be held at Cardiff University Conference Centre² ("University Hall"), Birchwood Road, Pen-Y-Lan, Cardiff

Monday 28th – Wednesday 30th November 2005

Principal Sponsor: The Health and Safety Executive, Nuclear Safety Division

Supported by: The British Carbon Group

² Direct contacting of delegates at the centre is not possible (except by mobile phone or through the conference manager's phone 07885567577). Further information about the site is available via www.cardiff.ac.uk

Conference Manager: A.J. Wickham, P.O. Box 50, Builth Wells, Powys, LD2
3XA
Tel/fax: 01597 860244
Mobile: 07785 567577
e-mail: confer@globalnet.co.uk

Conference Website: www.graphiteageing.org.uk

This meeting will cover all aspects of the management of graphite cores for the first generations of nuclear reactors. It is being co-organised by the British Carbon Group in conjunction with the UK HSE. A committee has been formed chaired by Prof. Emeritus Mike Burdekin (formerly of Manchester University), with representatives from British energy, BNFL NSTS, NNC Ltd, as well as the Universities of Hull and Manchester, and of course the HSE (NII). It is hard at work defining the scope of the conference and a preliminary announcement will follow soon. Tony Wickham is the Conference Manager and will deal with the organizational aspects.

The conference centre will be the University of Cardiff and accommodation has been provisionally booked at the Cardiff Moat House Hotel at special rates for the conference attendees. We have been privileged to secure significant industrial funding for the event, which guarantees the financial basis and also means that we shall be able to offer special rates for student registration.

As further information becomes available, it will be posted on the website whose address is given above.

CARBON 2005: World Conference on Carbon Materials

I have received the following information about Carbon 2005 from the secretariat and as this is the major world meeting on carbon each year, I have reproduced it more or less *in extenso*. In addition to the conference itself, a special Colloquium, is being arranged at July 3rd, 2005 in the Hilton Hotel, Gyeongju, Korea. The meeting focusses on 'Frontier Materials for Hydrogen Storage', still it seems, a topic attracting a lot of interest. According to the organizers "It will be a venue through which the most up-to-date information can be exchanged particularly on newly developed and/or old-but-newly-functionalized materials for hydrogen storage".

Prof. Chong Rae Park is the Chairman of the main committee and Julie Sean in charge of the secretariat. Her e-mail address is carbon2005@carbon2005.com. There is a website at www.carbon2005.com. that gives fuller details.

ndp

The International Conference on Carbon is an annual great event on carbon materials that surveys significant information on the forefront of advancement in carbon science and technologies. Nowadays, carbon may be one of the subjects of the most considerable interest to the people on the globe.

The tradition of carbon meetings goes back to 1953, held at the University of Buffalo, U.S.A. At this first meeting led by Professor Stach Mrozowski, the presented papers were only four but increased to nineteen in 1955, and over five hundred these days. The conference has been held biennially up to the twenty-fourth in 1999 in U.S.A., and in even numbered years, the carbon conference has been held in European countries. During Eurocarbon 96 held at Newcastle, UK, it was decided to have the international conference on carbon to be held every year consecutively in America, Asia, and Europe starting from the year 2001. Since then, Korean carbon scientists have made great efforts to hold this world conference and at last had privilege of organizing CARBON 2005 at CARBON 2002 held in Beijing, China.

The CARBON 2005 will be held in Hilton Hotel, Gyeongju, Korea, from July 3 to July 7, 2005. The theme of the CARBON 2005 Conference is 'Frontier Carbon Materials for Well-being Life on the Safe Earth'. Under this theme, CARBON 2005 will show a full scope of the science and technology of carbon materials in ten topical sessions: A: Adsorption and Surface Science; B: Clean Energy Storage; C: Carbon Nanomaterials; D: Bio-Medical Carbons; E: Industrial Carbons; F: Novel Carbons; G: Porous Materials and Environmental Applications; H: Structural Carbons; I: Carbon Science. A special Colloquium on 'Frontier Materials for Hydrogen Storage' will also be held on July 3, 2005 in conjunction with the CARBON 2005.

Earlier Carbon conferences featured more than 500 papers and about the same or higher number of participants from about 40 countries. We, the Korean Carbon Society, hope to succeed in this glorious tradition via CARBON 2005.

Please come and experience the essence of Korean Culture and the dynamism of Koreans.

A list is given in the brochure of the many world-widely renowned scholars who have made the earlier carbon conferences success, and are expected to participate to make this CARBON 2005 also successful:

The Organizing Committee of CARBON 2005.
Korean Carbon Society

NanoteC'04 – The sixth international conference on nanotechnology in carbon

In a break with tradition NanoteC ventured overseas this year, crossing the channel to Batz sur Mer south of Brittany, not far from Nantes. Batz sur Mer is a charming seaside area with some very picturesque villages nearby and a uniformly friendly, welcoming and enthusiastic organising committee. On the down side it carries with it the dubious claim to fame that the locals have evolved gills and visitors may need industrially reinforced umbrellas to keep off the driving rain – at least that's what we found on this trip. However it's also justifiably famous for its sea food, as demonstrated at the conference banquet where the starter was a huge variety of different prawns, oysters, mussels and crab, and the fish-related courses just kept arriving until they must have exhausted their EU fishing quota. The good food combined with a well stocked bar and roaring log fire meant that the weather was unable to quash people's good spirits, and everyone went away happy, with the quality of the science a bonus.

The meeting was organised by the French GFEC with a local team from the University of Nantes. In another break from tradition the meeting was held back-to-back with the European GDR Nanotube meeting, which worked well and helped boost attendance to a NanoteC record. As well as a strong French contingent there was good representation from around the world.

The presentations were varied and strong, with a refreshing shift in emphasis away from nanotubes to embrace a wider range of nanostructured carbons and morphologies, and their synthesis. The poster presentations were exceptionally strong (110 posters), spurred on by the generous poster prizes offered by Nature / Nature Materials of a year's free subscription to their journals.

The conference began with two keynote presentations from Professor Endo and Mauricio Terrones covering various areas of innovation in nanotubes, including new double walled nanotube growth techniques, nanotube and fullerene coalescence, as well as nanotube doping and magnetic currents in carbon nanostructures. Double walled nanotubes resurfaced throughout the meeting as promising new nanotubes which can be grown in a consistent fashion and are more chemically and thermally stable than their single walled cousins. Notably E. Flahaut in Toulouse has performed careful studies and found (Mg,Co,Mo)O catalyst ratios which lead to daily gramme-scale high purity DWNT production.

A provocative talk from Ljubisa Radovic raised many questions in carbon chemistry and led to long bar-based discussions, notably on the sensitivity of graphitic material chemistry to their edge state chemistry (and whether unterminated edge site radicals may be stable under certain circumstances). The gradual drive to higher production quantities of nanotubes continues with various claims including 0.5kg/day using rotary tube ovens (Lausanne) and a novel technique of nanotube fibre spinning direct from the growth oven developed at Cambridge. A Grenoble team had a working 6" CNT FE display (320*240 pixels) running on their poster showing Charlie Chaplain movies, although they were the

first to admit that emission uniformity was still an issue and there is still much scope for improvement.

In terms of electronic structure there was much discussion of the role of excitons, and whether they may have led to mis-assignment of tube diameter and chirality in some of the new emergent techniques such as single molecule resonant Raman spectroscopy. Excitons were one of the key issues picked out by P. Lambin in his closing conference address as an issue requiring further study in the coming year.

So all in all, an excellent NanoteC which charted significant advances in carbon nanoscience since last year; full marks to the French for smooth and cheery organisation (and most original conference banquet entertainment for many years!). NanoteC will be sailing home this summer and will be back in Brighton at the end of August 2005 (<http://www.hpc.susx.ac.uk/NanoteC2005/>).

Chris Ewels

NanoteC04

An inauspicious start – missed my train and so arrived two hours late – and then while registering at the conference I was presented, rather ominously, with a conference anorak. It was needed as much in Batz-sur-Mer as later in Bordeaux, Toulouse and Carcassonne, even. Was this really the France we dream of visiting when in England?

Since I was delayed I cannot report on the two headline speakers Morinobu Endo and Mauricio Terrones, but have no doubts on the quality and polish of either. They tell me Mauricio described me as the ‘father of NanoteC’. That paternity was to be a constant theme at coffee time chats and after dinner speeches. In particular I was asked to say a few words at the end of the conference about the next conference. I said it was like the first day I dropped my infant daughter at primary school – fearing unimaginable horrors for my baby mixing with all the rough kids on the block, but picking her up at the end of the day, no harm done, and she bubbling with enthusiasm for her new found friends. So it was when the infant NanoteC was sent to France – a tremendous success. The analogy can’t be taken too far, after all, our reaction to the superb French viticulture and cuisine was the exact opposite of Laura’s feeling about school dinners.

The web site contains the programme and abstracts, but I draw out the following incredible advances. Charles Mioskowski (Strasbourg) who described fascinating work in which the functional groups physisorbed into a nanotube were photopolymerised to form completely new nanostructures templated on the nanotubes and Hoenlein from Infineon who showed the tremendous progress they had made in growing single nanotubes in different locations on a silicon chip in order to make individual devices from them. Their secret was to etch holes in silicon and deposit a nanoparticle of metal in them, from which the nanotubes could grow by Chemical Vapour Deposition.

This was the biggest NanoteC so far – 167 registrations of which two thirds were (and I suspect still are) French, 12 from UK (a bit disappointing, but the meeting was held during UK term time) and the rest from twenty (!) other countries.

The conference banquet was exceptionally good – two seafood courses, first mussels, oysters and other unidentifiable things in shells with a surgeons tool kit to extract the poor creatures inside and second cooked – coquilles St Jacques and the rest. Then magret de canard, fromage and profiteroles. The 2001 Saumur served with the duck was beautiful – a cabernet sauvignon with a ringing smoky palette.

I should be embarrassed to reproduce my after-dinner speech – which my gracious French hosts required of me that evening – but brazenly I give it here. I was assured that the <<fautes de genre>> added an extra English charm and should not be corrected. They also have the virtue of preserving the rhyme in places ☺

Hier je rêvais d'il y a six ans
D'une cygone grand et bien chargé.
Elle m'approche lourde mais toujours volant.
Malgré qu'elle était en vol planée
Je l'ai trouvé facile á saisir,
Elle avait quelquechose au bec,
Qu'elle m'a donné avec plaisir.
C'était le bébé NanoteC.

Et puis j'ai rêvé de cette congrés et je n'ai pas marre
Je n'ai pas pu dormir dans les séances
Mon congrés devient-il cauchemar
Se prenant lieu en sauvage France?
Bin, non c'est tellement plaisante
Bien de toutes aspects et de toutes senses
Géré par les gens d'Orléans et de Nantes

Francois Béguin, who was effectively the conference chair, had already thanked the organising committee and the local organisers, principally Serge Lefrant and Annie Simon, who did a marvelous job. So I closed by moving a vote of thanks for him, which met with resounding applause.

As for the future, I was frank and sincere, but perhaps not completely informative, when I said that next year's NanoteC will probably return to Brighton and be held in the week of the late summer bank holiday or the week after. You should find notice of NanoteC05 in this newsletter (*immediately after this review ndp*). But if the parental analogy can be carried further I noted that the next big parting between me and my daughter was when I dropped her at Cambridge University ...

Malcolm Heggie



NanoteC'05 back in the UK
<http://www.hpc.susx.ac.uk/nanotec>

After NanoteC'04, organised by the French Carbon Group in Batz-sur-Mer (see the reviews above), NanoteC'05 will be back at Sussex University, Brighton from Wednesday August 31st until Saturday September 3rd 2005. This will be the seventh international NanoteC meeting, now established as one of the leading international meetings on nanoscale carbons, famous for its relaxed atmosphere and conference dinner poetry!

The sessions will start at 2pm on Wednesday with registration in the morning, and will end at lunchtime on Saturday September 3rd. Buffet lunch will be available on the 31st. All lunches will be included in the registration fee, as well as dinner on August 31st and the Conference Dinner on September 2nd. (Dinner on September 1st is not included – this is the time for the traditional foray into Brighton night life).

It is important to us to keep the costs for the meeting as low as possible, especially for students, in order to achieve as much student participation as possible. Details of student bursaries to help cover travel costs are on the British Carbon Group Website (www.britishcarbon.org). In order to encourage presentation of latest results, there will be no proceedings associated with the meeting.

As in previous years it is the aim of NanoteC to promote carbon science at the nano scale: fullerenes, nanotubes, nanowires, sp^3 forms, *etc.* With carbon being the main actor of the conference, we would like to open the doors for other elements, too, since the field is developing rapidly towards these novel inorganic nanostructures. Therefore, we plan to have a day devoted to hetero-atom containing carbon and non-carbon nanostructures.

Further details are available on the conference Web site, including deadlines for pre-registration, at

<http://www.hpc.susx.ac.uk/nanotec>

FIFTH INTERNATIONAL NUCLEAR GRAPHITE SPECIALISTS' MEETING

The Fifth International Nuclear Graphite Specialists' Meeting, the first to be supported by The British Carbon Group, took place at Plas Tan-Y-Bwlch in North Wales in September 2004. Previous meetings have been held in Germany, Japan and the USA (twice).

Plas Tan Y Bwlch is the study centre of The Snowdonia National Park Authority and is the former home of one of the largest slate quarry owners, flourishing in Blaenau Ffestiniog in the last century. It has a beautiful setting in the Vale of Ffestiniog, close to excellent sandy beaches, the mountains of Snowdonia, the Italianate village of Portmeirion, and Harlech Castle.

The 2004 meeting was generously co-sponsored by British Nuclear Fuels plc (Nuclear Safety and Technology Services) and The Health and Safety Executive (Nuclear Safety Directorate), such that no registration fees were required. Inexpensive accommodation for the luckier delegates was available at Plas Tan Y Bwlch itself, although one or two did suffer from rain pouring down the walls of their rooms in periods of excessive rain – we understand that the lead flashings have now been repaired!

Just over 70 delegates attended from all over the world, with representatives from Japan, Korea, China and South Africa included, and including three graphite manufacturers. Many delegates were primarily interested in the development of new graphites for HTR, although there was of course a large UK contingent more concerned with the extension of the operating lives of existing graphite-moderated nuclear plant.

In total, 43 excellent papers were presented, leaving most delegates hungry for more discussion outside the formal sessions – hungry too for “The Taste of Wales”, accompanied by traditional harp music, which was offered at an opening reception on the first evening.

Most prominent amongst the UK presentations was the relatively new Nuclear Graphite Research Group at The University of Manchester (including a significant element of the former UMIST demonstrating skills in computer tomography of structures with excellent moving graphics), together with presentations from the Universities of Bath and Hull, UKAEA, BNFL and the Nuclear Regulator with specific responsibility for graphite-moderated plant. There was also a special session dedicated to the comparison of computers used in the structural analysis of graphite cores.

Many delegates now look forward to the sixth international meeting which will be held in Chamonix in the week of September 19th 2005, sponsored by SGL Carbon.

Tony Wickham

Chemistry of Carbon Materials and Nanomaterials

(I received the following message by e-mail. Unfortunately the attached pdf file would not let itself be copied, so the flyer referred to is not available but if you are interested in the meeting, approaching either of the websites below could give you more information ndp.)

Dear Colleague,

We are planning a session entitled: "Chemistry of Carbon Materials and Nanomaterials" at the upcoming American Chemical Society Meeting in San Diego, March 13-17, 2005. We have a broad scope that accommodates many aspects of carbon materials research, and we hope to emphasize the common science governing both traditional carbon materials and new nanoforms (see attached flyer).

Note that short papers (preprints) are due on line by **November 15, 2004**. Submission is done on-line at: <http://oasys.acs.org/oasys.htm> and instructions and a preprint template are available at ACS Fuel Chemistry Division website <http://www.anl.gov/PCS/acsfuel/preprintinfo.html>.

San Diego in March is very nice -- we hope you can join us!

The Session Organizers:

Teresa Bandosz, Bahram Fathollahi, Robert Hurt, and Jun-ichi Ozaki

P.S. Over 100 candid photos from *Carbon2004* can now be viewed at the conference website: www.carbon2004.org.

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Active Charcoal

Following the article on the so-called environmental barbecue charcoal that I found in our local supermarket, I have had an e-mail from Chris Ewels pointing me in the direction of a couple of publications emanating from Britain on this topic. It seems that there is a revival of interest in producing home-grown charcoal as a means of providing an economic basis of managing our forests and of giving farmers an alternative source of income. You may have therefore the opportunity of supporting UK charcoal products in the future, especially as the price is not very different from that of foreign imports.

Besides the press release about bio-fuels, I'm also printing an extract from a book by Dr. Helen Sanderson of the Royal Botanic Gardens, Kew that is taken from a report that she and a former colleague Dr Hew Prendergast wrote about this. She also supplied me with a photo showing a modern charcoal burner, that we would more accurately describe as a pyrolyser, in action. There certainly seems to be quite a degree of local atmospheric environmental pollution! From our point of view, the manufacture of wood charcoal is

scarcely high tech and maybe it's one of these traditional industries the technology of which was worked out centuries ago and which are not really susceptible of improvement using modern know-how. I'm very grateful to Dr. Sanderson for sending on this information, which I am sure will be of interest to you. Who knows? We might be recruiting members from a native active carbon industry in future—one can only dream.

The UK is to encourage the production of biomass, crops grown specially for use as environmentally-friendly fuels.

By Alex Kirby
BBC News Online environment correspondent

The government is setting up a task force to stimulate biomass supply and demand, and offering a range of grants.

Ministers hope this will help the UK to meet its targets for using renewable energy, and that it will also boost farming, forestry and the countryside.

Material like miscanthus (a tall, woody grass), willow, poplar, sawdust, straw, and wood from forests are all suitable.

Funding the industry

The former president of the National Farmers' Union, Sir Ben Gill, is to head the new government-appointed task force.

A £3.5m UK-wide Bio-Energy Infrastructure Scheme will also offer grants to help harvest, store, process and supply biomass for energy production.

Biomass can provide both heating and power, and is one of the fuels available to electricity suppliers in meeting the government's Renewables Obligation, which requires them to obtain 15% of their electricity from renewable sources by 2015.

Announcing the infrastructure scheme the Food and Farming Minister Larry Whitty said: "We must look to the future in our search for low-carbon energy sources.

"Biomass energy has the potential to be of huge benefit in terms of combating climate change, boosting farm diversification, and creating more rural jobs.

"Barriers have to be overcome if we are to establish confidence in the industry, and we want to make it easier for producers to get their biomass out of the fields and forests and onto the market, to make it a viable alternative energy source."

Sir Ben Gill said: "Biomass struggles to make progress. I intend to define why and then look at what needs to be done. This study is about finding solutions and that's what we intend to deliver."

Telling criticism

The government's Energy White Paper includes an aim for renewable energy to supply 10% of

UK electricity by 2010, with an aspiration to double that by 2020.

Last May a report by an independent advisory group, the Royal Commission on Environmental Pollution, said the government was neglecting the potential of biomass for tackling climate change.

The RCEP chairman is Professor Sir Tom Blundell, head of the department of biochemistry at the University of Cambridge.

Speaking at the report's launch, he said: "I am disappointed that energy from biomass has not developed as quickly in the UK as elsewhere in Europe.

"It could make a vital contribution to the UK's targets for combating climate change, but is failing to develop under fractured and misdirected government policies."

The RCEP report called for:

- a renewable heat obligation, which would require current heat suppliers (of gas, oil and electricity) to supply a given proportion of their heat from renewable sources by a set date
- the formation of a government/industry biomass forum
- biomass-fired combined heat and power (CHP) schemes in all new-build projects.

The government's response to the report, which has just been published, expresses agreement with some of the RCEP's points.

Charcoal

(Reproduced with permission of the Authors from "Britain's Wild Harvest" by H. Sanderson and H. D. V. Prendergast, available from www.kewbooks.com)

One product that has made a particularly strong comeback is charcoal. Wood is generally left to dry for 6-12 months, although quality charcoal can also be produced from 'green wood'. When dry, it is split into shorter sections, stacked into a kiln (a technique requiring skill and practice for best results) and partially burned under reduced oxygen levels. Traditionally, charcoal was produced in earth kilns, but today the most frequently used modern variations are the portable metal ring kiln, and the retort kiln (for smaller producers). The retail price of UK charcoal is about £1.50/kg, generally 30% more than imported lump wood charcoal. Its selling points include its quick and easy ignition (no need for fire-lighters or lighter fuel), clean and longer-lasting burn, and benefits to local wildlife through coppice management.

As well as cheap imports, British producers have to compete within a fickle market that is very much dependent on weather and other factors such as the trend towards gas barbecues. The purchasing of British charcoal might also stimulate the more sustainable production of the charcoal we import. At national level the BioRegional Development Group, based in Carshalton (Surrey), has played a critical role in its promotion, emphasising the sustainability of its production compared with the less certain origins of imported material which still accounts for 95%, or nearly 60,000 tonnes, of our annual consumption (mostly for barbecues). The British Charcoal and Coppice Specialist Group, a specialist group within the Forestry Stewardship Council (FSC), based in Sheffield (Yorkshire), has developed a scheme to allow small-scale producers throughout England and Wales to sell products from 68 woodlands under the FSC logo which guarantees that the wood is from sustainably managed woodland.



A modern charcoal burner (kiln) in action (Photo © Royal Botanic Gardens, Kew)

Books received

The story of a piece of coal
London: George Newnes & Co.

Edward A. Martin, FGS
1901

A remarkable little book, one in a series intended to educate the public at large, it deals with the whole industry of coal in the UK at the turn of the nineteenth century, when it was the largest and most highly developed in the World. The Author was clearly more at home in the geology of coal rather than other aspects and this accounts for a good third of the book. From our perspective, it's interesting to note that coal and petroleum were thought to have a common origin and although he stresses the way that the structure of the fossil trees of which coal is composed is carried through to coal as we see it today, there is no mention of macerals. The pioneering work of Marie Stopes and others was in the future when the book was written.

A chapter on forms of coal and carbon is interesting from an historical perspective. The nature of graphite, active carbons and diamond is accurately described although the section on attempts to make artificial forms of the latter could perhaps be re-interpreted in terms of modern knowledge. He mentions the pioneering work of Hannay and of Dumas, although he gives greatest emphasis to "...a young French chemist, M. Henri Moissau (*sic*) who has come to the front, and the diamonds which he has produced have stood every test for the true diamond to which they could be subjected....." Well, I'm not sure that Jon Goss would quite go along with that!

There is a chapter that reminds us of the price of coal in human terms, in which he describes the dangers of coal mining, including that of coal dust explosions, the full importance of which had only just been appreciated. We move on to manufacture of coal gas and coke and the products derived from coal tar, quite a vital resource at that period. The final chapter takes us through coal deposits throughout the World.

The book is written in that charming, old-world manner that has now completely disappeared. Touches of poetic imagery abound and there is a feeling of child-like wonder about the marvels of the natural world that is quite touching. It's rather interesting to note that perhaps it's the style rather than the content that has dated more but there is no doubt that the reader of the early years of the last century would have been left well-informed about what was then perhaps our country's greatest industry.

Norman Parkyns