



DISPATCHES 1

THE Reconnaissance FORUM



Circulation: (*sûr'ku-la-shun*) n. The act of moving in a circle.

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INSIDE Feature: Whatever Happened to Cold Fusion?

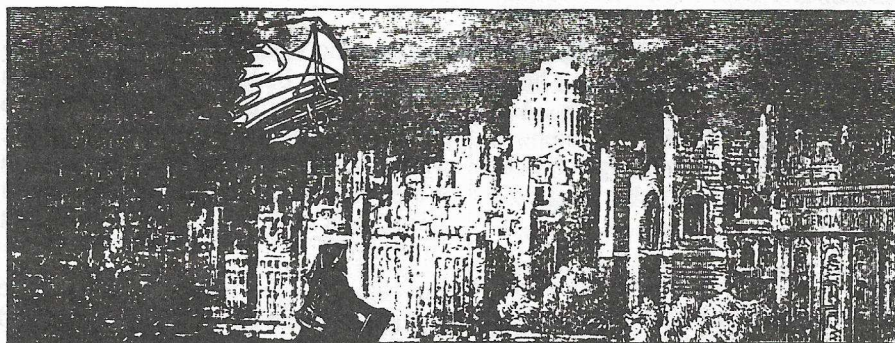
Welcome to the first dispatch from *Reconnaissance*. Our intention with this publication is to give you some information about the convention, some items of general interest, and a chance to comment on our ideas.

Since *Reconnaissance* is being held in Cardiff, we begin with an article on the city by Helen McNabb, a fan who lives in Llantwit Major near Cardiff.

Cardiff

Helen McNabb

Cardiff is the capital city of Wales, and the largest and most populous city in Wales, although its size and prosperity — and importance — are of recent date. There was a Roman camp there, guarding the crossing of the River Taff, the remains of which can be seen incorporated into the walls of Cardiff Castle. The Normans, when conquering South Wales, built a wooden mote and bailey on the Roman site which was rebuilt in stone in the twelfth century. It had im-



portance, as did all the strongholds of the Marcher lords in what was largely enemy territory, when the Welsh stopped fighting each other long enough to fight the Normans, but compared to the vast fortress of Caerphilly Castle, Cardiff was fairly humble.

Cardiff's leap to size and status began during the Industrial Revolution when the docks, which were the main channel to the rest of the world for high quality Welsh coal, were built. In 1801 Cardiff had a population of under 2000, by 1966 the population was nearly 300,000. Much of its growth it owed to the investment and work of the 2nd and 3rd Marquess of Bute who built the docks — on excavated mud flats as Cardiff has no natural seaport facilities — and encouraged the meteoric development of industry throughout the Victorian era.

The 3rd Marquess of Bute was also responsible for two of the most fantastic (and I use the word advisedly) buildings in the area. A man of immense wealth he commissioned William Burgess, an architect with decided and fanciful ideas about medieval architecture, to renovate and rebuild Cardiff Castle and the small folly of Castell Coch (a few miles north of Cardiff) which he did with extravagant and unforgettable style. There is plenty to keep sight-seers occupied in the area, in addition to the Castle there is Llandaff Cathedral outside the city and anyone interested can walk most of the way across parkland from the Castle. Further beyond is St Fagans Folk Museum, a large park where buildings from all over Wales — farm houses, a blacksmiths, a bakery and so on — have been relocated and rebuilt to show them in their

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As has become recent custom, *Reconnaissance* has adopted a charity. The last few months has seen the formation of an organisation called *Friends of Foundation*, whose aim is to support the *Science Fiction Foundation*, a research library based at the Polytechnic of East London. We asked SF author and critic John Clute to write on the history of the Foundation.

The Science Fiction Foundation

John Clute

They began The Science Fiction Foundation in 1970. At the heart of the operation was George Hay, tireless in those days, not knowing better then. There were others. I don't remember who. I was myself in London in those days, and even then I knew some people who were involved in science fiction, but none of them mentioned the Foundation to me, and I knew nothing of it. This lack of knowledge is not just of microscopic anecdotal interest. In 1970, as in any year of our sovereignty over this planet, men and women in their wisdom tended to draw together into groups, and to define themselves in terms contemptuous of those who drew themselves into other groups. Through personal friendships, I became on my arrival in London associated with the New Worlds cabal in the period (1968-1972) just after its heyday, and in retrospect it's clear that the New Worlds world-view could not have consorted very well with the viewpoint of those involved in the founding

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of an organisation which named itself after Isaac Asimov. By naming their group (their plan, their secret agenda) after the all-powerful secret society which features at the heart of Asimov's famous trilogy, George Hay and his compatriots had allied themselves — in New Worlds' eyes — with the Old Guard, the Old Wave, the Dinosaurs, the Duckpond Loners who pretended to believe (and maybe really believed) that by reading terrible wetdreams of omnipotency like *Slan* and *Foundation* and *Foundation and Empire* and *Second Foundation*, they had themselves become an elect. The Science Fiction Foundation, in this view, would surely have to be a bureaucratic version of the *Slan* shack. And surely one would find inside it a coterie of old farts dung-deep in nostalgia for the good old days when London was truly Trantor.

This is just a guess. Myself, I know from nothing.

*"Trantor it wasn't —
this was utterly clear
— but suddenly I was
excited, and grateful,
and wished to thank
someone."*

It is a comment on 1970 (and I suppose myself) that I knew nothing. The years passed, and eventually the Foundation flapped into one's consciousness like a quango. Peter Nicholls, who ran the Foundation by then, who edited its journal, which was called *Foundation*, and who sported some sort of connected lectureship in science fiction at Barking Precinct of the Polytechnic of East London where Isaac's secret masters housed themselves in two tiny rooms, asked me to become involved with him in the editing and writing of a science fiction encyclopaedia; and one day in 1976 he drove me further east in London than I have ever been (except in an airplane), parked us in a pothole next to a quonset hut, and we were in Barking Precinct. Trantor it wasn't. We walked through septic fluorescent corridors. We came to a door. Inside was the Foundation. There was a secretary. There were piles of pages smelling of pulp (and one's earliest years). And there were books, stacked and mounded and dumped, filling the tiny rooms almost completely so that one had to walk sideways. Here was the Science Fiction Foundation. Here was the cauldron of raw stuff which we were going to sort into one book. Trantor it wasn't — this was utterly clear — but suddenly I was excited, and grateful, and wished to thank someone.

The moment passed. There seemed no one in particular to thank. This was 1976, after all, when it seemed that England would go on forever, declining slowly perhaps, but not gnawing its own vitals. Not asset-stripping itself like some crazed entrepreneurial wolverine in a trap eating its own guts out to be "free". The Foundation, in other words, was part of the landscape. It was just as safe as any of us. (I suppose, in fact, it probably was). The years passed. Peter and I (and Brian Stableford, and Malcolm Edwards, who succeeded Peter as Administrator of the Foundation, and David Pringle, who would have succeeded Malcolm had the budget not suddenly been slashed like a knife wound) did manage to put the Encyclopaedia together, a task which would not have been possible in those days if the Foundation had not existed, and suddenly it was 1980. And it all changed.

Just before the cuts began, the polytechnic shifted the Foundation from its cramped quarters to a much larger office in the new library complex. For a very short time, things looked up. Neither Peter Nicholls nor Malcolm Edwards had made much go at being secret mayors of the world, but then neither of them had really tried very hard; it was enough for them to administer, edit, teach, generate panels and events; there seemed no crying need actually to promulgate anything very intensely. And so when the budget cuts did eviscerate the Science Fiction Foundation, there was simply nothing to say. (I was by this time Reviews editor of the journal *Foundation*, and I had nothing to say). We had been a small but functioning part of a public culture — we had assumed that England was a country blessed by a public "space" which could not die — and so, when the days began to darken and chill and shrink, we milled about like sheep. We did not call out for help, perhaps out of fear that making a noise would draw attention to our exposed bellies. We did not suggest new activities, because there was no one left to undertake them. (Ten years ago there was an Administrator, and an Associate Administrator, and clerical help; today, one person, Joyce Day, seconded from the library staff, works officially part-time though in reality much more to keep the wheels turning, the journal paid for and posted, the sortings tackled, the crises edged past; and Joyce Day is growing tired). We continued to edit and produce *Foundation*, the best academic journal of its sort around; we continued to add to the library; Joyce Day, assisted by Honorary (i.e. unpaid) Administrators, continued to answer queries, keep the lights on, the music playing. Together we wove and continue to weave clothes for the emperor. Emperor's Clothes.

What can be done? In a straightened age, is there any point in trying? Is there any

longer science fiction we believe in as a tool of knowing and self-knowledge and delight and alarm? If there is — if there still is — is there any point in announcing ourselves as its bearers? Do we — writers and editors and critics and readers and loved ones — have any pride? Can we put some clothes on the Foundation? Join the Friends? Subscribe to the journal? Give advice? Donate books? Suggest programmes of action? Volunteer to sort — to key in the catalogue — to help post the journal — to help us think? There are no secret mayors left in Trantor (there never were). The Science Fiction Foundation is no more than an expression on the face of British science fiction. The next few years are crucial. I can only hope that face does not turn blank. □

The Programme So Far

Chris O'Shea II

Like many conventions before us, we started with a goal. To produce a convention with intelligent and interesting programming based around a theme, the theme being "New Works and New Ideas in SF". Now I am sure that most of you are saying to yourselves, "Great, another convention with a 'The Future of SF' panel, except this one is going to run for an entire weekend. Good, a chance for me to catch up with all that gardening". But before you get too hasty (in fact, since you are reading this, you have probably already joined, so it's too late (ha,ha!)), let us reassure you, that there will be more to this convention than a bunch of talking heads saying that SF will continue being what it is, that the mainstream will merge, and that all SF will be released on CD-Book in the future.

Indeed, there will be panels of that sort, and discussions, debates, arguments and knock-down/drag-out fights. But that will be just part of what is going on. We are having a film programme that will be covering the seminal SF films (plus a few thrown in for the pure enjoyment of them) plus a certain number of films and shorts that might be "the shape of things to come". Each film will be introduced and some sense of its place in the scheme of things will be given. After each film there will be a chance for discussion and/or intelligent critiques from some of our more well-known and learned attendees. We decided, back when we set up *Reconnaissance*, that there would not be 'Guests of Honour' but instead we would invite a certain number of erudite and expert people to attend (all our attendees!) and draw on their intelligence and experience to make this a great convention. We also decided to grab a few people prior to the convention and assign them special areas to

look into and cover at the convention. We intend to look at the future of SF in all possible media. Comics, books, films, and interactive fiction will all receive due consideration, and be subjected to the expert scrutiny of you and all our other attendees. We also plan to look at the future by studying the past and seeing how it developed and why. And what are the current influences that will affect the SF of the future? Fandom and conventions will also be subject to the spotlight of enlightened commentary, with such questions as "Why do people go to conventions anyway?" and "What do you REALLY want from a convention?" being just two of the questions that are down in our ideas book.

We are open to other questions being added however, and the *Reconnaissance Dispatches* (like the one you hold in your hand) will be the immediate forum for such ideas. We intend to make the Dispatches more than just another PR. It is going to be a place where your comments will be printed, where we will examine the future of SF, science and society and anything else that you want to read about. In lots of ways the *Dispatches* will be a form of interactive media, since your feedback will affect what appears in the next issue. Similarly your response to such ideas as "The Zen Quiz" will affect how the convention will be organised and run. So don't wait for the future to arrive, grasp it in both hands and mould it into the future you want! □

Reconnoitering Films

Andy Morris

The films for *Reconnaissance* are being chosen because they:

- (a) did something different in SF film at the time they were released, or,
- (b) are interesting in their own right, or
- (c) are appreciated in a different way today to the way they were at the time of release.

Several fit more than one category. There will also be at least one film purely for the fun of it, some animation shorts (specifically including Canadian work), and a couple of surprises. Something has been chosen from each of the last four decades, avoiding the "blockbusters". Each main film will have a short introduction with details of why it was chosen and how it was intended to relate to the theme of the convention. We hope to surprise you and possibly show you something you may not have noticed before (the programme includes humour, irony, sarcasm, fantasy and serious drama). □

Editorial policy for Dispatches requires that every member of the Reconnaissance committee must contribute. Since Marcus Streets started this convention he has, in the best conrunning tradition, left the country and is currently working in Holland. He offers his personal view of what you should prepare for if you plan to attend Confiction, the Holland Worldcon, next year.

Holland

Marcus Streets

Other things you need to know...

Dutch banks open shorter hours than English ones, and will not cash cheques. Bureaux de change however stay open all hours (and will cash Eurocheques and plastic); there is one on site. Eurocheques have a maximum value of Hf1300, about £80, plastic a minimum of Hf1350. You will need to produce your passport. Dutch shops open rarely if ever. O.K. so they are open 9.30 till 5.00 if you are lucky, and late on Thursday's. Most will not take plastic. Even my Travel Agent does not take plastic.

There are no baths in Holland, well very few. Most Dutchmen have never had a bath in their lives. Dutch toilets are oddly shaped, but functionally equivalent, however urinals in public gents generally need to be flushed.

Dutch cuisine is awful, fortunately they enjoy everybody else's and these are excellent. Restaurants and bars are open late, most bars will shut about 2 a.m. or sometimes later. Dutch beer is strong and fizzy, expect the head on a pils to be around a third of the drink. There is a bar in Zutphen about ten miles away, where a friend and I occasionally drink, we are known to all the barmen there as the crazy Englishmen because we like to pour our own beer without a head. The first time we were in there the barman mistakenly took pity on us and frothed the beer up for us — at least he was good enough to give us a free drink in exchange for this. Dutch bars will not necessarily serve you if you just sit down. Some do some don't. Spirit measures are somewhere between a triple and sextuple depending on the bar, the one in Zutphen gives you the bottle to pour your own measure, and complains if you take too little.

You will probably be searched as you return to Britain, so do not think about trying to import anything. Customs can impound Dutch pornography. Get customs clearance on anything you want to bring over, especially computers. If you do bring anything over, Dutch electricity is 220 V

50 Hz. Everything except TVs work, British video recorders or computers will not drive Dutch TVs unless they have a SCART socket, and I am not certain if they will even then. However I believe that British videos work in Dutch machines. Dutch sockets are essentially shaver points.

The Dutch have no road sense whatsoever. Cyclists are always in the right if you hit them with a car, no matter how stupid they may have been. Cyclists will ride side by side at a dawdle, in fact just like foreign language students. Though Dutch motorways are admirably signposted compared to the U.K, if you miss your turn it is likely to be a long way to the next junction. Be very careful about watching for signs in the middle of complex junctions, as it is possible to get lost in some of the interchanges. It is illegal to jay walk, but that does not stop people. □

Review

James Steel

Return to the Forbidden Planet Cambridge Theatre, 7 Dials, London.

Any show announcing itself as Shakespeare's *Forgotten Rock and Roll* Masterpiece has got to be interesting, I thought. Well, I decided to go along to check. The theatre's little souvenir book wasn't too informative, except to say that Gerry Anderson had done some of the Special Effects. Still, nothing prepared me for the show.

You know the plot. Anybody who has seen *Forbidden Planet* knows the plot. This production re-tells the story of the film but with the worst Shakespearian puns in the world and the loudest Rock and Roll that will fit in the theatre. The players all play their own instruments superbly and the radio-mike relays have to be seen to be believed. By the end of the show people were literally dancing in the aisles and the standing ovation was one of the most deserved I have seen. Highlights must include Ariel the roller-skating robot and "Cookie" whose singing and guitar solos burst eardrums as far as the cheap seats in the top circle. Prospero is perhaps not quite sufficiently mad, and both his and Captain Tempest's voices weren't as good as the other main characters' when I went, but everything is sufficiently camped up to get over such trivial problems.

This was possibly the best evening out I have ever spent at the Theatre. I would recommend it to anybody but the most terminally deaf. Suffice it to say, I thought it was quite good. One other recommendation — if you go, sit in the middle or front stalls and bring sunglasses. This one's going to be a cult. □

The O'Shea Phenomenon

Rob Meades

Maybe I'm being naïve, maybe this has been happening for years with no conspicuous effect, but aren't there a few people trying to do far too much in fandom?

Since *Contrivance*, I have noticed this in friends, and in conrunning friends specifically. I choose to victimise Chris O'Shea here because he is a prime example — at one point a few months back he was running convention publications for *Eastcon*, *Speculation*, *Reconnaissance* and *Fanderson*, while maintaining his already full social life. Of course, there's nothing wrong with this if the publication deadlines are neatly interleaved, third parties submit work on time, etc...

No, there is something wrong - an inevitable consequence is that all those convention publications will end up looking very similar, have no real identity of their own. Perhaps the enclosed and separate con committee is a myth anyway, at Eastercon level when a large portion of fandom must be involved, but smaller conventions in other fannish enclaves should present a different face or I, for one, will become jaded. I'll go, don't get me wrong, but I will get more and more disenchanted until I gafiate in despair. The sort of feeling that *Novacons* 14, 15, 16 began to instil.

And of course, Chris is not the only workaholic, there are other names I could mention, with particular emphasis on the prospective Worldcon bid. I was not involved in conrunning fandom during the early stages of the run-up to *Conspiracy*, but I hope that the Worldcon organisers kept themselves well clear of other fannish commitments (and visa-versa that the bulk of fandom was sensible enough to do its own things in its own sweet time and not let the Worldcon Web entrap them).

OK, laissez-faire, this is still (just) Thatcher's Britain, let market forces take the lead. Those who work themselves to ruin deserve it. However, fandom inevitably gets the worse end. Too many broths spoil the cook and I wouldn't want to eat the damned broth afterwards. I suspect that the current enthusiasm for *Unicons* (particularly the *Picocon* crowd) will bring in some new active fans and, with a spot of encouragement, make fandom's incestuous habits more genetically stable. But the victims of the O'Shea Phenomenon will first have to take a step back, learn to relax, sleep, etc, and spread the workload.

I'm going to buy myself some bedroom slippers and learn to age quietly. □

... 'Cardiff' continued from page 1.

original condition, together with some of the original furniture.

In the docks area are the Maritime Museum and Techniques. The Maritime Museum is what one would expect, Techniques is a hands-on exhibition of technical ideas, including holograms and the Domesday Project.

The National Museum of Wales is within five minutes walk of the Park Hotel and in addition to being a major museum has visiting exhibitions from across the world (like the Chinese dinosaurs).

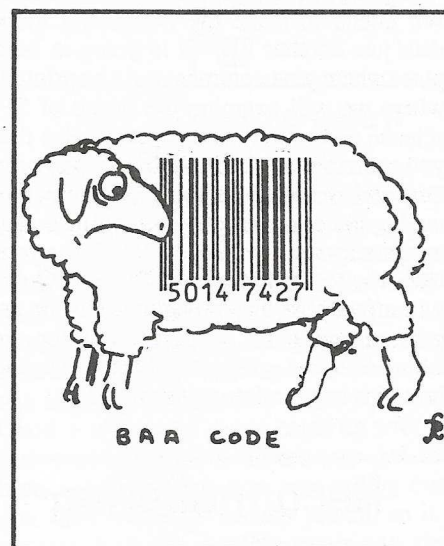
There is a wide choice of artistic activities available from major rock concerts in the Arms Park to street entertainers in the shopping precincts. Cardiff boasts one of the newest major rock venues in St David Hall which puts on a startling variety of events throughout the year. Opposite the Park Hotel is the New Theatre, home of the Welsh National Opera and a receiving venue for major touring dance and theatre companies, which has recently undergone a complete renovation. Half a mile away is the University Theatre, the Sherman, which has two performance spaces and puts on a wide variety of films as well as theatre. Further to the west is Chapter Arts Centre which is the home of more adventurous and innovative theatre companies. It also has a gallery with regularly changed exhibitions and two cinemas which show a wider variety of films than are available in the town centre. There are small theatres around the city, two major galleries in the city centre — one in the Old Library opposite St David's Hall, the other Oriel off the shopping precinct — plus dance studios and so on. A regular jazz venue is the Four Bars Inn opposite the Castle with live performers every week, plus there are all the clubs, pubs and so on with all the usual choices of entertainment.

In the sports field Cardiff is probably best known for the Cardiff Arms Park where rugby internationals are played (and local games too), but there is also football, a skating rink, a dry ski slope, the National sports stadium, a riding school, swimming pools, golf courses and loads of parks to walk or jog in.

The Park Hotel is in the shopping centre where there are all the usual large name shops, a shopping precinct, as well as the Victorian Arcades (covered shopping streets) with their multitude of smaller shops and two markets (one open air, one enclosed). There are two major bookshops, Dillons, Smiths etc, there is an antiques market on Saturdays with book and comic stalls, and a few second hand bookshops as well.

There is a wide choice of food available from cheap to expensive, excellent to awful, with many nationalities represented including Welsh (of course), Italian, Chinese, Indian, Thai, French and there are some good vegetarian places in town as well.

Cardiff has the advantage of being small compared to many cities, thus compact and easy to navigate, and being the Principality's capital with more resources and facilities than many similarly sized places. The majority of places one might need are within walking distance of the hotel, as is the mainline station, though the connecting suburban station is two minutes from the Park Hotel. All in all Cardiff is an attractive, active and interesting place, worth the trip to visit. □



100ish Words

Patrick Lawford

I have been asked to write between one and three hundred words for this report. Or, to be more accurate, told to write them. No hint on subject or style or anything helpful like that, Oh no, just "produce a hundred or more words by next Thursday."

"But I can't write", I respond wittily, "just look at the last committee meeting minutes I compiled". This with a knowing smile, as it was a sure winner.

"Ahem, yyyyes. Sanskrit weren't they?" they said, stumped for a moment, but my triumph was all too short. "It's O.K. we'll clean it up a bit".

"Thanks at lot" I thought. Panic! "I know. Why don't I just read a hundred words for you. After all, that's why I'm involved in the first case, because I read S.F."

They just laughed. □

The Zen Quiz

While other conventions get bogged down in such minor matters as 'What is life?', 'Why are we here?' and 'How long is the bar open?', we at *Reconnaissance* ask the really important questions like:

1. What is the sound of one fan feuding?
2. Who buys new Reliant Robins?
3. When are they going to finish the Giant's Causeway?
4. What's in a name?
5. Why are there locks on 7-11 stores?
6. Of all the gin joints, in all the towns, in all the world, why did she have to walk into mine?
7. If this is the question, what is the answer?
8. How do snow-plough drivers get to work?
9. Why do one in a million chances come up nine times out of ten?
10. Does Schrodinger's cat have 18 half lives?

Points will be deducted for incorrect answers. □

Letters, Packets & Bytes

John Stewart

One of the requests or membership that *Reconnaissance* received had the senders electronic mail number and system given. Therefore in true SF tradition we dispatched an electronic acknowledgement. The following short article looks at how the SF fiction of computer and communications networks compares with the current reality.

Using computers and communications networks, as a substitute to the ordinary mail has been a common theme in many science fiction novels and stories for almost as long as the literature has been around. Some of the more recent ones have been John Brunner's *The Shock Wave Rider*, where the computer datanet is an essential plot element and William Gibson's *Neuromancer* where this network has become a kaleidoscope computer graphics world where ICE (Intrusion Countermeasures Electronic) can gain a direct route to the living brain unless you are careful.

However reality has been a little slower, bulletin boards have been common place in the states for a number of years, but even so they tend to be used by "computer people", by which I mean either those studying computer science and related areas (engineering, physics, biology etc) or by hobbyists, many of whom will have pro-

gressed from an interest in amateur radio or electronics. And anyway bulletin boards tend to be single central units that you dial up, communications between them is not common.

Europe by comparison is still discovering Bulletin boards and the public networks have been limited to videotext services such as BT's Prestel, Germany's Blittext and the French Minitel system.

The latter is probably the one that has come closest to the SF dream, an ambitious nationwide network, given a kick start by the French governments decision to virtually give away the terminals free. A point of clarification; I recognise that their are a number of commercial electronic mail networks around at the moment, however as far as most of the population are concerned they require complicated equipment and the networks themselves charge comparatively expensive per minute charges, on top of the telephone bill. Even if you have access to the equipment and can afford the time etc. charges, the efficient use of the equipment currently requires you to be able to type reasonably well.

However I mentioned *Neuromancer* & *The Shockwave Rider* earlier and it seems likely that by the time the periods in which they are set, both are about mid-twenty first century, we may well have some of the integrated computer and communication systems SF has known about for many years. For those of you with the facilities now and an inclination to talk to someone, the electronic networks which *Reconnaissance* can be contacted on are detailed in the Information section on the back page. □

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22-24 June 1990

22-24 June 1990

FEATURE

Whatever Happened to Cold Fusion?

Test Tube Fusion: The Unconfirmed Dream

Steve Bull

The possibility of low temperature fusion first hit the headlines during Contrivance last year. I distinctly remember Ian Watson getting out of a taxi in front of the Hotel de France expressing some surprise that the taxi driver had told him all about the news. Science and technology news never warrants space with the press for very long and soon the episode was forgotten. If, like me, you never heard any satisfactory conclusion to the arguments for and against the existence of cold fusion, our feature article will be of interest to you. It is written by Steve Bull, a fan and a researcher at Harwell Laboratories where some of the investigations into cold fusion were conducted.

In much the same way that high temperature superconductors dominated the scientific press during 1988, the announcement of the possibility of cold fusion in March of this year has generated much interest among scientists from diverse backgrounds. Statements have appeared weekly, both supporting the original claims of Fleischmann and Pons and contradicting them. The weight of scientific opinion is now that if such cold fusion does occur (which has not been acceptably proved one way or the other) it will occur at an extremely small rate and thus be useless for power generation, but the process still remains a scientific curiosity that merits further consideration. By bypassing the usual peer review system and announcing their results to the press Fleischmann and Pons did themselves no favours — good science requires the accumulation of sufficient data to defend any hypothesis and their few scant results have been attacked in the literature. However, as yet no-one can prove them wrong.

Martin Fleischmann, Professor at Southampton University, is a man who is always coming up with "great" ideas that he thinks are worthy of investigation — not unusual for a successful scientist. However, most people would ignore many of his more outrageous suggestions and concentrate on the more believable ones — since Fleischmann is a Harwell consultant, it is often some of my colleagues who have to sort the wood from the trees in this respect. Despite this he has built up a considerable reputation based on his more conventional research projects.

Fleischmann suggested that the conditions at the free surface of the anode during electrolysis (high potential gradient, rapid release of gaseous hydrogen which can become stuffed into the anode material as well as forming as bubbles etc.) might produce the conditions necessary for fusion to occur on a very small scale without the need for very high temperatures. Though nobody could immediately prove that this would not happen, most people thought the process sufficiently unlikely to not be worth bothering with. However, Stan Pons, one of Fleischmann's ex-research students who

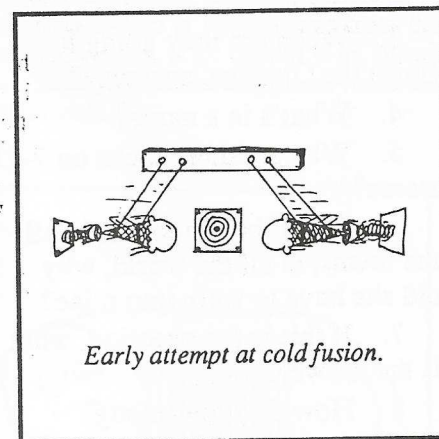
had become Professor at the University of Utah took the idea on board with gusto and set about building apparatus to test the hypothesis.

The initial apparatus was very simple. In a large test tube a central palladium electrode was placed, surrounded by a coiled platinum wire cathode which was kept away from the palladium by some glass rod spacers. The test tube was filled with heavy water (D₂O) in which lithium metal had been dissolved to give a D+LiOD electrolyte mixture. Heavy water was chosen because, in order for helium to be produced by the fusion process, a starting material containing neutrons is required and the hydrogen in ordinary water does not fit this

"What complicated matters occurred after the apparatus was switched off and left for the weekend — it caught fire..."

criterion. An electrical resistance heater was also placed in the tube to allow calibration of the heat generated by the cell when it was in operation. The whole apparatus was placed in a heavily insulated water bath and the temperature rise in the bath due to the application of a known amount of power to the resistance heater was measured for calibration. The apparatus was then left to return to thermal equilibrium before electrolysis was started.

The initial apparatus was left running for several weeks with no apparent result. Though the system was considerably endothermic initially (requiring more energy to keep it going than was released by the reaction) the released energy began to increase and soon became exothermic with a net heat gain. This is observed in most electrochemical reactions and in experiments where ordinary water was used as the



Early attempt at cold fusion.

basis for the electrolyte. What Pons observed that convinced Fleischmann that fusion was occurring, was an increase in the rate of heat generation which could not be explained by these electrochemical factors. So far an encouraging, but minor, result. What complicated matters occurred after the apparatus was switched off and left for the weekend — it caught fire and much of the palladium electrode was vaporised. To this day no-one knows what actually happened to cause this, but it was important ammunition for the fusion arguments even though there are some possible (but unlikely) non fusion explanations.

Given the temperature rise for this and other early experiments Fleischmann and Pons calculated that around 1012 fusion events/sec/cm³ sec must be occurring. If this were the case the neutrons and gamma rays emitted by the apparatus would have killed everyone that came close to the apparatus. Indeed Fleischmann and Pons claimed to have measured gamma rays in an early experiment, but at a much lower level than would be expected from their calculated fusion rate. However, once their gamma ray spectrum was published in *Nature* the arguments about their interpretation of the data made the existence of any gamma rays unlikely.

Subsequently a more complicated and accurate apparatus was constructed which incorporated a neutron detector. From the neutron flux detected, Fleischmann and Pons calculated a fusion rate of 104 events/sec/cm³ which was somewhat inconsistent with their earlier value. This is

a much more believable level, but would produce only a very small temperature rise in the water bath and this is where the problems really start. The calorimetric measurements on the system may appear simple, but to do them to the accuracy required for such a fusion rate requires very careful work; many workers did not take into consideration the fact that the volume of water in their electrochemical cell was continually reduced as the electrochemical reaction converted water into hydrogen and oxygen. The experiments have thus been described as a calorimetric nightmare.

Due to politics in the University of Utah, Fleischmann and Pons were forced to release their results to the media before they were ready to publish and before they had done enough work to "prove" their hypothesis. The media launch caused groups all over the world to try and replicate the results before they really knew what they were. By the time *Nature* published Fleischmann and Pons paper on the matter (which was not the first — Steven Jones of the Brigham Young University also in Utah had reported that fusion could be occurring in a titanium electrode but at a rate of 0.4 events/sec/cm² which makes power generation impossible) claims and counter claims were being made all over the world. Many scientists were skeptical about the whole idea of cold fusion, particularly as the use of neutron detectors requires great skill if meaningful results are to be obtained and the early experiments of Fleischmann and Pons and other workers were not nearly careful enough to allow any confidence in their results.

Harwell's interest in cold fusion started in the week before Easter when news of the discovery was brought to the laboratory by Martin Fleischmann on one of his regular visits. Now the U.K.A.E.A. has done a large amount of work on fusion — work that led to the development of the facilities at Culham and the siting of the Joint European Torus (JET) power plant. The news of potential low temperature fusion could have meant that all this work was in vain, so the Authority's Chief Scientist, Dr Ron Bullough, quickly set up a group of scientists under the leadership of Dr David Williams to look into the effect. These people were taken from groups with experience in electrochemistry, sensors, neutron and gamma ray measurement and calorimetry in order that the best possible experimental apparatus be constructed and the interpretation of results be performed as correctly as possible.

In the first month the group worked around the clock to try and prove/disprove the cold fusion results (along with many other labs around the world). Nineteen cells were constructed and a range of different tests were performed with different sorts of pal-

ladium electrode, different electrolytes and different electrolysis conditions. Each cell had its own neutron and gamma ray detector but in all experiments not one single neutron or gamma ray was detected. People at Harwell wanted to believe in cold fusion, but after nearly four months of experimentation no evidence for it had been found so the work was finished. It was not possible to prove that cold fusion had not occurred, but that if it did occur the rate was too low to be detectable and hence that the process was of no practical use. More than 100 other groups worldwide were working in the same way and most have also had no success in replicating the results of Fleischmann and Pons. The few groups who have claimed in the press to have detected fusion have provided little in the way of detailed measurements. The results reported are often contradictory; some laboratories have reported cold fusion results for ordinary water, but not for heavy water leading to speculation that it is the lithium that is undergoing fusion which is even more unlikely than deuterium. However, no laboratory has claimed much in the way of reproducibility.

"In the first month the group worked around the clock to try and prove/disprove the cold fusion results ..."

In tandem with the experimental work, theoretical studies have recently revised the rates at which the possible fusion reactions are expected to occur. Although these new rates are a million times greater than the earlier calculated values they are still not large enough to explain the cold fusion results.

There are many possible fusion reactions involving the various isotopes of hydrogen, but the most likely are those based on deuterium-deuterium reactions. In order for two deuterium nuclei to fuse to produce either a tritium nucleus and a proton or a helium 3 nucleus and a neutron, they must be pushed close enough together by some means. In cold fusion it is suggested that it is the stuffing of deuterium into the palladium metal lattice that forces them close enough together. However, getting two such nuclei close enough together to fuse is a very difficult process — as the positively charged nuclei approach each other, their mutual repulsion increases up to a maximum called the Coulomb Barrier. Given

the strength of the palladium lattice it is difficult to see how fusion could occur, but looking at the problem from a quantum mechanics viewpoint the process is possible. If the wave functions for the two nuclei overlap there is a small but finite probability that the two nuclei will be in the same place, at which time fusion will have occurred — a process known as tunnelling through the Coulomb Barrier. The probability of such an occurrence is small, and thus, though isolated fusion events may occur in the electrode in the cold fusion experiments, it cannot explain fusion on the scale reported by Fleischmann and Pons.

To this day no-one has proved whether cold fusion is or is not occurring in any electrolysis experiment. What has been proved is that the rate is too small to measure and thus it will never be a viable source of power. Though some workers still claim to have got high temperature rises or neutron yields, their results have not proved reproducible in other laboratories (and often even in their own laboratory) — even when Martin Fleischmann pronounced one of the cells at Harwell identical to a rig he had measured a high temperature rise on (down to the exact details of manufacture of the cast palladium electrode) he could not explain the reason why no large temperature rise was obtained when it was used. It's difficult to see how any reliable apparatus can be constructed to prove things one way or the other, there are always differences between tests on the microscopic level which scientists insist have an important effect on any results, however carefully you try to reproduce things. What most workers have realised is that the problem is now academic — no fortunes are to be made from cold fusion technology and the research has gone back to the low profile, but academically interesting, level that it was at before the media announcement took place.

Fleischmann and Pons have lost face and the world scientific community has wasted a good deal of money chasing a dream that most of them didn't really believe in. □

Postscript:

An article in *New Scientist*, (11 November 89) relates that a committee of 22 scientists from the Energy Research Advisory Board in the US will find no firm evidence for any nuclear event in the fuel cells operating in Utah when they submit their report this week. Reports of excess heat, some neutrons and a small amount of tritium are "of scientific interest" but do not suggest any practical application, the panel has concluded after investigating the phenomenon since May. The panel advises the US Department of Energy against spending the \$25 million that researchers into cold fusion in Utah have requested. □

Postscript

Rob Meades

So this is the first *Dispatches* from *Reconnaissance*.

What do you think?

Do you think it is too similar in style to the *Eastcon* and *Speculation* PRs (both of which use Desk Top Publishing)? Are you at all interested in its content, or have you turned to the back page for the membership list alone?

Why not tell us?

Dispatches is subtitled 'The *Reconnaissance* Forum' for a reason — we would like it to become a forum for discussion.

In the next issue we will be asking you for feedback on the programme, amongst other things. At too many convention business meetings, fans turn up to complain about the arrangement of the programme. We hope to give you the opportunity to comment beforehand by discussing the programme, in the open, through the medium of *Dispatches*.

Anyone who attended *Conscription* (a convention on how to run a convention) will know that the clear outcome of the programme discussions was that the theme of the convention should be adhered to. From the very start (before *Conscription*, incidentally), *Reconnaissance* has had a strong theme — a look to the future, a new Renaissance? This is your chance to see if we keep to our aim of producing an interesting and above all *themed* convention.

Please take the effort to write to us — it will improve your convention and ours. □

Information

Reconnaissance will take place over the weekend of 22-24th February 1991 at the Park Hotel, Cardiff.

All correspondence/memberships should be addressed to:

Reconnaissance, 5 St. Andrews Road, Carshalton, Surrey, SM5 2DY.

Electronic Mail Contact Points:

Telecom Gold: 73:TPA075

Greenet: gdn:johnstewart

DASnet: DE3MIR:johnstewart

Membership for *Reconnaissance* is:

£15 Attending

£8 Supporting.

Conversion is always the current difference in rates. Cheques should be made payable to *Reconnaissance*.

These rates may change after *Eastcon 90* (i.e. on 16 April 90).

Advertising in *Dispatches*:

Fan Rate: £10 full page,
£5 half page.

Pro Rate: £20 full page,
£10 half page.

Deadline for *Dispatches 2* is 27 April 90.

Reconnaissance T-shirts and sweatshirts are available for £5 and £8 respectively from our convention desk at *Novacon* or *Eastcon 90*, or by post (add £1.00 for postage and packing).

Reconnaissance badges are available for 50p (plain) or 75p (hand coloured).

The *Reconnaissance* committee:
Patrick Lawford, Rob Meades, Andy Morris, Chris O'Shea II, James Steel, John Stewart, and Marcus Streets. □

Membership List

At 13 November 89

A = Attending S= Supporting.

13A	Ian Watson
14A	Terry Pratchett
15A	Patrick Lawford
16A	Andy Morris
17A	James Steel
18A	John Stewart
19A	Marcus Streets
20A	Wim Morrison
21A	Alice Kohler
22A	Kef Hartman
23A	Adrian Last
24A	Susan Francis
25S	Trader Horn
26S	Paul Clough
27A	Ben Brown
28S	Mike Gould
29S	Nick Smith
30S	Rohdri James
31A	Fabian
32A	Neil Blaber
33A	Anna Smith
34A	Jill Bradley
35A	Phil Bradley
36S	John English
37S	Steven Cain
38S	Mike Abbott
39A	Neil Jezard
40A	Mike Damesick
41A	Larry van der Putte
42S	Alan Braggins
43A	Steve Bull
44A	Roger Robinson
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46A	Paul Dormer
47A	Pat Brown
48S	Chris Smith
49A	Rob Meades
50A	Bridget Wilkinson
51A	Alex Stewart
52A	John F. W. Richards
53S	Jane Killick
54A	Richard James
55S	Maureen Porter
56S	D. M. Sherwood
57S	Lihm Quin
58A	Peter Cohen
59A	William Armitage
60S	Elda Wheeler
61A	Roger Perkins
62A	Mike Westhead
63A	Kathy Westhead
64A	Colin Fine
65S	Karen Goswell
66A	Micheal Braithwaite
67S	John Stewart
68A	Keith Cosslett
69S	David C. Moor
70A	John Dallman
71A	Peter J. B. Day
72A	P. J. Groves
73S	Alan R. Fleming

In *Dispatches 2*:

Details of Guests.
Program outline.
The Zen crossword.
Letters.

Credits

Our thanks to:

Helen McNabb, John Clute, and Steve Bull for contributing their articles.

To: