

# St Margaret's Church

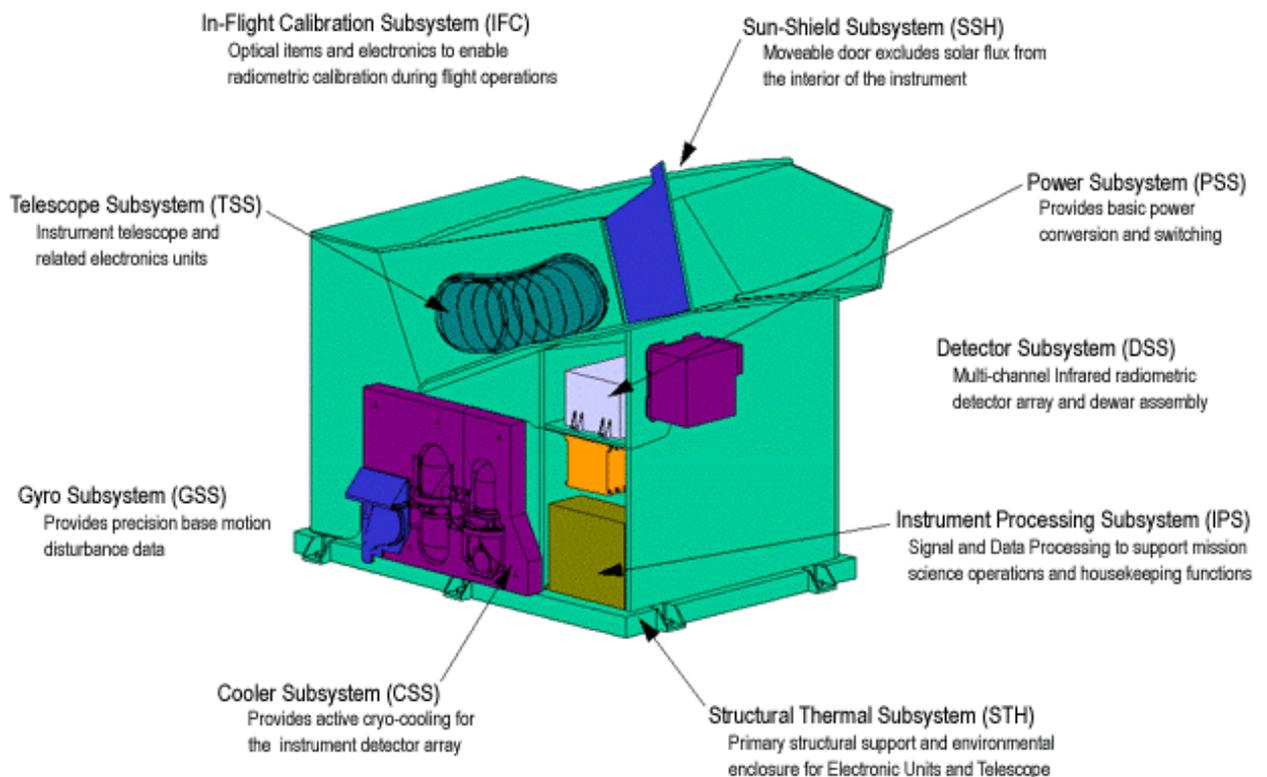
## Oxford

Funeral Service and Thanksgiving for the life of

### John James Barnett

4th October 1947 - 2nd July 2010

## NINE (9) SUBSYSTEMS ARE INTEGRATED TOGETHER IN HIRDLS



(HIRDLS: High Resolution, Dynamics Limb Sounder (HIRDLS pronounced hurdles))

10th July 2010

## **Pastoral Introduction**

*This may be read silently by those present, before the service begins.*

God's love and power extend over all creation. Every life, including our own, is precious to God. Christians have always believed that there is hope in death as in life, and that there is new life in Christ over death.

Even those who share such faith find that there is a real sense of loss at the death of a loved one. We will each have had our own experiences of their life and death, with different memories and different feelings of love, grief and respect. To acknowledge this at the beginning of the service should help us to use this occasion to express our faith and our feelings as we say farewell, acknowledge our loss and our sorrow, and to reflect on our own mortality. Those who mourn need support and consolation. Our presence here today is part of that continuing support.

**Officiants:** Andrew Bunch and Georgie Simpson

**Organist:** Richard Goodall

**Music before the service** - all by J S Bach:

Chorale prelude: Vater unser im Himmelreich, BWV 737

Fugue in D minor ("Dorian"), BWV 538 (ii)

Adagio, from Concerto in A minor (after Vivaldi), BWV 593

Adagio, from Toccata, Adagio & Fugue in C, BWV 564

Chorale Prelude: Liebster Jesu, wir sind heir, BWV 731

Chorale Prelude: Jesus, meine Zuversicht, BWV 728

**Introit:** - Sinfonia from Cantata 106 "Gottes Zeit ist die allerbeste Zeit" J.S. Bach

### **The Sentences**

Please stand as the coffin is brought into the church.

*Bearers: John Arnott, Sam Bickersteth, David Garman, Colin Mayer, Luis MillanVale, Bob Wells.*

*At 10:30am, to mark the start of John's funeral service, steamboat whistles will be blown in Poole Harbour at the Steam Boat Association Rally, and at Trent Sailing Club where more steamboats are gathering this weekend.*

*John Winn wrote afterwards:*

*"On Saturday at 10:30 am exactly, twelve steamboats at the Trent rally blew their whistles in remembrance of John. It just so happened that we were all waiting to go through a lock so we were all close together. What a cacophony!!!! I'm surprised you did not hear it in Oxford!"*

**Hymn** (245 in NEH)

Tune: AR HYD Y NOS

God, that madest earth and Heaven,  
Darkness and light;  
Who the day for toil hast given,  
For rest the night;  
May Thine Angel-guards defend us,  
Slumber sweet Thy mercy send us,  
Holy dreams and hopes attend us,  
This livelong night.

Guard us waking, guard us sleeping;  
And, when we die,  
May we in Thy mighty keeping  
All peaceful lie;  
When the last dread call shall wake us,  
Do not Thou our God forsake us,  
But to reign in glory take us  
With Thee on high.

### **Introduction**

#### **Tributes:**

#### **From the family: Barbara Sexon**

I have a couple of memories I would like to share with you.

Once, during a telephone conversation, John told me he had seen an advert for a second hand army tank. He spent several minutes trying to persuade me what a good buy it would be – it was just the right size for our

large garden; the children would love it; and at £14,000 it was a real bargain. All this was said in such a way that I was not sure whether to laugh or reach for my cheque book.

On another occasion Peter & I made a visit to Bainton Road on our way through Oxford. John was babysitting. We found him seated next to a small teddy bear in a toy pushchair whilst 3 year old Ruth organised them both. Ruth was definitely in charge. We had obviously interrupted a family game which the two of them were enjoying.

John was a very practical man. He put a great deal of thought and effort into finding practical solutions to problems and many of us benefited from that. He built a talking typewriter for Bernard Garman, his and my blind father in law. He made a data logger and sent it to us while we were working in Sudan.

However when I was asked to talk about John, it was these two incidents that came into my mind. What I will remember about John is the quiet pleasure he took in being with his family and his slightly quirky sense of humour. I also wonder if I really should have bought that tank.

### **From friends: John Emmett and on behalf of John Winn**

John was a Gentleman. A devoted husband to Elspeth and a loving father to Ruth, Catherine and his foster daughter, Precious.

But what do we mean by Gentleman?

A card to John's family that arrived this morning from their adopted 84 year old Granny Enid said 'I was very fond of him - he was such a lovely man, kind, caring, generous and always impeccably courteous - a complete gentleman, and I mean a real gentleman in the true sense of the word.'

An early 1900 guide to the River that he loved, seemed to better sum John up for me, as it says of a particularly dangerous Lock:-

"Gentlemen should allow Ladies to walk past this Lock."

I always think of John when I see that Lock. That is the sort of Gentleman he was, Kind and thoughtful for others of course, but always with that spreading smile as he savoured a challenge he could not resist.

For many of us therefore he was not just the Gentleman, but he demonstrated to us the very ideals of the medieval Knight.

Indeed Bold would be an understatement when it came to his relationship with machinery, vehicles, agricultural implements, and latterly, medical equipment;

After the spreading smile came the very briefest of hazard assessments and John was off.

At work he was a brilliant scientist and physicist and was regarded by all as one of the leaders in his field. But this fame did not influence John, and he always showed the same respect for the College porter as he had for the Master.

John had lots of interests and it was through the interest of steam engines and steamboats that I got to know him. He made an engine and boiler and fitted them into a boat which he proudly named Pollywog (which

I'm sure you all know is the posh name for tadpole) He also had a great interest in a vehicle called a Haflinger which he lovingly restored.

He understood how things worked and was always willing to give help and guidance to anyone who asked. It never ceased to amaze me how much John knew about everything.

My memory of John will always be seeing him in one of his famous sweaters chatting to people with a smile on his face. Indeed even during his final illness, we were working together on a steamboating article with all that wide knowledge of his at his command and never with any hint of complaint.

John fought his illness with great dignity and even when he was at his lowest ebb he always praised the staff at the hospital and those who looked after him.

For all of us, John enlightened and brightened our own worlds beyond measure.

We will miss him, we will remember him.

### **From the UK Atmospheric Physics Community: Alan O'Neill**

A few years ago I was asked to give a professional reference for John Barnett. I'd like to begin by reading an extract of what I wrote. I am certain that my opinions represent those of the Atmospheric Physics community both in the UK and internationally.

"Dr Barnett is one of the world's leading scientists involved in earth observation from space. He is held in the highest regard internationally for his brilliant work on designing satellite instruments to measure atmospheric properties. The results of his work have contributed to a revolution in our understanding of the circulation of the upper atmosphere (the stratosphere and mesosphere). His grasp of the fundamental physics of remote sensing, his technical mastery of instrument design, and his appreciation of the scientific needs for the measurements are second to none. His attention to detail, while retaining fully in mind the bigger picture, is truly impressive. He has been an inspiration to many of his colleagues and students at Oxford and beyond. I might add that he is a person of scrupulous scientific integrity - a delight to work with."

I'd like to recount a few recent episodes to illustrate why I regarded John so highly.

In July 2004 the U.S. Space Agency NASA launched a satellite into orbit around the Earth. On board is an instrument called HIRDLS – High Resolution Dynamics Limb Sounder. John was one of the leaders, along with colleagues in the USA, in conceiving this instrument and designing it. He had spent over 15 years of his life devoted to this task. The instrument was designed to be significant step forward in our ability to measure properties of Earth's atmosphere from space. Shortly after launch HIRDLS suffered what looked like a serious instrument failure. It transpired that some plastic-like blanketing had come away during launch and had blocked about 80% of the optical path. When I heard about this problem, my first reaction was disappointment for John and his colleagues for their apparently wasted effort, and it was with

some trepidation I later met John and could gauge his reaction. I was somewhat taken aback. One could easily have got the impression that the stray plastic was deliberately deployed by John just to make using the instrument more challenging and exciting. In the event, through tremendous ingenuity and dedication John and his colleagues, as well as his students, have overcome many difficulties to deliver extremely important scientific data to the scientific community. I have sometimes referred to the HIRDLS mission as the Apollo 13 mission. I don't think John was ever comfortable with this analogy, but my allusion was to John and his colleagues' brilliance in responding to challenging and totally unexpected problems rather than working through well rehearsed procedures.

I'd like to mention another facet of John's character that was on display during this time.

As you can imagine, the UK funding agency supporting our involvement in HIRDLS got very nervous about its financial commitment when the instrument had apparently gone kaput. John dealt with these concerns in a very understanding and straight-forward way, without dissembling and without spin. I remember inwardly urging John to talk things up a bit more. But that was not his style; he was respected for it and his endeavours were made none the worse for it. John was not someone who pushed himself forward, and he never set out to impress at scientific meetings - but when he said something people listened carefully.

My last example of why I respected John so much came recently after his illness had been diagnosed and at the time he was about to start an unpleasant course in chemotherapy. John had agreed to be the external examiner for one of my PhD students. This involves reading a rather dense, recondite tome of a couple of hundred pages and then examining the student closely on it. In the circumstances I somewhat circumspectly tried to get John off the hook (I knew I'd have no interest in doing such a chore with his diagnosis), but he would have none have it, and proceeded with the examination with his usual professionalism and grace.

If I may talk on behalf of John's friends and colleagues, we are all deeply saddened by his death. We are comforted by the fact that his last moments were spent literally in the embrace of his loving family. We are grateful to Elspeth and to John and Elspeth's daughters for their fortitude in comforting and supporting John during his last difficult months.

### **From neighbours: Hannah Parks and Sam Bickersteth**

Sam and I have lived opposite John and Elspeth for 3 years.

John was our kind neighbour.

As anyone who has ever been in John and Elspeth's house, you will know that John was a great gadget man. He has a house full of tools ready for any eventuality. He has helped us and other neighbours so many times – supplying a staple gun, pump or even coloured tin foil. Not only did he always have the needed item, but it was usually in large quantities.

John would not only provide the needed tool but gently want to know if the problem had been sorted, and how he could further help. Other neighbours recall John as one who always had a solution or would go and seek one and come back to help with ideas concerning anything from DIY, car fixing or science homework. John was the best kind of sharing and caring neighbour to have.

John was often to be seen in his driveway wearing only shorts, tinkering with the horse box, Landrover or Haflinger- always tools in hand. John had a broad friendly smile, and his quiet modest self will be badly missed in Bainton Road.

With John's help we have learned how to fix things, understand how household equipment should work, even a bit of physics, but more than this we have learned so much from the dignified, patient and selfless way he has managed these last few months. Through all this Elspeth and their daughters Ruth, Catherine, and Precious have been a model of lovingly support, caring for him at home, with John encouraging them to continue their busy lives and commitments.

A medical missionary Dr Schweizer working in Africa wrote these words: "I always think that we all live, spiritually, by what others have given us in the significant hours of our life. These significant hours do not announce themselves as coming, but arrive unexpected. Often their significance comes home to us first, as we look back, just as the beauty of a landscape or a piece of music often strikes us first in the recollection of it. Much that has become our own in gentleness, modesty, kindness, willingness to forgive, in veracity, loyalty, resignation under suffering, we owe to people in whom we have seen or experienced these virtues at work, sometimes in great matters, sometimes in a small. If we had before us those who have thus been a blessing to us, and could tell them how it came about, they would be amazed to learn what passed over from their life into ours."

## **The Collect**

**First Reading:** Read by Christopher Levick

Preface to the reading: John had this extraordinary mind and imagination - and I amongst many have been a fortunate beneficiary of his advice.

He was forever curious about things theoretical and physical. How things and everything worked or didn't.

He sought and created solutions - and then better solutions. The solutions were to problems - sometimes real, sometimes barely articulated and sometimes, it seemed to me, barely imagined.

And his solutions worked - he either proved them theoretically or often built the solutions himself - because he wanted to - and because he could.

In his life he rarely stopped working - for the sheer love of it.

This is a short reading from 'The Prophet' by Kahlil Gibran

'Then a ploughman said, Speak to us for work.

And he answered, saying;

You work that you may keep pace with the earth and the soul of the earth.

For to be idle is to become a stranger unto the seasons, and to step out of life's procession that marches in majesty and proud submission towards the infinite.

When you work you are a flute through whose heart the whispering of the hours turn to music. Which of you will be a reed, dumb and silent, when all else sings together in unison? Always you have been told that work is a curse and labour a misfortune.

But I say to you when you work you fulfil a part of earth's furthest dream, assigned to you when that dream was born,

And in keeping yourself with labour you are in truth loving life,

And to love life through labour is to be intimate with life's inmost secret.'

### **Hymn** (357 NEH)

Father, hear the prayer we offer:  
Not for ease that prayer shall be,  
But for strength that we may ever  
Live our lives courageously.

Not for ever in green pastures  
Do we ask our way to be;  
But the steep and rugged pathway  
May we tread rejoicingly.

Not for ever by still waters  
Would we idly rest and stay;  
But would smite the living fountains  
From the rocks along our way.

Be our strength in hours of weakness,  
In our wanderings be our Guide;  
Through endeavour, failure, danger,  
Father, be thou at our side.

### **New Testament Reading** Read by Precious Hlatshwayo

Revelation 21, vv1-7.

**Address** Sir John Houghton

A Tribute to John Barnett

I feel very privileged to have been asked to speak in tribute to John.

I first met John in 1969 when he joined the Oxford University Department of Atmospheric Physics as a research student in 1969. An exciting time for us - only a few months before April 1970 when the first Oxford space instrument was launched on NASA's Nimbus 4 spacecraft. It carried a radiometer, jointly developed with a group at the University of Reading, to make remote sensing measurements of the

temperature of the middle atmosphere on a global scale for the first time. John immediately got stuck into the task of preparing for the vast data stream that would come from the instrument. There were lots to do - assisted by the small but powerful computer that had been acquired for the purpose. I say powerful - by modern standards extremely weak and slow, small toy size - but with expert programming by John and others it provided what was necessary. Data received down a dedicated link from NASA had to be managed, organized, calibrated, analysed, presented and interpreted. John was soon completely at home with these essential tasks. His thesis was the first to describe major new features observed in the stratosphere, for instance 'sudden warmings'. He received his doctorate in 1973 and continued as one of the senior research scientists in the Department working on data from similar instruments measuring temperature and atmospheric composition - on the Nimbus 5, 6 and 7 satellites all launched in the 1970s and on a larger instrument on the Upper Atmospheric Research Satellite launched in 1991. John was not only engaged in the essential background work preparing the data for scientific analysis. He was also highly involved in its scientific interpretation relating the physics and chemistry of the stratosphere to its circulation and dynamics. John was a key author on many of the papers that resulted from these projects.

It was in 1987 - well after I had moved on from the Department - that John began work on his own satellite instrument - the High Resolution, Dynamics Limb Sounder (HIRDLS pronounced 'hurdles') - jointly with John Gille and other scientists from the University of Colorado in the United States. This project absorbed most of his energies for the rest of his life. He wanted to build an instrument that possessed higher accuracy and resolution in atmospheric measurements and that could also measure a wider range of minor constituents involved in ozone chemistry including for instance nitric acid and chlorofluorocarbons. Satellites were much bigger by then - the one which carried HIRDLS weighed 2 tonnes - so the instruments could be bigger (over 10 times the size of early Nimbus instruments), more complex and possess much higher performance. The cost of HIRDLS at £100M or more was 100 times greater than that of the early Nimbus instruments.

HIRDLS was launched on NASA's AURA satellite on 15<sup>th</sup> July 2004, after 16 years in gestation. Just after launch there was a big problem. Some rogue material, perhaps a piece of plastic, had become lodged in front of the optics, blocking about 80% of the aperture and threatening any attempt at accurate radiometry. Attempts to dislodge it failed. It was most unfortunate that HIRDLS performance was so degraded. HIRDLS was living up to its name providing many hurdles in the way of success! However, all was not lost. Through remarkable dedication, clever manipulation and a great deal of painstaking work on the data, John Barnett and his team managed to salvage a lot of good and useful observations.

John's college home in Oxford was Linacre College, one of the new graduate colleges founded in the 1960s. He joined as a research student in 1969 and later became a Research Fellow. Elspeth Garman also went to Linacre College. In April 1977 she was a first year graduate student in Nuclear Physics - homeless and sleeping on the Nuclear Physics tea room benches in her sleeping bag (her north Oxford land lady had thrown her out because she doubted her nights were, in fact,

spent in the lab doing night shifts on the accelerators - she had 'thought Elspeth was a nice girl when she moved in - she was after all a Vicar's daughter!'). John Barnett's house in Buckingham Street was at that time being looked after by a college friend (while John was at MIT for the year) who left a note on Elspeth's desk asking if she was interested in a room in the house. Elspeth moved in that night and then wrote to John at MIT to arrange rent payment and had the following first ever communication from him:

*'Dear Elspeth, Thank you for your letter. I am very pleased that you have taken up residence in my home and I hope that you will like it there. If you wish you can stay until January 5 1978, when I shall be returning and will want to move back in (and may recover possession under case 10 of the 1974 Rent Act - I have to say that otherwise you have permanent security of tenure).'*

*There followed lots of instructions about what to do if the drier didn't work or the washing machine stopped.*

*'Best wishes, John Barnett.'*

The rent was £8/week plus a share of the bills!

John came back in June for a visit and by the time he went back to MIT two weeks later, a 'domestic rearrangement' (as Elspeth describes it) had occurred. John used up all his future letter writing potential and wrote to Elspeth 3 or 4 times a week for the next six months. He came back in October on Freddie Laker's second day of cheap flights, and he and Elspeth decided that one day they would get married.

That happened on 13 Jan 1979, and they moved up to Bainton Road in Sept 1980. In 1981 John's mother, aged 77, moved into a flat they built onto the house and lived there for six years till her death in 1988. Ruth was born in 1984, and gave Granny much joy in her last three years of life.

Then came HIRLDS that - as Elspeth describes - consumed John from Christmas Eve 1987 until his illness last year. "We ended up living next to each other," she said, "not with each other."

John's tumour was already very large when, after a fall on Port Meadow while out running it was diagnosed on 27 October last year. Swift surgery was the only option. Before the removal of John's right temporal lobe on 2 November, the surgeon warned that John might not make it through the operation, and that if he did he might not be 'John' anymore. Thankfully neither of these possibilities transpired, and in fact something was unblocked in John in regard to his being conscious of how he felt about things emotionally. He gained a keen appreciation of his close family and their care of him, which he verbalized at length. He let go of HIRLDS and also of his many ongoing workshop projects - he was not able to concentrate on them. He had time to talk and talk and talk, which he had not had the chance to do for a very long time.

John was being cared for at home. Whenever Elspeth was out, there were carers who came to the house to be with him nearly all of whom knew John. He had wonderful in depth conversations about a huge number of subjects on which he was knowledgeable with the carers and the many friends who visited in the last 8 months.

To quote Elspeth about that time "We rediscovered the reason we married,

and this was very precious and positive time for us. We were, and I am, immensely grateful to the people who contributed to giving us the gift of the last 8 months. Caring for John at home, which was where he wanted to die, was certainly not the easy option, but for us it was the right one and was a journey we travelled together.”

John was not only a great scientist with a vast knowledge of things technical and practical. He was a wonderful friend and colleague, was always full of humour - rather dry but funny jokes were his speciality. Only two weeks ago, John had a sore throat and Elspeth was insisting on changing his socks. “That won't make my throat better” quipped John!

I remember especially the great fun we all had together in the Nimbus days. A visit in 1972 when six of us from Oxford attended a meeting in Sendai, Japan, stands out as particularly special. I recall the day when, with Japanese colleagues, we all climbed a local mountain just covered with wild pink azaleas in bloom – a truly wonderful sight. We stayed in a Japanese style hotel. Our first evening we went together to the large bathroom with tanks full of steaming hot water. All six of us climbed very slowly into one of these tanks. I have a photo of the occasion; I looked at it recently – with all of us in the bath but not John Barnett – he, of course, was taking the photo. Just typical of John's personality – the man who took the picture but wasn't in it.

At the end of April this year, it was great that John was able to join us at a celebration of the 40<sup>th</sup> anniversary of the launch of Nimbus 4. He really enjoyed the occasion, stayed all day and was able to make a presentation, full of his usual humour, describing some the events and challenges of those Nimbus days.

John's quiet, modest but deep infectious enthusiasm was a great inspiration to all who worked with him. ‘I can never remember a cross word’ someone who worked closely with him, said to me recently. Always willing to give help and encouragement to others who needed help, always willing to go the second or even the third mile – always imaginative and always rigorous, John was an outstanding friend and colleague loved by all who worked with him.

Chris Hepplewhite was one of John's students and later his HIRDLS Project Manager. He is very sorry that he cannot be here today. He sent to us with his own farewell to John. Let me read it to you.

*“It's heartbreaking to say goodbye, knowing that we will not to able to share those discussions on the weather, environment, telescopes, atmospheric measurements and on those important issues about household wiring, machining and a million other practical solutions to everyday problems. Thank you everything you've done for me, for being a great teacher, a source of inspiration, warmth, compassion and calm contemplation when ever it was needed– forever remembered, Chris”*

We all miss John very much. To his family, especially to Elspeth, Ruth, David, Catherine and Precious, whose loss is the greatest, we offer our sympathy and love.

John Barnett was a lovely person and a great scientist. I pay tribute to his outstanding achievements to science over 40 years and to the way he shone so brilliantly and consistently with Christian virtues. I thank God for his life and for every memory of him.

## Prayers

### Lord's Prayer

As our Saviour taught us, so we pray

**All Our Father, who art in heaven,  
Hallowed be thy name;  
Thy kingdom come;  
Thy will be done;  
On earth as it is in heaven.  
Give us this day our daily bread.  
And forgive us our trespasses,  
As we forgive those who trespass against us.  
And lead us not into temptation;  
But deliver us from evil.  
For thine is the kingdom, the power and the glory,  
For ever and ever.  
Amen.**

### Hymn (252 NEH)

The day thou gavest, Lord, is ended,  
The darkness falls at thy behest;  
To thee our morning hymns ascended,  
Thy praise shall sanctify our rest.

We thank thee that thy Church unsleeping,  
While earth rolls onward into light,  
Through all the world her watch is keeping,  
And rests not now by day or night.

As o'er each continent and island  
The dawn leads on another day,  
The voice of prayer is never silent,  
Nor dies the strain of praise away.

The sun that bids us rest is waking  
Our brethren 'neath the western sky,  
And hour by hour fresh lips are making  
Thy wondrous doings heard on high.

So be it, Lord; thy throne shall never,  
Like earth's proud empires, pass away:  
Thy kingdom stands, and grows for ever,  
Till all thy creatures own thy sway.

## **Commendations and Farewell**

**Recessional:** Hildegard von Bingen - Sequence: O ignis spiritus

Please follow the coffin out for the committal, allowing family members to lead the way.

Retiring Collection in aid of 'Practical Action'.

There will be refreshments in church following the service. Please do join us: everyone is very welcome.

[Catherine has made most of the cakes for her father's wake.]

### **NOTES:**

**The Swaledale Wool Coffin:** Recently, John has been thinking of ways to use Ruth and David's Dorset Down sheep's wool (such as woollen crash barriers for racing tracks). However, he did not think of coffins, but we think that he would approve!

**Collection:** See [www.justgiving.com/John-Barnett](http://www.justgiving.com/John-Barnett) for the reason we chose this charity, and to make tax efficient donations.

**Grateful thanks:** After John's diagnosis on 27/10/09, he expressed a wish to die at home if at all possible. Many people have contributed to allowing us to achieve this, and we (Elspeth, Ruth, David, Catherine and Precious) are immensely grateful to all those who have supported and helped us over the last 8 months. We thank John's main carers when Elspeth went to work (Julia Goodwin, Sookyung Kim, Luis MillanVale, and Rhodri Saunders), the very many friends who came for various periods to help, and our wonderful neighbours who provided endless meals ('meals on legs') and encouraging visits. We are also profoundly grateful to the medical team who guided John's treatment and care: our surgeon Ramish Nair, our Oncologist Claire Blesing, the dedicated radiotherapy staff at the Churchill Hospital, our Macmillan nurse Sam Davies, our GP Hugo Hammersley, the District Nurses Clare Allen and Sasha Scott, the Sevacare staff who came twice daily for the last 10 days, and finally the Marie Curie Nurses who covered some nights near the end.

Five months ago John agreed to a research study on the effects of the removal of his right temporal lobe to be undertaken, particularly on his lack of Circadian rhythm (no day/night perception). The data collected will form part of a D.Phil. thesis written by Emma Cussans and we thank her for the interest she engendered in John and for expediting so sensitively his donation of his brain to the new Oxford Tumour Brain Bank.

John thoroughly enjoyed all the visitors and conversations of these months: the subject matter ranged widely and diversely, as John's encyclopaedic knowledge of so many topics was exercised.

Thank you all!