

## Introduction to Biosurgery and the Biosurgical News

**Welcome** to this the first edition of the Biosurgical News!

Biosurgery is a term that has been coined specifically to describe the use of maggots in the treatment of infected and necrotic wounds.

This ancient treatment was first used in Western medicine during the American Civil War, but came to prominence after the First World War when Baer, an American orthopaedic surgeon, described the use of the technique for the treatment of osteomyelitis in the pre-antibiotic era.

Following the discovery of penicillin, the therapy was largely forgotten until it was resurrected in America by Sherman in the mid 1980s.

Maggot therapy was reintroduced into the United Kingdom in 1995 when the Biosur-

gical Research Unit began to produce sterile maggots of the green bottle, *Lucilia sericata*, under the brand name of **LarvE**.



The treatment attracted considerable interest in the nursing press and media with the result that, despite the somewhat unconventional nature of the technique, many hospitals around the UK began to use maggots for the management of problem

wounds, often in situations where traditional treatments had proved ineffective.

During the last five years maggot therapy has grown in popularity and the use of **LarvE** is now regarded by many as the treatment of choice for a variety of wound types.

**Biosurgical News** has been introduced as a vehicle to provide both new and existing users of **LarvE** with information on recent developments in this area and as a forum for an exchange of ideas and experiences.

Each edition will cover a wide range of topics, some of which will be light-hearted in tone whilst others will be more serious in nature. Contributions are invited from all practitioners of maggot therapy to future editions of this newsletter. Please contact the editor at the address shown on page four.

## *LarvE*: Produced by the NHS for the NHS

**LarvE** are produced by the Biosurgical Research Unit, part of the Bro Morgannwg NHS Trust, based in the Princess of Wales Hospital in Bridgend.

The BRU is actually part of the Surgical Materials Testing Laboratory (SMTL), a department that has been involved in wound management for many years.

The laboratory specialises in

testing dressings and medical devices, and is believed to be the only NHS laboratory accredited by the United Kingdom Accreditation Service (UKAS) for its work in this field.

Staff from a variety of scientific disciplines are involved in maggot production to ensure that these are produced to the highest possible standard as might be expected from an NHS-based organization.

### Inside this issue:

<b>LarvE</b> : An award winning product	2
<b>LarvE</b> in veterinary practice	2
Spreading the word	2
Maggot therapy in the 2nd World War	3
<b>LarvE</b> and the diabetic foot	3
Maggots in the treatment of pressure sores	3
Become a registered maggot user!	4

## LarvE: An award winning product

The unique nature of the **LarvE** project was recognized in 2001 when the Biosurgical Research Unit was granted a Queen's Award for Innovation.

This was presented by His Royal Highness the Duke of Kent when he visited the SMTL earlier this year.

During his visit the Duke was given a tour of the production unit including the fly room, where the adult insects are kept, the 'nursery' where the young maggots are raised prior to dispatch, and the clean room areas where the aseptic manipulations are carried out.

The Duke was also shown the various processes involved in the production of sterile maggots, and he later spoke to a patient who had previously undergone a prolonged course of maggot treatment which had prevented the amputation of his foot!

The Duke also toured the rest of the SMTL to learn a little about the testing work of the department.

This is not the first award that the BRU has received, for in 1999 the **LarvE** brand of maggots was granted Millennium Product Status.



*His Royal Highness, The Duke of Kent presenting the Queen's Award to Dr Steve Thomas, Director of the Biosurgical Research Unit.*

## LarvE win a veterinary award!

Despite the widespread use of maggots in human wound management, to date the use of maggots in veterinary medicine has been somewhat limited.

Nevertheless, in 2001, the Veterinary Record, the leading veterinary journal in the United Kingdom, published an article that described the use of **LarvE** in the treatment of an elderly female donkey<sup>1</sup>.

The donkey suffered from panni-

cultitis, an infection of fatty tissue on the flanks, which led to tissue breakdown and the formation of a large necrotic wound.

Repeated surgical debridement and antibiotic injections failed to eliminate the problem, so maggots were used as a treatment of last resort.

The paper described how the maggots removed all the infected material resulting in a clean

wound that progressed rapidly to healing.

This article was subsequently awarded the 'William Hunting Award' which is awarded annually for the best contribution to the Veterinary Record from practitioners

Bell, N. J., Thomas, S. . *Veterinary Record* 2001; **149**: 768-770



## Spreading the word

The Biosurgical Research Unit has recently appointed three new members to its team.

These are based in different parts of the United Kingdom to meet local needs for education and training in the use of **LarvE**.

The three new staff members are Clare McIver, who works in the North East region, Pat Holman, who works in the North West, and Andy Carthew who covers the

South West .

All are very experienced in the wound management field and will undoubtedly prove be an invaluable resource for practitioners of maggot therapy in their respective areas. All three may be contacted via the Biosurgical Research Unit.

### Training Days

As part of the BRU's commit-

ment to education and training, a further series of training days has been arranged for 2003.

These days are always oversubscribed so early booking is essential.

For further information and registration forms contact Tony Fowler, Customer Services Manager by phone or email (tony@smtl.co.uk)

## Maggot therapy during the second world war

*Since Napoleonic times, the history of maggot therapy has been closely linked to military conflicts. Many soldiers with appalling battlefield injuries had their wounds infested with maggots, which may have actually saved their lives by preventing the development of septicaemia.*

*Less familiar perhaps, are accounts of soldiers who, perhaps in the absence of more traditional medicines, were given maggot therapy during the Second World War. An insight into one officer's experience was given in a letter that was recently written to the BRU in response to an article that appeared in a national newspaper and is reproduced here with his permission.*

**Sir,**

I was interested to read the article on Maggot Therapy in the Times Magazine of 31 August 2002 and particularly about your work in this field.

You might be interested to learn that POWs working on the 'Death Railway' in Thailand during the Second World War used maggots on their leg ulcers with great success.

After the maggots had done their work the ulcers were syringed out with Eusol or saline solution,

which was less painful than using a scalpel (albeit a bamboo one) otherwise shrieks of pain rent the air!

The next step was to sprinkle sulphonicamide powder (good old M&B 693) on the wound and the ulcer healed beautifully.

Sometimes a skin graft was carried out but this wasn't too popular though it did provide a protective coating on the wound.

The slightest scratch from a bamboo and an ulcer formed rapidly.

Our poor diet and primitive living conditions in the jungle prevented normal healing. We never had this problem in Singapore or Malaya.

I am not sure where we got our maggots from - possibly fermented rice - but we were not all that curious to find out and the kitchens were out of bounds for us!

**MHC Burns,** Major (Retired), late Indian Army.

"Ancient dwellers in the land of Canaan chose Baal, king of the flies, as their chief god."

## LarvE in the treatment of the diabetic foot: an account of a new application technique

The management of foot ulcers in diabetic patients is both costly and time consuming, and many patients are at risk of amputation. In a recent case history, that will be published in full on the website, Debbie Ruff, Vascular Nurse, Pennine Acute Hospitals NHS Trust, and Melanie Stephens, Lecturer Adult Nursing, Department of Nursing, University of Salford have described how a structured

multidisciplinary approach to the treatment of a patient with an extensive heel wound resulted in complete healing and prevented an amputation.

The application of maggots played an important part of this treatment as they rapidly cleansed the wound which in turn allowed the process of granulation to take place.

The treatment was enhanced by a new application technique that

involved the use of a zinc impregnated stocking which successfully prevented the maggots from escaping and protected the surrounding skin from excoriation.

For full details of this and other case histories see:

<http://www.larve.com/>

## Maggots in the treatment of pressure sores

Sherman, the leading exponent of maggot therapy in the United States has recently published the results of an analysis of the treatment of 103 patients with 145 pressure ulcers. Fifty of these patients, with a total of 61 wounds, received maggot therapy at some point during their treatment.

Debridement and wound healing were quantified in 43 maggot-

treated and 49 conventionally treated wounds.

Eighty percent of maggot treated wounds were completely debrided, while only 48% of wounds were completely debrided using conventional treatment alone ( $p=0.021$ ).

Within three weeks maggot treated wounds contained one-third the necrotic tissue ( $p=0.05$ ) and twice the granulation tissue of

non-maggot-treated wounds ( $p<0.001$ ).

The area of conventionally-treated wounds increased by  $1.2\text{cm}^2/\text{week}$ , but the area of maggot-treated wounds decreased by  $1.2\text{cm}^2/\text{week}$ .

**Sherman, R.A.** Maggot versus conservative debridement therapy for treatment of pressure ulcers, *Wound Repair and Regeneration*, 1992, **10**(4), 208-214.

## Become a 'registered maggot user'

As part of the Biosurgical Research Unit's commitment to promoting education and training in all aspects of maggot therapy, we are setting up a database of maggot users. Individuals whose details are included in this database will receive a personal copy of each edition of Biosurgical News as well as information on other publications or events related to maggot therapy. Membership of the group is free.

to register simply send an email to [maggots@smtl.co.uk](mailto:maggots@smtl.co.uk) with the word 'register' in the subject line. Alternatively complete the details in the panel below and return it in an envelope to the BRU at the address shown below. By registering in this way you can ensure that you are kept up-to-date in this interesting and developing area of wound management.

**Name**  
.....

**Position**  
.....

**Address**  
.....  
.....  
.....

**Phone**  
.....

**Email**  
.....

## Maggots on the 'net'

Few would dispute the value of the internet as a source of information on virtually any topic and maggot therapy is no exception. The SMTL first established an internet presence in 1996, then, in 1997, the laboratory introduced 'World Wide Wounds', the world's first peer-reviewed electronic wound management journal. Although the SMTL web site has had a Biosurgery section for many years, this is being updated and

will shortly be relaunched. In the coming months, this new site will develop into a freely available resource for anyone who has an interest in biosurgery. One important section will consist of case studies on maggot therapy that illustrate the use of the technique in a variety of wound types. Some of these case studies will also be summarised in this and future editions of **Biosurgery News**. The first of these new case studies is summarised on page 3.

### Key web addresses

**Biosurgery Home Page:**  
<http://www.larve.com/>

**World Wide Wounds:**  
<http://www.worldwidewounds.com>

**Email:**  
[maggots@smtl.co.uk](mailto:maggots@smtl.co.uk)

"Maggots the larvae of flies, caterpillars are the larvae of butterflies or moths, and grubs are the larvae of beetles."

## On a lighter note ....

*I've come to help that job you do  
I do not munch nor bite nor chew  
I liquefy slough and take it away  
With all nasty bugs-even MRSA.*

*Please help me to do a really good job  
Like you, I'm not cheap, I cost a few bob  
If you cover me well - so that I can't breathe  
I won't take the food, but any small chance to leave.*

*If you leave me too wet, I'll choke and I'll drown  
And you'll never find me, you'll think I've left town  
If you leave me too dry, I'll shrivel away  
'I'll need two more pots' to Mary you'll say.*

*The moral here told is simple and fact  
Read my instructions and don't be a prat.  
Some moistened fresh gauze and change every day...  
I'll be worth every penny that you've had to pay  
Remember, if I leave a bloody red trail  
That shows I'm working and not that I've failed*

*If in any doubt ring the contact that's given  
So I can do well in this short life I'm living.*

**Mair Fear 2002**

**Biosurgical Research Unit**  
SMTL  
Princess of Wales Hospital  
Coity Road  
Bridgend  
CF31 1RQ

Phone: 01656 752820  
Fax: 01656 752830  
Email: [maggots@smtl.co.uk](mailto:maggots@smtl.co.uk)

## A maggot's year: November



'Guy Forks' thought he had found a way of removing slough faster than usual!