Aspartame

Aspartame is the most controversial food additive in history. The most recent evidence, linking it to leukaemia and lymphoma, has added substantial fuel to the ongoing protests of doctors, scientists and consumer groups who allege that this artificial sweetener should never have been released onto the market and that allowing it to remain in the food chain is killing us by degrees. **PAT THOMAS** REPORTS

Once upon a time, aspartame was listed by the Pentagon as a biochemical warfare agent. Today it's an integral part of the modern diet. Sold commercially under names like NutraSweet and Canderel, aspartame can be found in more than 5,000 foods, including fizzy drinks, chewing gum, table-top sweeteners, diet and diabetic foods, breakfast cereals, jams, sweets, vitamins, prescription and over-the-counter drugs. This means that there is a good chance that you and your family are among the two thirds of the adult population and 40 per cent of children who regularly ingest this artificial sweetener.

Because it contains no calories, aspartame is considered a boon to health-conscious individuals everywhere; and most of us, if we think about it at all, think it is safe. But independent scientists say aspartame can produce a range of disturbing adverse effects in humans, including headaches, memory loss, mood swings, seizures, multiple sclerosis and Parkinson's-like symptoms, tumours and even death.

Concerns over aspartame's toxicity meant that for eight years, the US Food and Drug Administration (FDA) denied it approval, effectively keeping it off the world market. This caution was based on compelling evidence, brought to light by numerous eminent scientists, litigators and consumer groups, that aspartame contributed to serious central nervous system damage and had been shown to cause cancer in animals. Eventually, however, political muscle, won out over scientific rigour, and aspartame was approved for use in 1981 (see timeline for details).

The FDA's about-turn opened the floodgates for aspartame's swift approval by more than 70 regulatory authorities around the world. But, as the remarkable history of the sweetener shows, the clean bill of health given to it by government regulators – whose raison d'être should be to protect the public from harm – is simply not worth the paper it is printed on.

1965

DECEMBER 1965

While working on an ulcer drug, a chemist at pharmaceutical manufacturer GD Searle accidentally discovers aspartame, a substance that is 180 times sweeter than sugar, yet has no calories.

SPRING 1967

Searle begins safety tests, necessary for FDA approval.

AUTUMN 1967

GD Searle approaches eminent biochemist Dr Harry Waisman, director of the University of Wisconsin's Joseph P Kennedy Jr Memorial Laboratory of Mental Retardation Research and a respected expert in the toxicity of phenylalanine (which comprises 50 per cent of the aspartame formula), to conduct a study of the effects of aspartame on primates. Of seven monkeys fed aspartame mixed with milk, one dies and five others have *grand mal* epileptic seizures.

SPRING 1971

Dr John Olney, professor of neuropathology and psychiatry at Washington University in St Louis School of Medicine, whose research into the neurotoxic food additive monosodium glutamate (MSG, a chemical cousin of aspartame) was responsible for having it removed from baby foods, informs Searle that his studies show that aspartic acid, one of the main constituents of aspartame, causes holes in the brains of infant mice. One of Searle's researchers, Ann Reynolds, confirms Olney's findings in a similar study.

Dr John Olney shows that Aspartic acid, one of aspartame's main constituents, causes holes in the brains of infant mice

12 SEPTEMBER 1973

In a memorandum, Dr Martha M Freeman of the FDA Division of Metabolic and Endocrine Drug Products criticises the inadequacy of the information submitted by Searle with particular regard to one of the compound's toxic breakdown products, diketopiperazine (DKP). She recommends that marketing of aspartame be contingent upon the sweetener's proven clinical safety.

FEBRUARY 1973

Searle applies for FDA approval and submits over 100 studies it claims support aspartame's safety. Neither the dead monkeys nor the mice with holes in their brains are included in the submission.

AUGUST 1974

Before aspartame can reach the marketplace, Dr John Olney, James Turner (attorney, consumer advocate and former 'Nader's Raider' who was instrumental in removing the artificial sweetener cyclamate from the US market), and the group Label Inc (Legal Action for Buyers' Education and Labeling) file a formal objection to aspartame's approval with the FDA, citing evidence that it could cause brain damage, particularly in children.

26 JULY 1974

FDA commissioner Dr Alexander Schmidt grants aspartame its first approval as a 'food additive' for restricted use in dry foods. This approval comes despite the fact that his own scientists found serious deficiencies in the data submitted by Searle.

JULY 1975

Concerns about the accuracy of test data submitted to the FDA by Searle for a wide range of products prompt Schmidt to appoint a special task force to examine irregularities in 25 key studies for aspartame and Searle drugs Flagyl, Aldactone and Norpace.

1975

5 DECEMBER 1975
Searle agrees to an inquiry into aspartame safety concerns. Searle withdraws aspartame from the market pending its results. The sweetener remains off the market for nearly 10 years while investigations into its safety and into Searle's alleged fraudulent testing procedures are ongoing. However, the inquiry board does not convene for another four years.

JULY 1976
The FDA forms a new task force, headed by veteran inspector Jerome Bressler, to further investigate irregularities in Searle's aspartame studies uncovered by the original task force. The findings of the new body will eventually be incorporated into a document known as the Bressler Report.

24 MARCH 1976 The FDA task force completes its 500-page report on Searle's testing procedures. The final report notes faulty and fraudulent product testing, knowingly misrepresented product testing, knowingly misrepresented and 'manipulated' test data, and instances of irrelevant animal research in all the products reviewed. Schmidt says: '[Searle's studies were] incredibly sloppy science. What we discovered was reprehensible.'

26 JANUARY 1977 While the grand jury investigation is underway, Sidley & Austin, the law firm representing Searle, begins recruitment negotiations with Samuel Skinner, the US attorney in charge of the investigation. Skinner removes himself form the investigation and the case is passed to William Conlon.

1 AUGUST 1977 The Bressler Report is released. It focuses on three key aspartame studies conducted by Searle. The report finds that in one study 98 of the 196 animals died but weren't autopsied until later dates, making it impossible to ascertain the actual cause of death. Tumours were removed from live animals and the animals placed back in the study. Many other errors and inconsistencies are noted. For example, a rat was reported alive, then dead, then alive, then dead again. Bressler comments: 'The question you have got to ask yourself is: why wasn't greater care taken? Why didn't Searle, with their scientists, closely evaluate this, knowing full well that the whole society, from the youngest to the elderly, from the sick to the unsick... will have access to this product.'
The FDA creates yet another task force to review the Bressler Report. The review is carried out by a team at the FDA's Center for Food Safety and Applied Nutrition and headed by senior scientist Jacqueline Verrett.

10 JANUARY 1977
FDA chief counsel Richard Merrill formally requests the US Attorney's office to begin grand jury proceedings to investigate whether indictments should be filed against Searle for knowingly misrepresenting findings and 'concealing material facts and making false statements' in aspartame safety tests. This is the first time in the FDA's history that it requests a criminal investigation of a manufacturer.

1 JULY 1977
Samuel Skinner leaves the US Attorney's office and takes a job with Searle's law firm. Conlon takes over Skinner's old job.

8 MARCH 1977
Searle hires prominent Washington insider Donald Rumsfeld as its new CEO to try to turn the beleaguered company around. A former member of Congress and defence secretary in the Ford administration, Rumsfeld brings several of his Washington colleagues in as top management.

The FDA describes the science of aspartame's manufacturer as 'incredibly sloppy', saying: 'What we discovered was reprehensible'

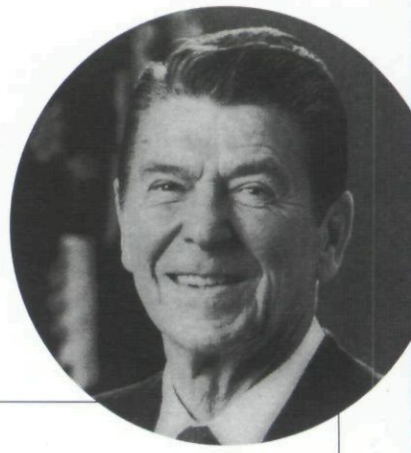
28 SEPTEMBER 1977 The FDA publishes a report exonerating Searle of any wrongdoing in its testing procedures. Jacqueline Verrett will later testify to the US Senate that her team was pressured into validating data from experiments that were clearly a 'disaster'.

Searle CEO Donald Rumsfeld vows to 'call in his markers' and use political rather than scientific means to get the FDA on side

1978 The journal *Medical World News* reports that the methanol content of aspartame is 1,000 times greater than most foods under FDA control. In high concentrations methanol, or wood alcohol, is a lethal poison.

1979 In spite of the uncertainties over aspartame's safety in the US, aspartame becomes available, primarily in pharmaceutical products, in France. It is sold under the brand name Canderel and manufactured by the food corporation Merisant.

20 JANUARY 1981 Ronald Reagan is sworn in as president of the US. Reagan's transition team, which includes Rumsfeld, nominates Dr Arthur Hull Hayes Jr to be the new FDA commissioner.



30 SEPTEMBER 1980 The FDA's PBOI votes unanimously against aspartame's approval, pending further investigations of brain tumours in animals. The board says it 'has not been presented with proof of reasonable certainty that aspartame is safe for use as a food additive'.

1977

8 DECEMBER 1977 **Despite complaints from the Justice Department, Conlon stalls the grand jury prosecution for so long that the statute of limitations on the aspartame charges runs out and the investigation is dropped. Just over a year later Conlon joins Searle's law firm, Sidley & Austin.**

1 JUNE 1979 The FDA finally establishes a public board of inquiry (PBOI), comprising three scientists whose job it is to review the objections of Olney and Turner to the approval of aspartame and rule on safety issues surrounding the sweetener.

1980 Canderel is now marketed throughout much of Europe (but not in the UK) as a low-calorie sweetener.

Despite complaints from the Justice Department, federal attorney William Conlon stalls a grand jury prosecution of Searle for so long that the statute of limitations runs out and the investigation is dropped

JANUARY 1981 **Rumsfeld states in a Searle sales meeting that he is going to make a big push to get aspartame approved within the year. Rumsfeld vows to 'call in his markers' and use political rather than scientific means to get the FDA on side.**

1981

21 JANUARY 1981
One day after Reagan's inauguration, Searle re-applies to the FDA for approval to use aspartame as a food sweetener.

19 MAY 1981 Arthur Hull Hayes Jr, appoints a five-person commission to review the PBOI's decision. Three of the five FDA scientists on it advise against approval of aspartame, stating on the record that Searle's tests are unreliable and not adequate to determine the safety of aspartame. Hayes installs a sixth member on the commission, and the vote becomes deadlocked.

MARCH 1981
An FDA commissioner's panel is established to review issues raised by the PBOI.

15 JULY 1981 Hayes ignores the recommendations of his own internal FDA team, overrules the PBOI findings and gives initial approval for aspartame to be used in dry products on the basis that it has been shown to be safe for its proposed uses.

Three out of five FDA scientists on a special commission advise against approval of aspartame, stating on the record that Searle's tests are unreliable and not adequate to determine the safety of aspartame

OCTOBER 22, 1981
The FDA approves aspartame as a tabletop sweetener and for use in tablets, breakfast cereals, chewing gum, dry bases for beverages, instant coffee and tea, gelatines, puddings, fillings, dairy-product toppings and as a flavour enhancer for chewing gum.

1982 The aspartame-based sweetener Equal, manufactured by Merisant, is launched in the US.

15 OCTOBER 1982
The FDA announces that Searle has filed a petition for aspartame to be approved as a sweetener in carbonated beverages, children's vitamins and other liquids.

8 JULY 1983
Aspartame is approved for use in carbonated beverages and syrup bases in the US and, three months later, Britain. Before the end of the year Canderel tablets are launched in the UK. Granular Canderel follows in 1985.

1983 Searle attorney Robert Shapiro gives aspartame its commercial name, NutraSweet. The name is trademarked the following year. Shapiro later becomes president of Searle. He eventually becomes president and then chairman and CEO of Monsanto, which will buy Searle in 1985.

The NutraSweet Company

MONSANTO

1983

8 AUGUST 1983
James Turner, on behalf of himself and the Community Nutrition Institute, and Dr Woodrow Monte, Arizona State University's director of food science and nutritional laboratories, file petitions with the FDA objecting to aspartame approval based on possible serious adverse effects from the chronic intake of the sweetener. Monte also cites concern about the chronic intake of methanol associated with aspartame ingestion.

AUTUMN 1983
The first carbonated beverages containing aspartame go on sale in the US.

MARCH 1984 Public complaints about the adverse effects of aspartame begin to come in. The FDA requests that the US agency the Centers for Disease Prevention and Control (CDC) begins investigations of a select number of cases of adverse reactions to aspartame.

SEPTEMBER 1983
Hayes resigns as FDA commissioner under a cloud of controversy about his taking unauthorised rides aboard a General Foods jet (General Foods was and is a major purchaser of aspartame). He serves briefly as provost at New York Medical College, and then takes a position as senior scientific consultant with Burston-Marsteller, the chief public relations firm for both Searle and Monsanto.

30 MAY 1984 The FDA approves aspartame for use in multivitamins.

JULY 1984 A study by the state of Arizona Department of Health into aspartame is published in the *Journal of Applied Nutrition*. It determines that soft drinks stored at elevated temperatures promote more rapid deterioration of aspartame into poisonous methanol.

2 NOVEMBER 1984 The CDC review of public complaints relating to aspartame culminates in a report, *Evaluation of Consumer Complaints Related to Aspartame Use*, which reviews 213 of 592 cases and notes that re-challenge tests show that sensitive individuals consistently produce the same adverse symptoms each time they ingested aspartame. The reported symptoms include: aggressive behaviour, disorientation, hyperactivity, extreme numbness, excitability, memory loss, loss of depth perception, liver impairment, cardiac arrest, seizures, suicidal tendencies and severe mood swings. The CDC nevertheless concludes that aspartame is safe to ingest. On the same day that the CDC exonerates aspartame, Pepsi announces that it is dropping saccharin and adopting aspartame as the sweetener in all its diet drinks. Others quickly follow suit.

17 FEBRUARY 1984 The FDA denies Turner and Monte's requests for a hearing, noting that aspartame's critics had not presented any unresolved safety questions. Regarding aspartame's breakdown components, the FDA says that it has reviewed animal, clinical and consumption studies submitted by the sweetener's manufacturer, as well as the existing body of scientific data, and concludes that 'the studies demonstrated the safety of these components'.

On the same day that the US agency the CDC exonerates aspartame, Pepsi announces it is adopting it as the sweetener in all its diet drinks

UPI reports that 10 federal officials involved in approving aspartame have taken private sector jobs linked to the product's manufacture

1985

1 OCTOBER 1985
Monsanto, the producer of recombinant bovine growth hormone, genetically engineered soya beans, the pesticide Roundup and many other industrial and agricultural chemicals, purchases Searle for $2.7 billion.

16 OCTOBER 1986
Turner files another citizen's petition, this time concerning the risk of seizures and eye damage from aspartame. The petition argues that medical records of 140 aspartame users show them to have suffered from epileptic seizures and eye damage after consuming products containing the sweetener and that the FDA should ban aspartame as an 'imminent hazard to the public health'.

28 NOVEMBER 1986
The FDA approves aspartame for non-carbonated frozen or refrigerated concentrates and single-strength fruit juice, fruit drinks, fruit-flavoured drinks, imitation fruit-flavoured drinks, frozen stock-type confections and novelties, breath mints and tea beverages.

2 JANUARY 1987 An FDA report on adverse reactions associated with aspartame states the majority of the complaints about aspartame, now numbering 3,133, refer to neurological effects.

21 APRIL 1986
The US Supreme Court, headed by Justice Clarence Thomas, a former Monsanto attorney, refuses to consider arguments from the Community Nutrition Institute and other consumer groups that the FDA has not followed proper procedures in approving aspartame, and that the liquid form of the artificial sweetener may cause brain damage in heavy users of low-calorie soft drinks.

DECEMBER 1986
The FDA declares aspartame safe for use as an inactive ingredient, provided labelling meets certain specifications.

1987 NutraSweet's aspartame patent runs out in Europe, Canada and Japan. More companies are now free to produce aspartame sweeteners in these countries.

12 OCTOBER 1987
United Press International, a leading global news-syndication organisation, reports that more than 10 federal officials involved in the decision to approve aspartame have now taken jobs in the private sector that are linked to the aspartame industry.

21 NOVEMBER 1986 The FDA denies Turner's new petition, saying: 'The data and information supporting the safety of aspartame are extensive. It is likely that no food product has ever been so closely examined for safety. Moreover, the decisions of the agency to approve aspartame for its uses have been given the fullest airing that the legal process requires.'

3 NOVEMBER 1987 A US Senate hearing is held to address the issue of aspartame safety and labelling. The hearing reviews the faulty testing procedures and the 'psychological strategy' used by Searle to help ensure aspartame's approval. Other information that comes to light includes the fact that aspartame was once on a Pentagon list of prospective biochemical-warfare weapons.
Numerous medical and scientific experts testify as to the toxicity of aspartame. Among them is Verrett, who reveals that, while compiling its 1977 report, her team was instructed not to comment on or be concerned with the overall validity of the studies. She states that questions about birth defects have not been answered. She also states that increasing the temperature of the product leads to an increase in production of DKP, a substance shown to increase uterine polyps and change blood cholesterol levels. Verrett comments: 'It was pretty obvious that somewhere along the line, the bureau officials were working up to a whitewash.'

20 JULY 1990 *The Guardian* publishes a major investigation of aspartame and delivers to government officials 'a dossier of evidence' that draws heavily on the transcripts of the Bressler Report and demands that the government review the safety of aspartame. No review is undertaken. *The Guardian* is taken to court by Monsanto and forced to apologise for printing its story.

1992 NutraSweet signs agreements with Coca-Cola and Pepsi stipulating that it is their preferred supplier of aspartame.

1987

1989 The FDA has received more than 4,000 complaints from consumers about adverse reactions to the sweetener.

1991 Britain's National Institutes of Health publishes *Adverse Effects of Aspartame: January '86 through December '90*, a bibliography of 167 studies documenting adverse effects associated with aspartame.

30 JANUARY 1992
The FDA approves aspartame for use in malt beverages, breakfast cereals, and refrigerated puddings and fillings and in bulk form (in large packages like sugar) for tabletop use. NutraSweet markets these bulk products under the name 'NutraSweet Spoonful'.

14 OCTOBER 1989
Dr HJ Roberts, director of the Palm Beach Institute for Medical Research, claims that several recent aircraft accidents involving confusion and aberrant pilot behaviour were caused by ingestion of products containing aspartame.

It is reavealed during a Senate hearing that aspartame was once on a Pentagon list of prospective biochemical-warfare weapons

14 DECEMBER 1992 NutraSweet's US patent for aspartame expires, opening up the market for other companies to produce the substance.

19 APRIL 1993 The FDA approves aspartame for use in hard and soft candies, non-alcoholic flavoured beverages, tea beverages, fruit juices and concentrates, baked goods and baking mixes, and frostings, toppings and fillings for baked goods.

1993

APRIL 1995 Consumer activist, and founder of anti-aspartame group Mission Possible, Betty Martini uses the US's Freedom of Information Act to force the FDA to release an official list of adverse effects associated with aspartame ingestion. Culled from 10,000 consumer complaints, the list includes four deaths and more than 90 unique symptoms, a majority of which are connected to impaired neurological function. They include: headache; dizziness or problems with balance; mood change; vomiting and nausea; seizures and convulsions; memory loss; tremors; muscle weakness; abdominal pains and cramps; change in vision; diarrhoea; fatigue and weakness; skin rashes; deteriorating vision; joint and musculoskeletal pain.

By the FDA's own admission, fewer then 1 per cent of those who have problems with something they consume ever report it to the FDA. This means that around 1 million people could have been experiencing adverse effects from ingesting aspartame.

27 JUNE 1996

The FDA removes all restrictions from aspartame use, and approves it as a 'general-purpose sweetener', meaning that aspartame can now be used in any food or beverage.

NOVEMBER 1996

Drawing on data compiled by the US National Cancer Institute's Surveillance, Epidemiology and End Results programme, which collects and distributes data on all types of cancer, Olney publishes peer-reviewed research in the *Journal of Neuropathology and Experimental Neurology*. It shows that brain-tumour rates have risen in line with aspartame consumption and that there has been a significant increase in the conversion of less deadly tumours into much more deadly ones.

28 FEBRUARY 1994

Aspartame now accounts for the majority (75 per cent) of all the complaints in the US adverse-reaction monitoring system. The US Department of Health and Human Services compiles a report that brings together all current information on adverse reactions attributed to aspartame. It lists 6,888 complaints, including 649 reported by the CDC and 1,305 reported by the FDA.

12 JUNE 1995 The FDA announces it has no further plans to continue to collect adverse reaction reports or monitor research on aspartame.

DECEMBER 1996 The results of a remarkable study conducted by Dr Ralph G Walton, professor of clinical psychology at Northeastern Ohio Universities, are revealed. Commissioned by the hard-hitting US national news programme *60 Minutes*, it sheds some light on the absurdity of aspartame-safety studies. Walton reviewed 165 separate studies published in the preceding 20 years in peer-reviewed medical journals. Seventy-four of the studies were industry-funded, all of which attested to aspartame's safety. Of the other 91 non-industry funded studies, 84 identified adverse health effects. Six of the seven non-industry funded studies that were favourable to aspartame were from the FDA, which has a public record of strong pro-industry bias. To this day, the industry-funded studies are the ones that are always quoted to the press and in official rebuttals to aspartame critics. They are also the studies given the greatest weight during the approval process and in official safety reviews.

John Olney shows that brain-tumour rates have risen in line with aspartame consumption and that there has been a significant increase in the conversion of less deadly brain tumours to much more deadly ones

10 FEBRUARY 1998
Monsanto petitions the FDA for approval of a new tabletop sweetener called Neotame. It is around 60 times sweeter than aspartame and up to 13,000 times sweeter than sugar. Neotame is less prone to breaking down in heat and in liquids than aspartame because of the addition of 3,3-dimethylbutyl, a poorly studied chemical with suspected neurotoxic effects. Strengthening the bond between aspartame's main constituents eliminates the need for a health warning directed at people suffering from PKU.

Sainsbury's

OCTOBER 1998 The UK's Food Commission publishes two surveys on sweeteners. The first shows that several leading companies, including St Ivel, Müller and Sainsbury's, have ignored the legal requirement to state 'with sweeteners' next to the name of the product. The second reveals that aspartame not only appears in 'no-sugar added' and 'light' beverages but also in ordinary non-dietetic drinks because it's three times cheaper than ordinary sugar.

20 JUNE 1999 An investigation by *The Independent on Sunday* reveals that aspartame is made using a genetic engineering process. Aspartame component phenylalanine is naturally produced by bacteria. The newspaper reveals that Monsanto has genetically engineered the bacteria to make them produce more phenylalanine. Monsanto claims that the process had not been revealed previously because no modified DNA remains in the finished product, and insists that the product is completely safe; though scientists counter that toxic effects cannot be ruled out in the absence of long-term studies .
A Monsanto spokeswoman says that while aspartame for the US market is often made using genetic engineering, aspartame supplied to British food producers is not. The extent to which US brands of low-calorie products containing genetically engineered aspartame have been imported into Britain is unclear.

An investigation by *The Independent on Sunday* reveals that aspartame is made using a genetic engineering process

1998

13 MAY 1998
Independent scientists from the University of Barcelona publish a landmark study clearly showing that aspartame is transformed into formaldehyde in the bodies of living specimens (in this case rats), and that this formaldehyde spreads throughout the specimens' vital organs, including the liver, kidneys, eyes and brain. The results fly in the face of manufacturers' claims that aspartame does not break down into formaldehyde in the body, and bolster the claims of aspartame critics that many of the symptoms associated with aspartame toxicity are caused by the poisonous and cumulative effects of formaldehyde.

8 FEBRUARY 1999
Monsanto files a petition with the FDA for approval of the general use of Neotame.

neotame

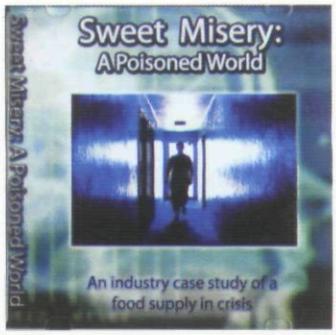
MAY 2000 Monsanto, under pressure – not least from the worldwide resistance to genetically manipulated food and ongoing lawsuits – sells NutraSweet to JW Childs Associates, a private-equity firm comprised of several former Monsanto managers, for $440m. Monsanto also sells its equity interest in two European sweetener joint ventures, NutraSweet AG and Euro-Aspartame SA.

10 DECEMBER 2001 The UK's Food Standards Agency requests that the European Commission Scientific Committee on Food conducts an updated review of aspartame. The committee is asked to look carefully at more than 500 scientific papers published between 1988 and 2000 and any other new scientific research not examined previously.

9 JULY 2002 The FDA approves the tabletop and general use of Neotame. The 'fast-track' approval raises eyebrows because, historically, the FDA takes at least 10 years to approve food additives. Neotame is also approved for use in Australia and New Zealand, but has yet to be approved in the UK.

19 FEBRUARY 2003 Members of the European Parliament's Environment, Public Health and Consumer Policy Committee approve the use of sucralose (see page 50) and an aspartame-acesulfame salt compound (manufactured in Europe by the aspartame-producing Holland Sweetener Company and sold under the name Twinsweet), agreeing to review of the use of both in three years' time. At the same time, a request by European greens that the committee re-evaluate the safety of aspartame and improve the labelling of aspartame-containing products is rejected.

MAY 2004 The feature-length documentary *Sweet Misery* is released on DVD (**see www.soundandfuryproductions.com**). Part-documentary, part-detective story, it includes interviews with people who have been harmed by aspartame, as well as credible testimony from advocates, doctors, lawyers and long-time campaigners, including James Turner, HJ Roberts and renowned neurosurgeon Dr Russell Blaylock. (UK orders: Namaste Publishing, info@namastepublishing.co.uk.)



SEPTEMBER 2004 US consumer group the National Justice League files a $350m class action lawsuit against the NutraSweet Corporation (the current owner of aspartame products), the American Diabetes Association and Monsanto. Some 50 other defendants have yet to be named, but mentioned throughout the lawsuit is the central role of Donald Rumsfeld in helping to get aspartame approved through the FDA. The plaintiffs maintain that this litigation will prove how deadly aspartame is when it is consumed by humans. Little progress has been made so far in bringing the action to court.

2002

10 DECEMBER 2002 The European Commission Scientific Committee on Food publishes its final report on aspartame. The 24-page report largely ignores independent research and consumer complaints, relying instead on frequently cited articles in books and reviews put together by employees or consultants of aspartame manufacturers. When independent research is cited, it is generally refuted with industry-sponsored data. An animal study showing aspartame's disruption of brain chemistry, a human study linking aspartame to neurophysiological changes that could increase seizure risk, another linking aspartame use with depression in individuals susceptible to mood disorder, and two others linking aspartame ingestion with headaches are all dismissed. The report's conclusion amounts to a single sentence: 'The committee concluded that... there is no evidence to suggest that there is a need to revise the outcome of the earlier risk assessment or the [acceptance daily intake] previously established for aspartame.'

As with the FDA, there are concerns about the neutrality of some of the committee's members and their links with the International Life Sciences Institute (ILSI), an industry group that funds, among other things, research into aspartame. ILSI members include Monsanto, Coca-Cola and Pepsi.

JULY 2005

The Ramizzini Institute in Bologna, a non-profit, private institution set up to research the causes of cancer, releases the results of a very large, long-term animal study into aspartame ingestion. Its study shows that aspartame causes lymphomas and leukaemia in female animals fed aspartame at doses around 20 milligram per kilogram of body weight, or around half the accepted daily intake for humans.

MARCH 2005 The NutraSweet Company reopens its plant in Atlanta, Georgia, (dormant since 2003) in order to meet increased demand for its sweetener. Aspartame, sold commercially as NutraSweet, Equal, Equal-Measure, Spoonful, Canderel and Benevia, is currently available in more than 100 countries and used in more than 5,000 products by at least 250 million people every day. Worldwide, the aspartame industry's sales amount to more than $1 billion yearly. The US is the primary consumer.