rebellion in Ireland. The Establishment was fighting for its life and was not in the mood to make fine distinctions about whether the blows that it struck were above or below the belt. Pitt and Grenville had already introduced the 'Gagging Acts', which effectively put an end to freedom of speech and assembly. The government now sponsored, by means of a secret subsidy, the *Anti-Jacobin Review*, a periodical which attacked all of the leading liberals in turn. Among the abusive poems, articles and drawings published was C.K. Sharpe's poem *The Vision of Liberty*:

> Then saw I mounted on a braying ass
> William and Mary, sooth, a couple jolly;
> Who married, note ye how it came to pass,
> Although each held that marriage was but folly? –
> And she of curses would discharge a volley
> If the ass stumbled leaping pales and ditches:
> Her husband, sans culottes, was melancholy,
> For Mary verily would wear the breeches –
> God help poor silly men from such usurping b——s.
>
> William hath penn'd a wagon-load of stuff,
> And Mary's life at last he needs must write,
> Thinking her whoredoms were not known enough,
> Till fairly printed off in black and white. –
> With wondrous glee and pride, this simple wight
> Her brothel feats of wantonness sets down,
> Being her spouse, he tells, with huge delight,
> How oft she cuckolded the silly clown,
> And lent, O lovely piece! herself to half the town.

Godwin had been carried to great heights by the wave of hope which accompanied the French Revolution; and as the wave crashed he was carried down with it. Despite the abuse and ridicule which were increasingly heaped upon him, he maintained a philosophical attitude, confident that he had already made a permanent contribution to the idea of human progress.

FRANKENSTEIN'S MONSTER

BY 1801, ALTHOUGH Godwin's reputation was still high in Scotland, Ireland and America, he was decidedly out of fashion in England, where he was considered by many to be the Jacobin Monster incarnate, the enemy of England's traditional social and political institutions. Godwin was past his prime as a writer, middle aged and in poor health, appearing older than his years. Nevertheless, the future still held a few dramatic episodes in store for him. On 5 May 1801, he wrote in his diary: 'Meet Mrs Clairmont'.

There are several stories of how the meeting took place. According to one story, Godwin was sitting on his balcony when Mary Jane Clairmont, an attractive blond woman in her thirties, called from a nearby window: 'Is it possible that I behold the immortal Godwin?' According to another story, Mrs Clairmont, who was Godwin's neighbour, waited until the time of day when he usually walked in his garden. She then walked up and down on her side of the wall which separated them, saying in a distinctly audible voice, 'You great Being, how I adore you!' When this did not produce the desired effect, she is said to have stopped him on the street and exclaimed: 'Mr. Godwin, I have compromised myself for I adore you.'

On 10 September 1801, Godwin's friend Charles Lamb wrote in a letter:

> I know no more news from here except that the *Professor* (Godwin) is *Courting*. The lady is a Widow with green spectacles & one child, and the Professor is grown quite juvenile. He bows when he is spoke to, and smiles without occasion, and

> wiggles as fantastically as Malvolio, and has more affectation than a canary bird pluming its feathers when he thinks somebody looks at him. He lays down his spectacles, as if in scorn, and takes 'em up again from necessity, and winks that she mayn't see he gets sleepy about eleven o'clock.

Godwin and Mrs Clairmont were each looking anxiously for a partner to help in raising their children. After the death of Mary Wollstonecraft, Godwin had been left with a baby girl to care for; and in addition he had adopted Mary's three-year-old daughter, Fanny Imlay. For her part, Mrs Clairmont had two children, Charles and Jane. She was not a particularly truthful person (to say the least) and, for this reason, nothing reliable is known about her background. However, it seems probable that she had lived in France and had been kept as a mistress by a Swiss merchant called Charles Gaulis, the brother of Lady Clifton. Left destitute when Gaulis died, she had adopted the name of 'Mrs Clairmont' and earned her living through literary piece-work, such as indexing, and translations from French.

Having compromised his principles by marrying Mary Wollstonecraft, Godwin seemed not to mind doing the same thing once again; and on 21 December 1801, he and Mrs Clairmont were wed. Godwin's financial troubles now began in earnest. Before his first marriage, his frugal bachelor existence had cost only about £100 per year; and he was able to support himself easily through his writing. Now, however, he found himself with a large family to support and, although he continued to write industriously, the income from his new books was no longer enough.

In 1805, while Mary Jane (the new Mrs Godwin) was editing children's stories for the publisher, Benjamin Talbert, it occurred to her that she and her husband might start their own publishing house for children's books. Godwin was deeply engrossed in writing a history of England but he recognized that something had to be done about the family finances. He was reluctantly persuaded to abandon his beloved history and, together with his wife, he founded a new publishing house, the Juvenile Library. It was to become a famous literary success, and its productions enriched the lives of generations

of English children but it caused Godwin agonizing financial worry and misery for the next 20 years.

Despite the endless financial worries, and despite Mary Jane's hot temper and flawed character, Godwin's new family was on the whole a happy one. A baby son, William Jr., was soon added to the heterogeneous group of children. Jane Clairmont later recalled:

> All the family worked hard, learning and studying: we all took the livliest interest in the great questions of the day – common topics, gossiping, scandal, found no entrance in our circle for we had been taught by Mr. Godwin to think it the greatest misfortune to be fond of the world, or worldly pleasures or of luxury or money; and that there was no greater happiness than to think well of those around us, to love them, and to delight in being useful or pleasing to them.

Thus it happened that William Godwin was writing children's books for the Juvenile Library under a pseudonym when a letter reached him in 1812, from a young man who had just been expelled from Oxford for authorship of a pamphlet entitled *The Necessity of Atheism*. The young man's name was Percy Bysshe Shelley. 'The name of Godwin has been used to excite in me feelings of reverence and admiration', he wrote:

> ... I had enrolled your name on the list of the honourable dead. I had felt regret that the glory of your being had passed from this earth of ours. It is not so. You still live, and I firmly believe are still planning the welfare of human kind.

Percy Bysshe Shelley was 20 years old when he wrote this letter. He was the grandson of a wealthy landowner, Sir Bysshe Shelley, of Field Place, Sussex. Shelley was in line to inherit a large fortune, a castle, and a baronetcy. However, he had quarrelled with his father after eloping with Harriet Westbrook, a girl of whom his family disapproved, and his allowance had been cut. He had already published two romantic novels and had co-authored two books of poetry. Shelley

had read Godwin's *Political Justice* with great enthusiasm while still at Eton, and had identified his own rebellion against the irrational tyrannies of his social environment with Godwin's famous attack on irrationality and tyranny in the larger political sphere. Returning from Edinburgh where his elopement had taken him, Shelley had stopped at Keswick in the Lake District, hoping to meet Coleridge. Instead he met Southey, from whom he learned that his idol, Godwin, was still alive.

'I am young', Shelley wrote:

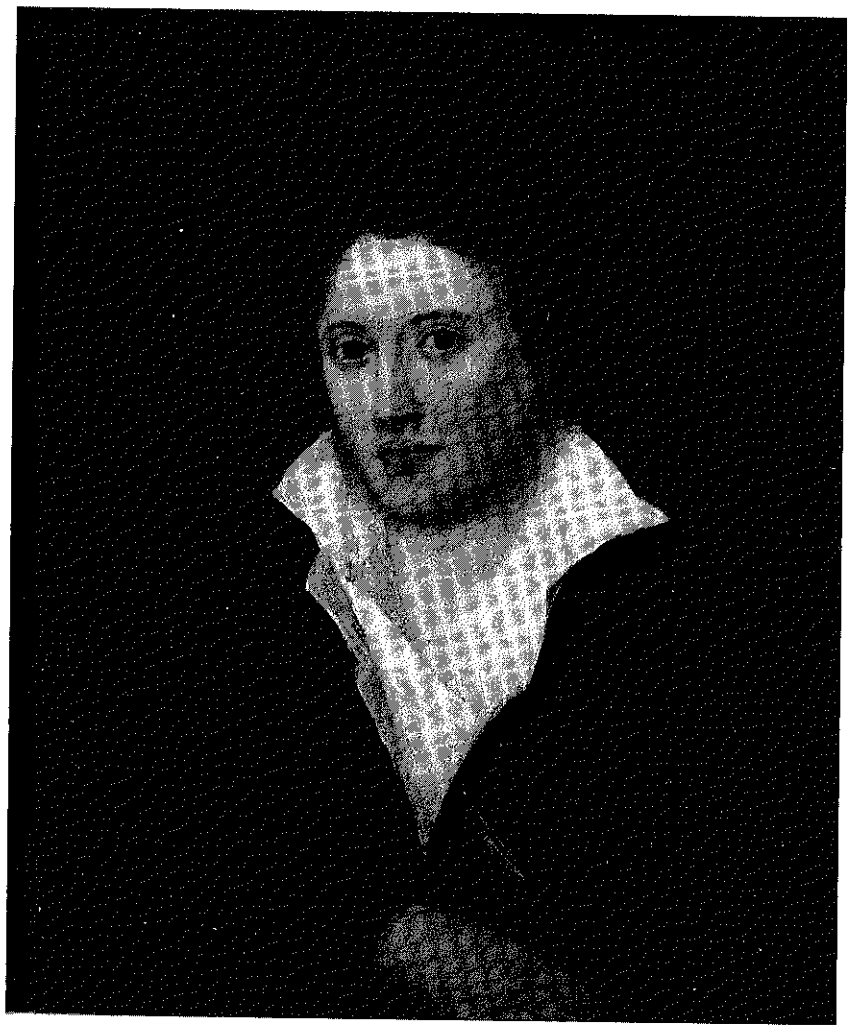
> You have gone before me, I doubt not a veteran to me in the years of persecution. Is it strange that, defying persecution as I have done, I should outstep the limits of custom's prescription, and endeavour to make my desire useful by friendship with William Godwin?

Godwin answered immediately, and in the voluminous correspondence which followed he soon recognized Shelley's genius.

Inspired by Godwin's *Political Justice*, Shelley had decided to devote both his life and his fortune to political reform. (The fortune, however, was only a distant future prospect.) In his letters, Godwin advised slow changes through education as the best means of reform but Shelley's whole temperament rebelled against caution and gradualism.

During the spring of 1812 Shelley wrote *An Address to the Irish People* and travelled to Ireland to work for the cause of Catholic emancipation. He assured the worried Godwin that the pamphlet contained 'no religion but benevolence, no cause but virtue, no party but the world'. Shelley soon found himself so surrounded by beggars and government spies that he was forced to leave Ireland. He and Harriet next travelled to Lynemouth in north Devon.

Shelley's letters had by this time captured the imagination of the entire Godwin household, and whenever a new one arrived with its familiar handwriting, all three daughters and Mary Jane waited excitedly 'on tiptoe' to know the news. Shelley, who dreamed of establishing a utopian community of free and enlightened friends, invited Godwin to come to Devon for a visit and Godwin (who was in the



4. Percy Shelley (*by courtesy of the National Portrait Gallery, London*)

habit of making a small excursion during his summer vacation) did so; but after a terrible journey by boat in stormy weather he arrived at Lynemouth only to find the Shelleys gone. Alarmed by the arrest of his servant Dan (who had been posting Shelley's *Declaration of Rights* and his ballad *The Devil's Walk*), the young poet had left quietly with his entourage before he himself was arrested.

After leaving Devon, Shelley had gone to Wales, where he had become involved in a project to reclaim land from the sea by building a causeway across a tidal estuary. In October 1812, Shelley travelled to London to raise money for the causeway project; and he at last met the Godwin family.

On their first day in London, Shelley, his young wife Harriet, and their companion Elizabeth Hitchener dined with the Godwins. The evening was a great success; and for the next five weeks Shelley and Godwin met almost every day, discussing all aspects of philosophy, politics and literature. One can imagine the contrast between them at these meetings – Shelley with his tall, thin, slouching frame, his costly but rumpled clothes, his chronic cough and his freckled face with its beautiful, almost feminine features, pacing up and down, enthusiastically advocating the very things of which Godwin once had dreamed; and Godwin – old, stout, fatherly, mild mannered, and rational – urging his impetuous disciple to be more cautious.

On 13 November Shelley left London suddenly and returned to the isolation of Wales where he completed his passionate revolutionary poem, *Queen Mab*. In this long poem, Shelley imagined a fairy (Queen Mab) who carries a young girl (Ianthe) on a flight above the earth, and exposes for her all the hypocrisy, injustice and tyranny that the world contains. By the summer of 1813 Shelley had completed the poem and he returned to London, where he had it published privately. On this visit he did not contact Godwin, although they met by accident at the house of a mutual friend. Shelley had earlier discussed *Queen Mab* with his mentor but he probably did not want advice or criticism during the final phases of publication.

Since he was heir to a very large fortune, it was possible for Shelley to raise money by selling a 'post obit' bond, to be redeemed when he finally received his inheritance. Such a bond could be auctioned, but

was likely to sell for a price much lower than its face value. In 1813, Shelley took the dangerous step of selling a post obit bond, from which he obtained £500, and in 1814 he discussed with Godwin the possibility of selling a much larger bond, with a face value of £8,000, from which they hoped to realize £3,000.

Both Shelley and Godwin desperately needed money. Shelley was hiding from his creditors, in danger of arrest and Godwin's Juvenile Library faced bankruptcy unless he could repay loans which had fallen due. Godwin offered to make the practical arrangements for the sale of the bond while Shelley continued to hide, spending most of his time at Godwin's home. Shelley in return offered Godwin half the proceeds from the sale, following the principle of benevolence in which both men believed: Godwin was in great need and Shelley was able to help him; therefore the idealistic young poet felt that it was his duty to help.

Shelley had lodgings in Fleet Street but, between May and July 1814, he lived mainly with the Godwin family while Harriet waited anxiously with their new baby in Bath. Mary Wollstonecraft Godwin was at that time sixteen and a half years old and extremely pretty, with long blond hair and her father's expressive eyes. She had just returned from Scotland, where she had lived for two years with family friends, ostensibly for the sake of her health. Probably the real reason for Mary's stay in Scotland was friction with her step-mother: Mary's affection for her father had been enough to excite the jealousy of the new Mrs Godwin.

Shelley was immediately electrified by meeting Mary. As she told him of her daydreams, of her writing, and of the wild Scottish landscapes which she had just experienced, Mary seemed to him to combine the emotional sensitivity of Mary Wollstonecraft with the imagination and mental power of William Godwin. In an ode to Mary, Shelley wrote:

> They say that thou wert lovely from thy birth,
> Of glorious parents, thou aspiring Child.
> I wonder not – for One then left this earth
> Whose life was like a setting planet mild,
> Which clothed thee in a radiance undefiled

> Of its departing glory, still her fame
> Shines on thee through the tempests dark and wild
> Which shake these latter days; and thou canst claim
> The shelter from thy Sire of an immortal name.

For her part, Mary was fascinated by the openness, generosity and warmth of the brilliant young writer who was her father's best-loved disciple. In her copy of *Queen Mab* she wrote:

> This book is sacred to me and as no other creature shall ever look into it I may write in it what I please – yet what shall I write – that I love the author beyond all power of expression ...

Because of her step-mother's jealousy, it was uncomfortable for Mary to be at home; and she was in the habit of taking a book to the old St Pancras churchyard where her mother was buried. Shelley followed her there and under the willow tree beside Mary Wollstonecraft's grave they declared their love for each other. Meanwhile, Mary's half-sister Jane, who had stage-managed the meeting, watched from a distant tombstone. Jane was (of course) also in love with Shelley and Fanny, the third sister, was probably in love with him too.

The following day, Shelley told an astonished Godwin that he and Mary were passionately and irrevocably in love. He announced that he hoped to live with both Mary and Harriet, with Mary as his true partner, and Harriet as his 'sister'. Godwin was horrified. He pleaded with Shelley to give up his wild plan and return to virtue. Shelley finally seemed to be persuaded; but within a week he had also informed Harriet of his plans. Poor Harriet arrived in London to add her tearful pleadings to those of Godwin.

Mary promised that although she could never stop loving Shelley, she would do nothing to encourage him and she would not elope with him. Shelley then arrived at the Godwins' house, armed not only with laudanum for his own suicide and for Mary's, but also with a gun with which they could shoot themselves if the drug failed. He poisoned himself with laudanum a day later but he was found in time and saved. Godwin used all his powers of persuasion to bring the couple to their

senses and he succeeded in wringing promises from them but reason and promises proved to be frail when tested against the force of passion. On 28 July 1814, Godwin awoke to find a note on his dressing table: Shelley had eloped with Mary and – amazingly – he and Mary had taken Jane with them. Mary was 16 years old, Jane 15, and Shelley 21.

The fugitives had left at five in the morning and hurried to Dover where they embarked for France in a small boat. After a stormy and dangerous night on the Channel, they arrived at Calais. Meanwhile, Mrs Godwin set off in pursuit, hoping to rescue Jane and with the help of information from the London stables, she traced the runaways to their lodgings in Calais. Jane spent the next night with her mother, but in the morning she decided firmly to continue with Mary and Shelley.

Why had Shelley and Mary taken Jane? For one thing, Jane was the only one of the three who spoke fluent French and she was good at making practical arrangements. Shelley also thought that Jane needed to be rescued from the influence of Mrs Godwin. 'I am not in the least in love with her', Shelley is said to have explained, 'but she is a nice little girl, and her mother is such a vulgar, commonplace woman, without an idea of philosophy. I do not think she is a proper person to form the mind of a young girl.'

After arriving in Paris, Shelley, Mary and Jane bought a mule and they set out for Switzerland, sometimes riding the mule but for the most part walking. Switzerland was the country of Rousseau and the setting of Godwin's novel, *Fleetwood*. They hoped that it would prove to be a land of enlightenment and freedom. After a few weeks in Switzerland, however, Shelley's financial problems forced them to return to England. Mary later described the journey in her *History of a Six Week's Tour*.

Returning to London, Shelley and the girls hoped that they could be reconciled with Godwin. After all, Mary and Shelley were the two people in the world whom he loved most. In the first edition of *Political Justice*, Godwin had called marriage 'the most odious of all monopolies' and Mary Wollstonecraft had also denounced the institution of marriage. What had the young people done except to put these ideas into practice? Godwin, however, felt that he had been betrayed when Shelley and Mary had broken their promises to him. There was also

a joke current in London, that Godwin had sold two of his daughters to Shelley for eight hundred and seven hundred pounds respectively. The joke came much too close to the truth for comfort and, to avoid this accusation, Godwin was forced to play the role of an injured father. Meeting Shelley and Mary by chance on the street he turned aside pretending not to see them and muttering that Shelley was so beautiful it was a pity that he was so wicked.

Mary blamed her bad-tempered stepmother for Godwin's coldness. In a note to Shelley she wrote:

> – I detest Mrs G – she plagues my father out of his life & then – well no matter – Why will not Godwin follow the obvious bent of his affections & be reconciled to us – no his prejudices the world and *she* – do you not hate her my love – all these forbid it – What am I to do – trust to time of course – for what else can I do?

Besides the coldness of her father, Mary had another heavy burden to bear – the presence of Jane. By this time, Mary was in an advanced stage of pregnancy with Shelley's child. While she suffered from morning sickness and depression, Jane, blooming with health and almost bursting with sexuality, rushed gaily around London with Shelley. Mary's ardent wish to separate Jane from Shelley was shared by her parents and arrangements were finally made for Jane to live in a country village outside London.

Jane now changed her name to one which she considered to be more romantic – Claire. Since she was no longer permitted a share of Shelley, Claire decided to capture a poet of her own and with remarkable resourcefulness and determination she managed to seduce Lord Byron, then at the height of his fame. This was an extraordinary accomplishment since Byron was being pursued by hordes of fashionable and beautiful women, including the famous Lady Caroline Lamb. However, Byron was soon forced to leave England because of scandals resulting from his affairs, especially his relationship with his half-sister Augusta.

On 2 May 1816, Shelley and Mary left England too, planning never

to return. Shelley's financial position had improved following the death of his grandfather in 1815 and he had once more saved Godwin from financial ruin and debtor's prison. Shelley left a note for Godwin in which he said:

> I respect you, I think well of you, better perhaps than of any other person whom England contains; you were the philosopher who first awakened, and who still as a philosopher to a very great degree regulates my understanding.

Shelley and Mary took Claire Clairmont with them. She was already pregnant with Lord Byron's child, although probably none of them knew it. They headed for Geneva, hoping to meet Lord Byron there. Claire was anxious to show off her catch to Shelley and the two poets were looking forward to meeting each other. Although Shelley was not yet famous as a writer, Byron had read and admired his work.

Byron had rented a large house called Villa Diodati, near Lake Geneva, and he was staying there with his personal physician, Dr Polidori. Shelley, Mary and Claire found quarters at the nearby Maison Chapuis, and before long the whole Villa Diodati group had settled into a routine of excursions on the lake or walks along the shore, followed by long evenings of conversation at Villa Diodati. Whenever the weather was bad, as it frequently was that summer, Shelley, Mary and Claire spent the night at Diodati instead of returning to Maison Chapuis. Because of Byron's fame, their movements were followed avidly by scandalized English tourists, who spent hours looking at the party through field-glasses and telescopes. Stories of a 'league of incest' filtered back to England; and the rumours had some foundation, since Byron had resumed his affair with Claire. He looked down on her, but Claire was very pretty, and, as Byron explained, 'I could not exactly play the stoic with a woman who has scrambled eight hundred miles to unphilosophize me'.

Byron was writing the third canto of 'Childe Harold', and in the evenings he often read new sections of it to the others. The romantic mood of the poem and the splendour of the distant Alps contributed to the atmosphere of the summer evenings at Diodati.

Byron also retold for his friends the myth of *Prometheus Porphyros*, which he had translated from Aeschylus at Harrow. In this myth, Prometheus steals the sacred fire of the gods and gives it to mankind. Punished by Zeus, Prometheus is chained forever to a rock in the Caucasus, while an eagle tears out his vitals. A later version of the myth, *Prometheus Plasticator*, was popular among the Romans, and in this later version, Prometheus creates or recreates mankind by giving life to a figure of clay.

Both Byron and Shelley recognized the symbolic possibilities of the myth. Prometheus had already been used as a symbol of the creative artist but Shelley, with his interest in science, saw that Prometheus could also stand as a symbol for scientific creativity. Benjamin Franklin had recently performed the famous experiment in which he flew a kite during a thunderstorm, thus drawing down lightning and showing it to be identical with electricity. Franklin, Shelley realized, could be thought of as a modern Prometheus, who defied the thunderbolts of Zeus and brought the sacred fire of the gods down from heaven for the use of mankind.

The weather worsened at Diodati, and for many days, heavy rain and lightning confined the party to the villa. To pass the time, they read aloud to each other from a book of German ghost stories. The storm outside and the strange Gothic stories had a strong effect on Shelley's imagination, and one night he rushed out of the room with a cry of terror, explaining later that he had seen a vision of a woman with eyes instead of breasts.

'We will each write a ghost story', Byron said, and his idea was adopted with enthusiasm. Dr Polidori began a tale of a skull-headed woman; and both Byron and Shelley began stories too but, being poets, they soon tired of writing prose. Mary was unable to think of an idea sufficiently horrible to produce terror in a reader. Every morning she was asked whether she had found a theme and she was forced to answer sadly that she had not.

Meanwhile, Byron and Shelley continued to talk of the possibilities of the myth of Prometheus, especially as a symbol for scientific creativity. Perhaps, one day, science might achieve the Promethian feat of creating life. Shelley was especially interested in experiments with

electricity, such as the discovery by Galvani that an electrical current could cause the legs of a dismembered frog to move.

'Many and long were the conversations between Lord Byron and Shelley', Mary wrote later:

> ... They talked of the experiments of Dr. Darwin ... who preserved a piece of vermicelli in a glass case, till by some extraordinary means it began to move with a voluntary motion. Not thus, after all, would life be given. Perhaps a corpse would be reanimated; galvanism had given token of such things; perhaps the component parts of a creature might be manufactured, brought together, and endued with vital warmth.

Finally, well past midnight, Mary went to bed; but she was unable to sleep. Images from the conversation, to which she had been an attentive but almost silent listener, passed uncontrollably through her mind. Later, remembering this half-waking dream, she wrote:

> I saw – with shut eyes, but acute mental vision, – I saw the pale student of unhallowed arts kneeling beside the thing he had put together. I saw the hideous phantasm of a man stretched out, and then, on the working of some powerful engine, show signs of life, and stir with an uneasy, half vital motion. Frightful must it be; for supremely frightful would be the effect of any human endeavour to mock the stupendous mechanism of the Creator of the world.

Mary realized that she had found her theme. In fact, Mary Wollstonecraft Godwin, not yet 19 years old, had discovered an enduring symbol for science out of control, science pursued without regard for its social consequences. The next day, encouraged by Shelley, she began to write *Frankenstein, or The Modern Prometheus*, (the name perhaps echoing that of Franklin). She had originally intended it to be only a short story, but Shelley, who was anxious for her to obtain literary distinction worthy of her parents, urged her to develop it into a full-length novel.

Frankenstein was published anonymously in 1818, and it was an immediate sensation. Mary had quietly challenged the optimistic philosophers of the Enlightenment, and pointed out the dangers hidden in the ideals of knowledge, science and progress.

There is more to the story of Mary, Shelley and Godwin: the suicides of Fanny and Harriet, the marriage of Mary and Shelley, their reconciliation with Godwin, and finally Shelley's death by drowning in Italy – but we will leave them here and turn to another challenge to the optimism of the Enlightenment, that of Malthus.

MALTHUS

IN 1798, A SMALL book by an anonymous author appeared and Godwin immediately recognized it as the most serious challenge to his concept of human progress and perfectability that had yet been published. The book's title was *An Essay on the Principle of Population, as It Affects the Future Improvement of Society, with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers*. It was the outcome of conversations between Daniel Malthus, an intellectual English country gentleman, and his son, Robert.

Daniel Malthus owned an estate in Essex and land in both Cambridgeshire and Hertfordshire. After attending Oxford (without obtaining a degree) he married his second-cousin and built a country house called 'The Rookery', near Dorking. The house had battlemented parapets and gothic pinnacles, while the surrounding grounds contained a fine beech forest, serpentine walks leading to 'several romantic buildings with appropriate dedications', a corn mill, an ice house and a large lake with an island.

Daniel Malthus was an ardent admirer of Rousseau, whom he visited at Motiers-Travers in France. When Rousseau and his mistress, Thérèse le Vasseur, came to England, Daniel entertained them at the Rookery, together with David Hume (with whom Rousseau had not yet quarrelled). Daniel Malthus also joined Rousseau on botanizing walks in Derbyshire. When Rousseau left England suddenly without telling him, Daniel's feelings were wounded. 'Ce coeur', he wrote, 'qui vous aime si tendrement ne sait vous accuser'. Rousseau replied asking for some English books on botany, which Daniel gladly procured for him. 'I prefer your commissions to all the compliments in the world',

Daniel wrote, '... If I am ever famous, it will be as a friend of Rousseau.' In this prediction, however, Daniel Malthus was wrong since he was destined to be remembered less as the friend of Rousseau than as the father of Thomas Robert Malthus, whose name has become synonymous with the problem of population growth.

Daniel's son, always called Robert or Bob rather than Thomas, was born in 1766. He was only two weeks old when Hume, Rousseau and Thérèse visited the Rookery. They undoubtedly looked at the baby and noted with sympathy that he was handicapped: he had been born with a cleft palate and hare lip, inherited from his great great grandfather. Daniel Malthus ultimately had seven children but he always showed special tenderness towards his son Robert, probably both because of Robert's handicap and because of his unusual intellectual gifts. Robert's lip was later sutured and, apart from a slight twist of his lip, he became extremely handsome. The cleft palate made it hard for him to speak clearly, however, L being the letter with which he had the greatest difficulty.

In 1768 Daniel Malthus sold the Rookery, and for the next 19 years he and his family travelled extensively, both in England and on the continent. The Malthus family spent the spring and summer of 1773 at Claverton Manor in Somerset near Bath; and Robert Malthus remained at Claverton studying with Revd Richard Graves, his first tutor outside his own family. In one of his letters to Daniel Malthus, Graves wrote of Robert:

> He has finished Horace, and has read five satires of Juvenal with apparent taste; and I never saw a boy of his age enter more instantaneously into the humour of the fifth satire ...

In 1782 Robert, then 16 years old, was sent to study with Gilbert Wakefield at the famous Dissenting Academy at Warrington in Lancashire. This choice of a Dissenter's school for his son must have seemed eccentric to the conservative country squires who knew Daniel Malthus, just as his admiration for Rousseau seemed eccentric. However, Warrington Academy had a distinguished reputation and it was a centre for new ideas both in politics and in science. Joseph

Priestley had taught there, and it was at Warrington that Priestley had completed both his *History of Electricity* (1767) and his *Essay on Government* (1768), which contains the famous phrase 'the greatest good for the greatest number'.

In 1783 Warrington Academy was closed but Robert Malthus continued to study for another year as a private pupil of Gilbert Wakefield. Then, following his father's wishes, Robert Malthus was enrolled at the age of 18 as a student of mathematics at Cambridge University. Wakefield arranged for Robert to live at Jesus College, with the controversial Unitarian mathematician William Frend (1757–1841) as his tutor.

It is interesting to notice that all three of Malthus' tutors were liberals whose ideals placed them outside the English Establishment. Richard Graves, his tutor at Claverton Manor, had been ostracized by his family for marrying a girl from a lower social class. Gilbert Wakefield had been a brilliant classical scholar at Jesus College, Cambridge, and had been elected a fellow of the college at the early age of 22 but, like Frend, he had become a Unitarian, and was thus ineligible for a living within the established church and by marrying he lost his college fellowship. In 1799 Wakefield was imprisoned for the publication of a pamphlet in which he said that the lower classes in England would probably not resist an invasion by Napoleon since 'they cannot well be poorer, or be made to work harder than they did before'. He was released after two years of imprisonment, but the two terrible years proved to be fatal: Wakefield died soon afterward, at the age of 45, from typhus contracted in prison.

Frend, like Wakefield, had been a brilliant scholar, elected at an early age to a fellowship of Jesus College. Mathematics was his main subject but his publications covered a wide range of other topics such as the effect of the supply of paper money on the price of provisions. However, in 1806, Frend was forced to leave Cambridge, after an eight-day trial, for publishing a series of pamphlets opposing the practice of making membership in the Anglican church a condition for admission to the universities.

We can see Daniel Malthus' liberal educational philosophy (undoubtedly much influenced by Rousseau's *Émile* and *La Nouvelle Héloïse*) in

his choice of independent men like Graves, Wakefield and Frend as tutors for his talented son. In educating his children, Daniel Malthus made no use of coercion, but tried instead to allow them to develop naturally towards a realization of their potentialities. Daniel's joy at Robert's fine progress shines from the letters which he sent to his son at Cambridge:

> Everything I have heard of you has given me the most heartfelt satisfaction. I have always wished, my dear boy, that you should have a love of letters, that you should be made independent of mean and trifling amusements ... I am far from repressing your ambitions; but I shall content myself with their adding to your happiness. Every kind of knowledge, every acquaintance with nature and art, will amuse and strengthen your mind; and I am perfectly pleased that cricket should do the same for your legs and arms.

In another letter to Robert, Daniel Malthus recommended that he should read Sanderson's *Optics*, Emerson's *Mechanics*, Long's *Astronomy*, the mathematical papers in the Royal Society transactions, and Sir Isaac Newton's *Principia*. Robert replied that he would try to read these books during the summer and his copy of Newton's *Principia* (in Latin) shows signs of being very much used.

Robert Malthus' best friend at Cambridge was William Otter who later became the Bishop of Chichester. Remembering his friend during their student days, Bishop Otter wrote:

> At that time, he was generally distinguished for gentlemanlike deportment and feelings, a polished humanity which remained with him through life, and a degree of temperance and prudence very rare at that period, and carried by him even into academical pursuits ... he read in a better spirit, reflected more freely and more usefully and acquired more general information than any of his contemporaries.

Otter and Malthus remained friends throughout their lives, and they

were later drawn even closer by the marriage of Otter's daughter to Malthus' son.

Robert Malthus graduated from Cambridge in 1788, as Ninth Wrangler (the ninth best mathematician in the graduating class). He was the only student in his college to obtain honours in mathematics. Surprisingly, in spite of his handicapped speech, he also won prizes in declamation, both in Latin and in English. In 1793 he was elected a fellow of Jesus College. 'I heartily congratulate you upon your success', Daniel Malthus wrote when he heard of the fellowship. 'It gives me a sort of pleasure which arises from my own regrets. The things which I have missed in life, I should the more sensibly wish for you.'

Robert Malthus also took orders in the Anglican Church and in 1793 he was appointed Curate of Okewood, a chapel in a woodland region near to Albury, Surrey. Malthus' parishioners at Okewood were almost completely illiterate. Most of them lived in low one-storey thatched huts with dirt floors and tiny windows, the walls being made of woven twigs and branches, plastered with clay. The children of these cottagers developed late and were stunted in growth.

The cottagers lived almost entirely on bread, on which they were obliged to spend about two-fifths of their incomes. Another fifth was spent on other forms of food, leaving only two-fifths for rent, candles, soap and clothing. Tea and sugar were considered to be luxuries and most of the women and children lacked shoes and stockings. In spite of these harsh conditions, however, Malthus noticed in the records of the chapel that throughout the eighteenth century the number of baptisms greatly exceeded the number of burials and it was probably this striking fact which first turned his attention to the statistics of population growth.

Daniel Malthus and his family had settled permanently at Albury, nine miles from Okewood, and it was here that his famous conversations with his son took place. The year 1793 was the year of Robert's fellowship and his appointment to the curacy at Okewood; it was also the year in which Godwin's *Political Justice* was published and soon afterwards Godwin expressed the same thoughts more briefly in his *Inquirer*. We can imagine the enthusiasm with which Daniel Malthus read Godwin's books and discussed their Utopian

5. Thomas Malthus (*by courtesy of the National Portrait Gallery, London*)

vision of the future with his son. Like Godwin and Condorcet, Daniel Malthus firmly believed that scientific and technological progress, together with improved education, would soon create a new and better world for humankind. Robert Malthus respected and loved his father but he had been educated to think independently and he did not hesitate to disagree.

As Daniel Malthus talked warmly of human progress, Robert's mind turned to the imbalance between births and deaths which he had noticed at Okewood and he pointed out to his father that no matter what benefits science might be able to confer, they would soon be eaten up by population growth. Regardless of technical progress, the condition of the lowest social class would remain exactly the same: the poor would continue to live, as they always had, on the exact borderline between survival and famine, clinging desperately to the lower edge of existence. For them, change for the worse was impossible since it would loosen their precarious hold on life; their children would die and their numbers would diminish until they balanced the supply of food. Any change for the better was equally impossible, however, because if more nourishment should become available, more of the children of the poor would survive, and the share of food for each of them would again be reduced to the precise minimum required for life.

Observation of his parishioners at Okewood had convinced Robert Malthus that this sombre picture was a realistic description of the condition of the poor in England at the end of the eighteenth century. Agricultural and industrial techniques were indeed improving rapidly but among the very poor, the population was increasing fast and the misery of society's lowest class remained unaltered.

The discussion continued and, in the end, Daniel Malthus was so impressed with his son's arguments that he urged him to develop them into a small book. Robert Malthus' first essay on population, only 50,000 words in length, was published anonymously in 1798. Its full title was *An Essay on the Principle of Population, as it affects the future improvement of society, with remarks on the speculations of Mr. Godwin, M. Condorcet, and other writers*. His basic thesis was that 'the power of population is indefinitely greater than the power in the earth to produce subsistence for man'. Malthus wrote:

> That population cannot increase without the means of subsistence is a proposition so evident that it needs no illustration. That population does invariably increase, where there are means of subsistence, the history of every people who have ever existed will abundantly prove. And that the superior power cannot be checked without producing misery and vice, the ample portion of these two bitter ingredients in the cup of human life, and the continuance of the physical causes that seem to have produced them, bear too convincing a testimony.

In order to illustrate the power of human populations to grow quickly to enormous numbers if left completely unchecked, Malthus turned to statistics from the United States, where the population had doubled every 25 years for a century and a half. Malthus called this type of growth 'geometrical' (today we would call it 'exponential'); and he illustrated it by the progression 1,2,4,8,16,32,64,128,256, ... etc. In order to show that in the long run no improvement in agriculture could possibly keep pace with unchecked population growth, Malthus allowed that, in England, agricultural output might with great effort be doubled during the next quarter century but during a subsequent 25-year period it could not again be doubled. The growth of agricultural output could at the very most follow an arithmetic (linear) progression, 1,2,3,4,5,6, ...

Because of the overpoweringly greater numbers which can potentially be generated by exponential population growth, in contrast with the slow linear progression of sustenance, Malthus was convinced that, at almost all stages of human history, population has not expanded freely but has instead pressed painfully against the limits of its food supply. He maintained that human numbers are normally held in check either by disasters of society as a whole, or by the suffering of the lowest social class. Occasionally the food supply increases through some improvement in agriculture, or through the opening of new lands; but population then grows very rapidly, and soon a new equilibrium is established, with misery and vice once more holding the population in check.

Like Godwin's *Political Justice*, Malthus' *Essay on the Principle of*

Population was published at exactly the right moment to capture the prevailing mood of England. In 1793, the mood had been optimistic; but by 1798, hopes for reform had been replaced by reaction and pessimism. Public opinion had been changed by Robespierre's reign of terror and by the threat of a French invasion. Malthus' clear and powerfully written essay caught the attention of readers not only because it appeared at the right moment but also because his two contrasting mathematical laws of growth were so striking.

One of Malthus' most attentive readers was William Godwin, who recognized the essay as the most clearly reasoned challenge to his utopian ideas that had yet been published. Godwin sought out the anonymous author of the *Essay on the Principle of Population* and he several times invited Malthus to breakfast at his home to discuss social and economic problems.

In 1801, Godwin published a reply to his critics, among them his former friends James Mackintosh and Samuel Parr, by whom he recently had been attacked. His *Reply to Parr* also contained a reply to Malthus: Godwin granted that the problem of overpopulation raised by Malthus was an extremely serious one. However, Godwin wrote, all that is needed to solve the problem is a change of the attitudes of society. For example we need to abandon the belief

> that it is the first duty of princes to watch for (i.e. encourage) the multiplication of their subjects, and that a man or woman who passes the term of life in a condition of celibacy is to be considered as having failed to discharge the principal obligations owed to the community.
>
> On the contrary, it now appears to be rather the man who rears a numerous family that has to some degree transgressed the consideration he owes to the public welfare.

Godwin suggested that each marriage should be allowed only two or three children or whatever number might be needed to balance the rates of mortality and celibacy. This duty to society, Godwin wrote, would surely not be too great a hardship to be endured, once the reasons for it were thoroughly understood.

Meanwhile, Robert Malthus had visited Scandinavia in the company

of a number of his friends from Cambridge and he went on to visit Russia. He welcomed this chance to study at first hand the economic and social conditions in countries other than England and he kept careful notebooks during the journey.

Malthus was able to make another foreign journey during the summer of 1802. Because of the Peace of Amiens, it briefly became possible for English tourists to travel on the continent. Malthus took advantage of this chance and visited both France and Switzerland. On this trip he travelled with a large party of his relations, including his pretty second cousin, Harriett Eckersall, with whom he fell in love. He was 36 years old and she 26.

Although deeply in love, Robert Malthus felt that he should postpone marriage until he had a better source of income than the small amount that he received as Curate of Okewood. Being a younger son, he had not inherited the family property when his parents had died in 1800. He had an additional income as a Fellow of Jesus College, Cambridge (with no obligations) but he would have to give it up if he married. Fellows were not allowed to marry unless they were professors or masters. There was a ray of hope, however: Robert Malthus' family had arranged for him to become Rector of Walesby Church in Lincolnshire, as soon as the post should become vacant and the 'living' at Walesby was worth more than £300 per year. Malthus waited in a mood of impatience and frustration, meanwhile burying himself in work on a greatly expanded edition of his book.

During this period, Malthus lived in a garret in London, surrounded by piles of books. He knew that his short essay on population had caught the attention of English intellectuals but he felt that to make a real impact he needed to buttress his thesis with as many facts as possible. He wanted to show that his principle of population was not just a description of the conditions in England at a particular period of history: he believed it to be a universal principle, valid for all societies at all times.

The great voyages and overland journeys of discovery (such as those of Cook, Vancouver, Robertson and Bruce) supplied Malthus with much of the factual material for his second edition. Other books that he read and used were written by missionaries, diplomats and traders

in various parts of the world. Malthus also made use of descriptions of the societies of ancient Greece and Rome, as well as his own careful notes on the conditions in Scandinavia, Russia, Germany, France and Switzerland.

Malthus second edition – more than three times the length of his original essay – was ready in 1803 and its publication created a storm. Book I and Book II of the 1803 edition of Malthus' *Essay* are devoted to the checks to population growth that have operated throughout history in all the countries of the world for which he possessed facts. After an introductory chapter on the potentially enormous power of population growth contrasted the slow growth of the food supply, Malthus concluded that strong checks to the increase of population must be operating almost continuously to keep human numbers within the bounds of sustenance. He then discussed the types of checks and classified them as either preventative or positive. The preventative checks are those which reduce fertility, while the positive checks are those which increase mortality. Among the positive checks, Malthus lists 'unwholesome occupations, severe labour and exposure to the seasons, extreme poverty, bad nursing of children, great towns, excesses of all kinds, the whole train of common diseases and epidemics, wars, plague, and famine.'

In the following chapters of Books I and II, Malthus showed in detail the mechanisms by which population is held at the level of sustenance in various cultures. He first discussed primitive hunter-gatherer societies, such as the inhabitants of Tierra del Fuego, Van Diemen's Land and New Holland, and those tribes of north American Indians living predominantly by hunting. In hunting societies, he says, the population is inevitably very sparse: 'The great extent of territory required for the support of the hunter has been repeatedly stated and acknowledged', Malthus said:

> ... The tribes of hunters, like beasts of prey, whom they resemble in their mode of subsistence, will consequently be thinly scattered over the surface of the earth. Like beasts of prey, they must either drive away or fly from every rival, and be engaged in perpetual contests with each other ... The

> neighbouring nations live in a perpetual state of hostility with each other. The very act of increasing in one tribe must be an act of aggression against its neighbours, as a larger range of territory will be necessary to support its increased numbers. The contest will in this case continue, either till the equilibrium is restored by mutual losses, or till the weaker party is exterminated or driven from its country ... Their object in battle is not conquest but destruction. The life of the victor depends on the death of the enemy.

Thus, among the American Indians at the time when Malthus was writing, war was the predominant check, although famine, disease and infanticide each played a part in holding the population to the low density which could be supported by a hunting culture.

In the next chapter, Malthus quoted Captain Cook's description of the natives of the region near Queen Charlotte's Sound in New Zealand, who were in a state of perpetual war with their neighbours: 'If I had followed the advice of all our pretended friends', Cook wrote, 'I might have extirpated the whole race; for the people of each hamlet or village, by turns, applied to me to destroy the other.' According to Cook, the New Zealanders practised both ceaseless war and cannibalism and in periods of overpopulation and famine the motivation for both practices increased.

In later chapters on nomadic societies of the Near East and Asia, war again appears, not only as a consequence of the growth of human numbers, but also as one of the major mechanisms by which these numbers are reduced to the level of their food supply.

Malthus also describes the Germanic tribes of northern Europe, whose population growth drove them to attack and destroy the Roman Empire. Here he quotes Machiavelli who says in his *History of Florence*:

> The people who inhabit the northern parts that lie between the Rhine and the Danube, living in a healthful and prolific climate, often increase to such a degree that vast numbers of them are forced to leave their native country and go in search of new habitations. When any of those provinces begins to

> grow too populous and wants to disburden itself, the following method is observed. In the first place, it is divided into three parts, in each of which there is an equal portion of the nobility and commonality, the rich and the poor. After this they cast lots; and that division on which the lot falls quits the country and goes to seek its fortune, leaving the other two more room and liberty to enjoy their possessions at home. These emigrations proved the destruction of the Roman Empire.

Again and again in the societies which Malthus describes, a clear causal link appears, not only between population pressure and poverty but also between population pressure and war. We begin to see why both these terrible sources of human anguish saturate so much of history and why efforts to eradicate them have so often met with failure. The only possible way to eliminate poverty and war is to reduce the pressure of population and if famine, disease and war are not to be the checks which ease this pressure, some other means must be substituted, since the increased food supply produced by occasional cultural advances can give only very temporary relief.

Turning to the nations of Europe, as they appeared at the end of the eighteenth century, Malthus presents us with a different picture. Although in these societies poverty, unsanitary housing, child labour, malnutrition and disease all took a heavy toll, war produced far less mortality than in hunting and pastoral societies, and the preventative checks, such as lower fertility, played a much larger roll.

Malthus had visited Norway during the summer of 1799 and he was thus able to present a detailed description of Norwegian economics and demography based on his own studies. Norway was remarkable for having the lowest reliably recorded death rate of any nation at that time: only 1 person in 48 died there each year. (By comparison, 1 person in 20 died each year in London.) The rate of marriage was also remarkably low, with only 1 marriage each year for every 130 inhabitants and thus in spite of the low death rate, Norway's population had increased only slightly from the 723,141 inhabitants recorded in 1769.

Norwegian men married very late in life for two reasons: first, every

man born of a farmer or a labourer was compelled by law to be a soldier in the reserve army for a period of ten years and during his military service he could not marry without the permission of both his commanding officer and the parish priest. These permissions were granted only to those who were clearly in an economic position to support a family. Since men could be inducted into the army at any age between 20 and 30, and since commanding officers preferred older recruits, Norwegian men were often in their 40s before they were free to marry. At the time when Malthus was writing, these rules had just been made less restrictive but priests still refused to unite couples if they judged their economic foundations to be insufficient.

The second reason for late marriages in Norway was the structure of the farming community. In general, the farms were large and the owner's household employed many young unmarried men and women as servants. These young people had no chance to marry unless a smaller house on the property became vacant, with its attached small parcel of land for the use of the 'houseman' but because of the low death rate, such vacancies were infrequent. Thus Norway's remarkably low death rate was balanced by a low birth rate.

In his survey of population pressure and its consequences in human societies throughout the world and throughout history, Malthus presented a very dark panorama. At the lowest stage of cultural development are the hunter-gatherer societies, where the density of population is extremely low. Nevertheless, the area required to support the hunters is so enormous that even their sparse and thinly scattered numbers press hard against the limits of sustenance. The resulting competition for territory produces merciless intertribal wars.

The domestication of animals makes higher population densities possible and wherever this new mode of food production is adopted, human numbers rapidly increase; very soon, however, a new equilibrium is established, with the population of pastoral societies once more pressing painfully against the limits of the food supply, growing a little in good years, and being cut back in bad years by famine, disease and war.

Finally, agricultural societies can maintain extremely high densities of population but the time required to achieve a new equilibrium is

very short. After a brief period of unrestricted growth human numbers are once more crushed against the barrier of limited resources and if excess lives are produced by overbreeding they are soon extinguished by deaths among the children of the poor.

Malthus was conscious that he had drawn an extremely dark picture of the human condition. He excused himself by saying that he has not done it out of spleen but because he was convinced that the dark shades really are there and that they form an important part of the picture. He does allow one ray of light, however: By 1803, personal conversations with Godwin, together with the arguments in Godwin's *Reply to Parr*, had convinced Malthus that 'moral restraint' should be included among the possible checks to population growth and this agreed with his own studies of Norway. Thus he concludes Book II of his 1803 edition by saying that the checks which keep population down to the level of the means of subsistence can all be classified under the headings of 'moral restraint, vice and misery'. (In his first edition he had maintained that vice and misery are the only possibilities.)

In the 1803 edition of Malthus' *Essay*, Books III and IV form a second volume. The ideas which he put forward in this second volume are much more open to dispute than are the solidly empirical demographic studies of Books I and II. Malthus realized that in the final sections of his essay he had opened himself to criticism; and his preface to the second edition contains an apology:

> The main principles advanced are so incontrovertable that if I had confined myself merely to general views, I could have intrenched myself in an impregnable fortress; and the work, in this form, probably would have had a much more masterly air. But ... I thought I should not do justice to the subject, and bring it fairly under discussion, if I refused to consider any of the consequences which seemed to flow from it, whatever these consequences might be. By pursuing this plan, however, I am aware that I have opened a door to many objections, and, probably, to much severity of criticism; but I console myself with the reflection that even the errors into which I may have fallen, by affording a handle to argument, and an additional

> excitement to examination, may be subservient to the important end of bringing a subject so nearly connected with the happiness of society into more general notice.

Malthus begins Book III by discussing the systems of equality proposed by Condorcet and Godwin and he tries to show that such utopian societies would prove impossible in practice because they would rapidly drown in a flood of excess population. Condorcet himself had recognized this difficulty. He realized that improved living conditions for the poor would lead to a rapid growth of population. 'Must not a period then arrive', Condorcet had written, '... when the increase of the number of men surpassing their means of subsistence, the necessary result must be either a continual diminution of happiness and population ... or at least a kind of oscillation between good and evil?'

Condorcet believed the serious consequences of population pressure to be far in the future, but Malthus disagreed with him on exactly that point:

> M. Condorcet's picture of what may be expected to happen when the number of men shall surpass subsistence is justly drawn ... The only point in which I differ from M. Condorcet in this description is with regard to the period when it may be applied to the human race ... This constantly subsisting cause of periodical misery has existed in most countries ever since we have had any histories of mankind, and continues to exist at the present moment.

Malthus asserts that, during most of history, population has pressed painfully against the limitations of sustenance; and his assertion rests securely on the evidence presented in the first two volumes of his essay. However, his next paragraph is much weaker:

> M. Condorcet, however, goes on to say that should the period, which he conceives to be so distant, ever arrive, the human race, and the advocates of the perfectability of man, need not

> be alarmed at it. He then proceeds to remove the difficulty in a manner which I profess not to understand. Having observed that the ridiculous prejudices of superstition would by that time have ceased to throw over morals a corrupt and degrading austerity, he alludes either to a promiscuous concubinage, which would prevent breeding, or to something else as unnatural. To remove the difficulty in this way will surely, in the opinion of most men, be to destroy that virtue and purity of manners which the advocates of equality and of the perfectibility of man profess to be the end and object of their views.

Throughout most of his essay, we have to admire Malthus for his honesty, although we may feel that he is telling us some very unpleasant truths. However, in the paragraph just quoted, he seems to be gliding far too lightly over important questions. When Malthus says 'something else as unnatural', he means birth control, or, more generally, any non-fertile form of sex. Why should birth control be immoral? What harm does it do? Whom does it damage? Is prolonged celibacy really preferable to birth control within marriage as a means of preventing excessive population growth? If so, then why? Malthus does not face these questions, although they lie at the very heart the problem of population, and although methods of birth control existed at the time when he was writing. However, we can perhaps forgive Malthus for his superficial treatment of these central issues if we remember the prejudices of the time, and his position as a curate within the established church.

After his arguments against Condorcet, Malthus discusses William Godwin's egalitarian utopia, which, he says, would be extremely attractive if only it could be achieved:

> The system of equality which Mr. Godwin proposes is, on the first view of it, the most beautiful and engaging which has yet appeared. A melioration of society to be produced merely by reason and conviction gives more promise of permanence than any change effected and maintained by force. The unlimited

> exercise of private judgement is a doctrine grand and captivating, and has a vast superiority over those systems where every individual is in a manner the slave of the public. The substitution of benevolence, as a master-spring and moving principle of society, instead of self-love, appears at first sight to be a consummation devoutly to be wished. In short, it is impossible to contemplate the whole of this fair picture without emotions of delight and admiration, accompanied with an ardent longing for the period of its accomplishment.
>
> But alas! That moment can never arrive ... The great error under which Mr. Godwin labours throughout his whole work is the attributing of almost all the vices and misery that prevail in civil society to human institutions. Political regulations and the established administration of property are, with him, the fruitful sources of all evil, the hotbeds of all the crimes that degrade mankind. Were this really a true state of the case, it would not seem a completely hopeless task to remove evil completely from the world; and reason seems to be the proper and adequate instrument for effecting so great a purpose. But the truth is, that though human institutions appear to be, and indeed often are, the obvious and obtrusive causes of much misery in society, they are, in reality, light and superficial in comparison with those deeper-seated causes of evil which result from the laws of nature and the passions of mankind.

Malthus then noted that Godwin, like Condorcet, was aware that excessive population growth would some day threaten his utopia but he believed, just as Condorcet had done, that the threat belonged to a distant future epoch – an era in which the human condition would be greatly altered by scientific progress: 'Three-fourths of the habitable globe are now uncultivated', Godwin had written:

> The parts already cultivated are capable of immeasurable improvement. Myriads of centuries of still increasing population may pass away, and the earth be still found sufficient for the subsistence of all its inhabitants.

Malthus answered this by saying that Godwin's utopia would be more favourable to population growth than any society in human history and, if actually established, it could lead to a population doubling time of as little as 15 years. But even if the doubling time were as long as 25 years (the growth rate actually observed in the United States), exponential increase of population would lead to an acute global shortage of food in only two or three centuries, even assuming a vegetarian diet, with grain being grown on lands then being used for grazing.

As famine increasingly threatened the survival of each individual, Malthus argued, self-love would replace benevolence as the mainspring of human action and Godwin's utopia would collapse. Thus, because of the overpowering force of population growth:

> Man cannot live in the midst of plenty. All cannot share alike the bounties of nature. Were there no established administration of property, every man would be obliged to guard with his force his little store. Selfishness would be triumphant. The subjects of contention would be perpetual. Every individual would be under constant anxiety about corporal support, and not a single intellect would be left free to expatiate in the field of thought.

Thus, Malthus argued, if Godwin's utopia were ever established, population growth would ultimately lead to a scarcity of food and as the threat of famine became severe, the utopia would revert to a society very much like to the one that it originally replaced, with private property, social classes, and marriage, and with every man primarily concerned with the survival of his own family. Population would once more press painfully against the limits of the available food supply, prevented from further growth by disease, famine, and war. Benevolence might be natural to humans in a situation of plenty. However, the enormous force of population growth makes universal plenty impossible in the long run and when humans are threatened with scarcity the dark side of their nature reasserts itself.

Malthus also argued that systems of complete equality are

impractical because humans need incentives to work; and the most powerful incentive is fear of falling from one's present social and economic status, combined with hope of rising to a higher status. He said, however, that virtue and happiness are most often found in the middle classes of society and, therefore, although the highest and lowest classes need to be present to provide incentive, they should preferably not be large.

The most controversial chapters of Malthus' book deal with the Poor Laws. Because of the war with France, and because of crop failures, there was an acute shortage of food in England at the time when Malthus was writing. During the first few years of the nineteenth century a threefold increase in the price of grain caused great suffering among the poor. By 1803, more than £3,000,000 were being distributed annually under the English Poor Laws to help workers who were unable to feed their children. Malthus felt that, since the total amount of food was limited, the distribution of this money merely increased the price of grain still further, and forced more and more workers to accept help. Furthermore, he thought that relief distributed under the Poor Laws encouraged population growth and thus aggravated the shortages:

> A poor man may marry with little or no prospect of being able to support a family in independence ... and the Poor Laws may be said therefore in some measure to create the poor which they maintain; and as the provisions of the country must, in consequence of the increased population, be distributed to every man in smaller proportions, it is evident that the labour of those who are not supported by parish assistance, will purchase a smaller quantity of provisions than before, and consequently, more of them must be driven to ask for support.

We assume, Malthus argued, that everyone has a right to produce as many children as he or she wishes, and we also assume that every child born has a right to sustenance. But these two assumptions, taken together, presuppose that the total supply of food can be increased indefinitely, which we know is not the case. By making rulings which

contradict the laws of nature, we put ourselves in the position of King Canute, who is said to have commanded the tide to stop; and our fate will be to share the feelings of puzzlement and frustration with which Canute watched the sea flood in around his ankles in spite of his command.

Malthus pleaded for universal education and security of property and he hoped that these two measures would help the lowest classes of society to adopt habits of prudence and foresight, so that no man would marry until he had good prospects of being able to support a family. Malthus believed that the existing Poor Laws created dependency and he felt that although they relieved acute individual suffering in many instances, the laws spread misery over a much larger area. By lowering the price of labour and raising the price of provisions, the Poor Laws forced many independent labourers downward into pauperism. Malthus therefore proposed that the English Poor Laws should be very gradually abolished and he recommended that they should be administered in the meantime in such a way that the position of a person receiving aid should not be better than that of the least well-situated independent labourer.

When Malthus' second *Essay on the Principle of Population* was published in 1803, the political situation was tense. It seemed to many, given the examples of America and France, that England too might be on the verge of great changes. The food shortages and the Poor Laws were sensitive political issues. Thus, the publication of the second *Essay* created a storm of public debate. In the words of his biographer, James Bonar: 'From the first, Malthus was not ignored. For thirty years it rained refutations.'

THE IRON LAW

LIKE BURKE'S *Reflections on the Revolution in France*, Malthus' second *Essay on the Principle of Population* immediately became the centre of a heated political debate; and its publication in 1803 provoked a flood of counter-arguments, just as Burke's *Reflections* had done a decade earlier. Burke and Malthus, taken together, provided the conservatives with an ideology to combat the New Philosophy and this was not a challenge which the advocates of change could allow to go unanswered.

There were some facts on which all parties in the debate agreed: Science, industry and agriculture had certainly made great progress. Even Malthus himself had begun his original essay by acknowledging this progress:

> The great and unlooked for discoveries that have taken place of late years in natural philosophy; the increased diffusion of general knowledge from the extension of the art of printing; the ardent and unshackled spirit of inquiry that prevails throughout the lettered and even the unlettered world; the new and extraordinary lights that have been thrown on political subjects, which dazzle, and astonish the understanding; and particularly that tremendous phenomenon in the horizon, the French revolution, which, like a blazing comet, seems destined either to inspire with fresh life and vigour, or to scorch up and destroy the shrinking inhabitants of the earth, have all concurred to lead many able men into the opinion, that we are touching on a period big with changes, changes

> that would in some measure be decisive of the future fate of mankind.

The French Revolution had been inspired by this feeling of hope. Great material progress had taken place, the *Philosophes* had argued, but terrible poverty remained; and the reason for this poverty must therefore be the injustice of a corrupt and outmoded feudal society. They passionately believed that the unjust *ancien régime* should be replaced by a new and better society – a society based on liberty, equality, and reason, on the rights of man and the laws of nature.

In England, many shared the hope that old injustices would soon be swept away. It was widely felt that, with the help of reason, universal education, improved methods of industry and agriculture, and a more equal distribution of wealth, the age-old causes of human suffering – famine, disease, poverty and war – might all be eliminated. However, the revolution in France had, in many respects, disappointed the hopes of the reformers and the arguments of Burke and Malthus showed why their hopes might not have been realistic.

According to Burke, human institutions are so complex that they have to grow slowly and organically. If we abandon tradition and try to create institutions through reason alone, our creations may be monstrous, like the creations of Mary Shelley's protagonist, Victor Frankenstein. To this argument for conservatism, Malthus added another. Human institutions may often cause misery, Malthus wrote, but 'they are, in reality, light and superficial in comparison with those deeper-seated causes of evil which result from the laws of nature and the passions of mankind.' Injustice may contribute greatly to the suffering of the poor, Malthus admitted, but he believed that a more fundamental cause of poverty is the reckless overbreeding of society's lowest class. The laws of nature set a limit on the total supply of food; and the passions of mankind drive us to reproduce until population crushes painfully against that barrier, with further increase blocked by deaths among the children of the poor. Unless each man resolves to limit the size of his family to the number for which he can provide, Malthus believed, no change of government can eliminate poverty.

The publication of Malthus' first essay on population in 1798

probably contributed to two decisions on the part of the Tory government under Pitt: First, Pitt informed Parliament that he had abandoned his plans for extending the Poor Laws in deference 'to those whose opinions he was bound to respect' and, secondly, in 1801, the first English census was taken. The results of this census, and of others which were taken in 1811, 1821 and 1831, showed that England's population was indeed increasing rapidly, just as Malthus had feared, so that the benefits of technological progress were being eaten up as soon as they appeared. In 1750 the population of England and Wales was estimated to be 6.6 million; but by 1811, the census showed that it had grown to 10.5 million; and by 1831, it had reached almost 14 million.

The fact that Pitt accepted Malthus' ideas and acted on them brought the *Essay on Population* squarely into the arena of political debate and publications both for and against it began to stream from England's authors. Coleridge planned to write an article refuting Malthus and for this purpose he made extensive notes in the margins of his copy of the *Essay*. 'The whole question is this', Coleridge wrote, 'Are Lust and Hunger both alike Passions of physical Necessity, and the one equally with the other independent of the Reason and the Will? Shame upon our race that there lives an individual who dares to ask the Question?' In another place, Coleridge objected to Malthus' use of the word 'vice' without sufficient definition or justification. 'Vice and Virtue', Coleridge noted, 'subsist in the agreement of the habits of a man with his Reason and Conscience, and these can have but one moral guide, Utility or the virtue and Happiness of Rational Beings.' Coleridge never wrote his planned article, but his notes were used, almost verbatim, by his close friend Robert Southey, who criticised Malthus' *Essay* in the *Annual Review*. In his *Table Talk* of 1832 Coleridge commented:

> Is it not lamentable – is it not even marvellous – that the monstrous practical sophism of Malthus should now have gained complete possession of the leading men of the kingdom! Such an essential lie in morals – such a practical lie in fact as it is too! I solemnly declare that I do not believe that all the

> heresies and sects and factions which ignorance and the weakness and wickedness of man have ever given birth to, were altogether so disgraceful to man as a Christian, a philosopher, a statesman or citizen, as this abominable tenet.

Among the other reformers who wrote angrily against the Malthusians was the young Percy Bysshe Shelley. His pamphlet, *Proposals for an Association of Philanthropists* (1812), contains the following passage:

> Many well-meaning persons ... would tell me not to make people happy for fear of over-stocking the world ... War, vice and misery are undeniably bad; they embrace all that we can conceive of temporal and eternal evil. Are we to be told that these are remedyless, because the earth would in case of their remedy, be overstocked?

A year later, in his revolutionary poem *Queen Mab*, Shelley wrote:

> Hath Nature's soul,
> That formed this world so beautiful, that spread
> Earth's lap with plenty, and life's smallest chord
> Strung to unchanging unison ... on Man alone,
> Partial in causeless malice, wantonly
> Heaped ruin, vice, and slavery; his soul
> Blasted with withering curses; placed afar
> The meteor-happiness, that shuns his grasp,
> But serving on the frightful gulf to glare,
> Rent wide beneath his footsteps?
> Nature! – No!
> Kings, priests, and statesmen blast the human flower ...

In the same year (1813), in *A Philosophical View of Reform*, Shelley called Malthus a 'priest, eunuch, and tyrant', and accused him of proposing that after the poor

> have been stript naked by the tax-gatherer and reduced to bread and tea and fourteen hours of hard labour by their

> masters ... the last tie by which Nature holds them to benignant earth (whose plenty is garnered up in the strongholds of their tyrants) is to be divided ... They are required to abstain from marrying under penalty of starvation. And it is threatened to deprive them of that property which is as strictly their birthright as a gentleman's land is his birthright ... whilst the rich are to be permitted to add as many mouths to consume the products of the poor as they please.

Other voices, however, were raised in Malthus' defence. For example, the author and journalist, Harriet Martineau, wrote:

> The desire of his [Malthus'] heart and the aim of his work were that domestic virtue and happiness should be placed within the reach of all ... He found that a portion of the people were underfed, and that one consequence of this was a fearful mortality among infants; and another consequence the growth of a recklessness among the destitute which caused infanticide, corruption of morals, and at best, marriage between pauper boys and girls; while multitudes of respectable men and women, who paid rates instead of consuming them, were unmarried at forty or never married at all. Prudence as to time of marriage and for making due provision for it was, one would think, a harmless recommendation enough, under the circumstances.

Meanwhile, undisturbed by the furore which he had caused, Malthus pursued a life of quiet scholarship. In 1804, having at last been appointed Rector of Walesby Church in Lincolnshire, Malthus married his second cousin, Harriett Eckersall. Their marriage was a completely happy one. Malthus, who had been an affectionate and devoted son, now became an affectionate husband and the devoted father of three children. He never preached at Walesby, but paid a curate to do so in his place. Instead, in 1805, he accepted a position as Professor of History and Political Economy at the East India

Company's College at Haileybury, thus becoming the first professor of economics in England, and probably also the first in the world.

Malthus had a gift for friendship; and among his closest friends was the financier David Ricardo (1772–1823). Ricardo came from a Jewish banking family, but he broke relations with his family in order to marry an attractive Quaker girl and he became a Quaker himself. At first he worked for his father (starting at the age of 14) but when he was 21, he went into business for himself, with a capital of £800. Through his extraordinary ability as a businessman, Ricardo built this into a fortune of more than a million pounds – in those days an immense sum. He purchased a seat in the House of Commons from an Irish landlord, to whom he paid £1000 per year, and he played a leading role in many of the political and economic decisions made by Parliament.

Malthus was impressed by an astute series of letters on the price of gold which Ricardo had published in the *Morning Chronicle* and he wrote to the financier suggesting that they should meet to discuss economic problems. They became extremely close friends, constantly visiting each other and exchanging endless letters when they were unable to meet. Together, Ricardo and Malthus dominated political economics in England during the early decades of the nineteenth century.

On many issues, Malthus and Ricardo agreed but there were also areas of disagreement (which never affected their friendship): Malthus, who was linked by his background to England's country gentlemen, favoured agriculture over manufacturing. With his love for the beauty of the traditional English countryside, Malthus was suspicious of the 'dark Satanic mills' that had sprung up since the invention of steam-driven spinning and weaving machines. Ricardo, on the other hand, identified himself with the rising and vigorous class of manufacturers; and he developed a theory of 'rent' which revealed an inevitable conflict of interest between the land-owners and the industrialists.

Ricardo accepted Adam Smith's concept of economic growth. A true capitalist (according to Smith) does not spend his profits on luxuries for himself or for his family – he reinvests the profits with the result that his factory grows larger and produces still more profits,

which the industrialist again reinvests, and so on. This accelerating spiral of growth produces an increased demand for labour and wages rise. However (according to Malthus, whose ideas on this point Ricardo accepted) the rise in wages stimulates population growth among the workers. Following this population growth, there is an increased demand for food, the price of grain rises, and marginal land is brought under cultivation. The successive turns in the spiral of economic growth are of no benefit to the worker. He is paid only enough to keep him alive. The industrialist does not benefit either, since he is forced to pay his workers more and more to make up for the increased price of food. The farmers of marginal land compete among themselves, so their profits are minimal. In fact, the sole benefactors of economic growth are the owners of good land. Since the price of grain is determined by the cost of growing it on marginal land, the owners of good land can pocket larger and larger undeserved profits ('rent') as the cost of food increases.

Ricardo's theory of rent (developed from an idea originally proposed by Malthus) accurately described the situation in England at the time when he was writing. There was indeed a conflict of interest between the traditional land-owning class and the new class of industrialists. Acute shortages of food were accompanied by unprecedented increases in the price of grain. The price of a bushel of wheat rose to nearly twice the average weekly wages of a worker. Imports of cheap foreign grain were effectively prohibited by Corn Laws, passed by the landowners who controlled Parliament. The industrialists, who were forced to pay higher and higher wages just to keep their workers alive, agitated for the repeal of the Corn Laws but it was the landowners who had the political power. The London banker, Alexander Baring, commented: 'The labourer has no interest in this question; whether the price be 84 shillings or 105 shillings a quarter, he will get dry bread in the one case, and dry bread in the other.' The issue was between the landowners and the industrialists.

While Ricardo opposed the Corn Laws, Malthus supported them, arguing that it would be dangerous for England to become dependent on imports of foreign grain. England might one day lose its industrial superiority, Malthus wrote, and the country might then be unable to

sell its manufactured goods abroad in exchange for imported food. However, it was Ricardo's arguments which finally determined England's future. In 1832 the Reform Bill was passed, giving the manufacturers control of Parliament and the Corn Laws were repealed. England's population grew enormously and soon reached a number that could not possibly be supported by domestic agriculture. The lives of England's population came to depend on the export of manufactured goods and the import of food.

Ricardo agreed with Malthus' analysis of the effects of population pressure and he applied these ideas to the wages of factory workers in what came to be called the 'Iron Law of Wages'. Ricardo assumed, following Adam Smith, that labour is a commodity, like grain or timber, and he assumed that the price of labour follows the laws of supply and demand. Therefore, Ricardo argued, workers must live at the starvation level. If their conditions ever rise above this level, more of their children survive, the population grows, the supply of labour increases above the demand, and wages fall once more to the starvation level. This was indeed an accurate description of the condition of factory workers during the early stages of the Industrial Revolution in England.

Crowds of former agricultural workers flocked to the towns and cities, seeking work in the new factories. Wages in some industries fell to a near-starvation level, hours of work increased, and working conditions deteriorated. Dr Peter Gaskell, writing in 1833, described the condition of the English mill workers as follows:

> The vast deterioration in personal form which has been brought about in the manufacturing population during the last thirty years ... is singularly impressive, and fills the mind with contemplations of a very painful character ... Their complexion is sallow and pallid, with a peculiar flatness of feature caused by the want of a proper quantity of adipose substance to cushion out the cheeks. Their stature is low – the average height of men being five feet, six inches ... Great numbers of the girls and women walk lamely or awkwardly ... Many of the men have but little beard, and that in patches of a few hairs

> ... (They have) a spiritless and dejected air, a sprawling and wide action of the legs ...
>
> Rising at or before daybreak, between four and five o'clock the year round, they swallow a hasty meal or hurry to the mill without taking any food whatever ... At twelve o'clock the engine stops, and an hour is given for dinner ... Again they are closely immured from one o'clock till eight or nine, with the exception of twenty minutes, this being allowed for tea. During the whole of this long period, they are actively and unremittingly engaged in a crowded room at an elevated temperature.

Dr Gaskell described the housing of the factory workers as follows:

> One of the circumstances in which they are especially defective is that of drainage and water-closets. Whole ranges of these houses are either totally undrained, or very partially ... The whole of the washings and filth from these consequently are thrown into the front or back street, which, often being unpaved and cut into deep ruts, allows them to collect into stinking and stagnant pools; while fifty, or even more than that number, having only a single convenience common to them all, it is in a very short time choked with excrementous matter. No alternative is left to the inhabitants but adding this to the already defiled street.
>
> It frequently happens that one tenement is held by several families ... The demoralizing effects of this utter absence of domestic privacy must be seen before they can be thoroughly appreciated. By laying bare all the wants and actions of the sexes, it strips them of outward regard for decency – modesty is annihilated – the father and the mother, the brother and the sister, the male and female lodger, do not scruple to commit acts in front of each other which even the savage keeps hid from his fellows.
>
> Most of these houses have cellars beneath them, occupied – if it is possible to find a lower class – by a still lower class than those living above them.

Dr Peter Gaskell should not be quoted at length without noting that he was a very partisan observer and that the Industrial Revolution did not bring misery to all workers. Nevertheless, there was a tendency to regard labour as a commodity whose price was determined by the law of supply and demand. The abuse of child labour was one of the worst features of early industrialism in England. Sometimes small children, starting at the age of six or seven, were forced to work because wages were so low that the family would otherwise starve and sometimes the children were orphans, taken from parish workhouses. The following extract from John Fielden's book, *The Curse of the Factory System* (1836), describes the condition of young children working in the cotton industry:

> It is well known that Arkwright's (so called at least) inventions took manufactures out of the cottages and farmhouses of England ... and assembled them in the counties of Derbyshire, Nottinghamshire and more particularly, in Lancashire, where the newly-invented machinery was used in large factories built on the side of streams capable of turning the water wheel. Thousands of hands were suddenly required in these places, remote from towns.
>
> The small and nimble fingers of children being by far the most in request, the custom instantly sprang up of procuring 'apprentices' from the different parish workhouses of London, Birmingham and elsewhere ... Overseers were appointed to see to the works, whose interest it was to work the children to the utmost, because their pay was in proportion to the quantity of work which they could exact.
>
> Cruelty was, of course, the consequence; and there is abundant evidence on record to show that in many of the manufacturing districts, the most heart-rending cruelties were practiced on the unoffending and friendless creatures ... that they were flogged, fettered and tortured in the most exquisite refinement of cruelty, that they were, in many cases, starved to the bone while flogged to their work, and that even in some instances they were driven to commit suicide ... The profits

> of manufacture were enormous; but this only whetted the appetite it should have satisfied.

Thus, industrialization benefited England, but in a very uneven way producing great wealth for some parts of society but also extreme misery in other social classes. For many, technical progress by no means led to an increase in happiness. The persistence of terrible poverty in nineteenth-century England, and the combined pessimism of Ricardo and Malthus, caused Thomas Carlyle to call economics 'the Dismal Science'.

Fortunately, Ricardo's 'Iron Law of Wages' seems to have rusted over the years. Apparently it was not an eternal law, but only a description of a passing phase of industrialism before the appropriate social and legislative adjustments had been made. Among the changes that were needed to ensure that the effects of technical progress became beneficial rather than harmful, the most important were the abolition of child labour, the development of unions, the minimum wage law, and the introduction of birth control.

One of the earliest and most courageous pioneers of these necessary changes was Francis Place (1771–1854). Place had known extreme poverty as a child but he had risen to become a successful businessman and an influential leader of the trade union movement. Among his close friends were William Godwin and the Utilitarian philosopher James Mill (the father of John Stuart Mill).

Place and Mill, like other Utilitarians, accepted Malthus' demographic studies but they disagreed with his rejection of birth control. It seemed to them that, since infanticide and abortion were already widely used among the poor, it was an indication that reliable and humane methods of limiting family size would be welcome. They hoped that if marriage could be freed from the miseries that resulted from excessive numbers of children, prostitution and debauchery would become less common, and the health and happiness of women would be improved.

After discussing the question of birth control, Place and Mill decided that educational efforts would be needed to make the available methods more widely known and to win public acceptance. In 1818,

Mill took the first cautious step by writing in an article on 'Colony' in a supplement to the *Encyclopedia Britannica*, that the great problem of a real check to population growth 'has been miserably evaded by all those who have meddled with the subject ... And yet, if the superstitions of the nursery were discarded, and the principle of utility kept steadily in view, a solution might not be very difficult to be found.'

In his *Elements of Political Economy* (1821), Mill made this very faint suggestion slightly more explicit:

> The result to be aimed at is to secure to the great body of the people all the happiness which is capable of being derived from the matrimonial union, (while) preventing the evils which the too rapid increase of their numbers would entail. The progress of legislation, the improvement of the education of the people, and the decay of superstition will, in time, it may be hoped, accomplish the difficult task of reconciling these important objects.

This was still much too vague to suit Francis Place! In 1822, he published (at considerable risk to himself) a four-page pamphlet entitled *To the Married of Both Sexes of the Working People*. It contained the following passages:

> It is a great truth, often told and never denied, that when there are too many working people in any trade or manufacture, they are worse paid than they ought to be paid, and are compelled to work more hours than they ought to work. When the number of working people in any trade or manufacture has for some years been too great, wages are reduced very low, and the working people become little better than slaves.
>
> When wages have thus been reduced to a very small sum, working people can no longer maintain their children as all good and respectable people wish to maintain their children, but are compelled to neglect them; – to send them to different employments; – to Mills and Manufactories, at a very early age. The miseries of these poor children cannot be described,

> and need not be described to you, who witness them and deplore them every day of your lives.
>
> The sickness of yourselves and your children, the privation and pain and premature death of those you love but cannot cherish as you wish, need only be alluded to. You know all these evils too well.
>
> And what, you will ask, is the remedy? How are we to avoid these miseries? The answer is short and plain: the means are easy. Do as other people do, to avoid having more children than they wish to have, and can easily maintain.
>
> What is to be done is this. A piece of soft sponge is tied by a bobbin or penny ribbon, and inserted just before the sexual intercourse takes place, and is withdrawn again as soon as it has taken place. Many tie a sponge to each end of the ribbon, and they take care not to use the same sponge again until it has been washed. If the sponge be large enough, that is, as large as a green walnut, or a small apple, it will prevent conception ... without diminishing the pleasures of married life ...
>
> You cannot fail to see that this address is intended solely for your good. It is quite impossible that those who address you can receive any benefit from it, beyond the satisfaction which every benevolent person and true christian, must feel, at seeing you comfortable, healthy and happy.

The battle for the acceptance of birth control in England started with the publication of Place's pamphlet, but it was not completely won until much later. In 1832, a small book entitled *The Fruits of Philosophy or, the Private Companion of Young Married People* was published by Dr Charles Knowlton, a Boston physician. The book contained a description of the male and female anatomy, and simple contraceptive advice, reviewing the various methods available, and pointing out that, in order to be reliable, the sponge method required the use of a saline douching solution.

In 1834, Dr Knowlton's book was reprinted in London, where it was sold openly for a number of years. However, in 1876 the book was attacked as obscene under a new law and a bookseller was sentenced

to two year's imprisonment for selling it. The feminist author, Mrs Annie Besant, and her friend, the editor and liberal politician, Charles Bradlaugh, then decided to provoke a new trial by selling the book themselves. They sent polite notes to the Chief Clerk of the Magistrates, to the Detective Department, and to the City Solicitor, announcing the time and place where they intended to sell Knowlton's book, and asking to be arrested.

The result was an historic trial, accompanied by enormous publicity (and an equally enormous sale of Knowlton's book). The arguments of Malthus were cited not only by Bradlaugh, who conducted his own defence, but also by the Lord Chief Justice, who instructed the jury to acquit the defendants. However, the jury returned an ambiguous verdict. They ruled that Knowlton's book was obscene, but that the intentions of Annie Besant and Charles Bradlaugh were above reproach!

In England, through the public acceptance of birth control, and through the introduction of trade unions and improved social legislation, the worst predictions of Malthus and Ricardo have (until now) been avoided, and the conditions of both industrial and agricultural workers have gradually improved. In the 1860s, the average number of children per marriage in England was 6.16; in the 1890s it was 4.13; and by 1915 the figure had fallen to 2.43.

Birth control has been called 'neo-Malthusian' but this designation is not very accurate, since Malthus himself disapproved of it. The country which came to conform most closely to what Malthus recommended is Ireland, where prolonged celibacy now forms the preventative check to population growth.

Malthus noted that the population of Ireland had been 1,034,000 in 1695 but by 1821 it had reached 6,801,827. The landless Irish peasants of that period lived on a diet of milk and potatoes. Barred from any hope of social improvement by discriminatory anti-Catholic laws, they married young and produced 'overflowing broods of healthy children', to whom they fed 'the unsparing meal of potatoes ... at which the beggar, the pig, the dog, the cat, and the poultry are all equally welcome, while the cabin that affords shelter to all these various inhabitants is hardly superior to an English pigstye.'

By 1845, the population of Ireland had exceeded eight million; and in that year the potato harvest failed. All who could do so fled from the famine, roughly two million emigrating to America; but another two million died of starvation. Ireland never forgot the shock of the potato famine. The pattern of marriage changed drastically, with very late marriages replacing very early ones, just as Malthus had recommended.

Malthus died on 29 December 1834 but his ideas continued to be debated, both in his century and subsequently. Each year he is refuted, and each year revived.

We began our visit to Malthus and his contemporaries by looking at the life and ideas of the Marquis de Condorcet, who anticipated Darwin in believing that humans evolved from animals and are still evolving. It is interesting to notice that Malthus, in his arguments against Condorcet, inspired Charles Darwin to discover the principle of evolution through natural selection.

In his autobiography, Darwin wrote:

> In October 1838, that is, fifteen months after I had begun my systematic enquiry, I happened to read for amusement 'Malthus on Population', and being well prepared to appreciate the struggle for existence which everywhere goes on from long-continued observation of the habits of animals and plants, it at once struck me that under these circumstances favourable variations would tend to be preserved, and unfavourable ones to be destroyed. The result of this would be the formation of new species. Here then I had at last got a theory by which to work; but I was so anxious to avoid prejudice, that I determined not for some time to write even the briefest sketch of it. In June 1842 I first allowed myself the satisfaction of writing a very brief abstract of my theory in pencil in 35 pages; and this was enlarged during the summer of 1844 into one of 230 pages, which I had fairly copied out and still possess.

All of Darwin's revolutionary ideas were contained in the 1844 abstract, but he did not publish it. He probably had a premonition of

the storm of hatred and bigotry that would be caused by the publication of his heretical ideas. His method of procrastination was to begin a massive treatise on barnacles, which took him eight years to finish. Finally, in 1854, Darwin wrote to his friend Sir Joseph Hooker to say that he was at last resuming work on species. He was writing on so vast a scale that his book on the origin of species might have taken him the rest of his life to complete.

Meanwhile, a young biologist named Alfred Russel Wallace independently arrived at exactly the same theory as the one on which Darwin had been working for 20 years. Wallace's insight came during a malarial fever in Malaisia. He too had read Malthus, and he later described his discovery in the following words:

> Every day during the cold and succeeding hot fits I had to lie down for several hours, during which time I had nothing to do but to think over any subjects then particularly interesting to me. One day something brought to my recollection Malthus's *Principles* ... [and] I thought of his clear exposition of 'the positive checks to increase' ... As animals usually breed much more rapidly than does mankind, the destruction every year from these causes must be enormous in order to keep down the numbers of each species ... It occurred to me to ask the question, Why do some die and some live. And the answer was clearly, that on the whole the best fitted live ... Then it suddenly flashed upon me that this self-acting process would necessarily improve the race ... I became convinced that I had at length found the long-sought-for law of nature that solved the problem of the origin of species.

Wallace wrote to Darwin, enclosing a short manuscript entitled *On the Tendency of Varieties to Depart Indefinitely From the Original Type* and asking for the older scientist's advice. Darwin was stunned, and hardly knew what to do. He wrote to his friend, the geologist Sir Charles Lyell, saying that he would rather burn his own book than have Wallace or anyone else think that he had behaved dishonourably. Both Hooker and Lyell were quick and firm in their advice; and they persuaded

Darwin to present both Wallace's paper and a short sketch of his own work simultaneously at a meeting of the Linnean Society. History has given both Darwin and Wallace credit for the discovery of the principle of evolution through natural selection and their statues stand side-by-side in the Natural History Museum in London.

Darwin's great book, *The Origin of Species* was published in 1859; and it created a revolution in thought. Darwin's (and Wallace's) theory did much to show the place of humans in the total scheme of nature.