

girdle, upper arm muscles, and scapula, so that with growth the right shoulder would not descend as far as the left. It is not possible to be sure if labour was premature, as Shakespeare suggested. Even if it were, a small baby can still sustain trauma to its brachial plexus.

The hypothesis of an Erb's palsy appears attractive, and there is evidence<sup>3</sup> that Richard worked hard in his youth to become strong and able to wield a sword and other martial implements in support of his brother, Edward IV, in the Wars of the Roses. This may not have been due to any special weakness in the right arm, however, but to a general, relatively poor physique, which he might have thought needed strengthening. He seems to have been a redoubtable fighter, and Kendall<sup>3</sup> says that "Richard was in the thick of the conflict, swinging a heavy battle-axe." This was at the battle of Barnet. It does not suggest any weakness in either arm. Kendall's suggestion, however, that the excessive exercise in youth was the probable cause of the raised right shoulder does not seem to be very likely. The idea seems to have arisen with a Miss Halsted, quoted by Markham (1906).<sup>4</sup>

#### SPRENGEL'S DEFORMITY

Every tailor knows of the almost invariable inequality of the height of the shoulders, so that Richard's deformity may have been nothing other than an exaggeration of the normal. On the other hand, he may have had a Sprengel's deformity. In this there is underdevelopment of the scapula, which may be attached to the vertebral column by bone or fibrous tissue, and the muscles attached to the scapula are hypoplastic.<sup>5</sup> This might exactly explain the appearance of Richard III as we know it.

Sprengel's deformity is sometimes hereditary but not always, and it is found in all degrees of severity. The main disability is in raising the arm above the head, since the scapula is more or less restricted in mobility. The condition may occur in isolation but may be associated with various other bony deformities, such as hemivertebra or the very short neck of the Klippel-Feil deformity.

Probably Richard III had no great bodily abnormality. He was slight of build, for which he tried to make up by vigorous exercises, especially fighting, and he had a raised right shoulder, but probably nothing else of interest or importance. The cause of this might possibly have been due to his early exercises or an Erb's palsy. Neither of these seems very likely, so that better hypotheses may be that he showed a normal though unusual raised shoulder, or that he had a minor degree of Sprengel's deformity.

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## Fasting girls and our attitudes to them

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Fasting girls have always been the object of curiosity, and people in contact with them have reacted with degrees of understanding that reflect the contemporary level of knowledge of matters such as nutrition and bodily metabolism. Today we recognise that food intake may be affected by a wide variety of morbid psychological forces—for example, mood disorders, such as depression and phobic anxiety states; psychotic conditions including self-neglect or specific fears of food contamination; the abdominal hypochondriacal syndromes; psychogenic vomiting; and the syndrome of anorexia nervosa. Although we may acknowledge the importance of such psychological factors, however, we still find it hard to achieve an objective attitude to the management of the "fasting girl" and tend instead to mistrust and perhaps even reject her. This review aims to increase our understanding of these difficulties by placing them in a historical perspective.

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#### Fasting girls of the past

Not surprisingly, perhaps, the earliest descriptions of girls who could apparently exist for long periods without food or drink seem to have offered one of two explanations—namely, that the girls were either influenced by the supernatural and miraculous or were cheats.

JANE BALAN

Jane Balan, the "French Fasting Girl of Confolens," who was said to have lived without receiving meat or drink for at least three years, was described by Pedro Mexio in 1613<sup>1</sup> in one of the earliest recorded examples of a fasting girl. Some people thought that her condition was due to the "wicked power" in an apple given to her by an old woman some months previously, but Mexio dismissed this view and saw the case as a "drying up of the liver and of all the parts serving to nourishment due to hurtful humours." In her eleventh year, after an episode of fever and vomiting which began on 15 February 1599, she became speechless, weak, fearful, and for a short period "void of good sense." No one could persuade her to eat: "for both meats and drinks she altogether loaths, and mightily abhorreth." She developed extreme wasting of the abdomen, though there was no breast atrophy: "her pappes prettie and round." Her hair remained unchanged, and her limbs were

"still fleshy." No menstrual loss occurred, and it was claimed that no excrement or urine was passed. Her skin was cold and dry, but she remained normally active:

yet she doth travaile about the house, go to the Market for Victualles, sweep the house, spin on her Wheele, Reelee off her Quill; and gives herself to all serviceable Offices in a family and seems as if she were not defective in any part of sense, or motion of her body.

No information was given about outcome.

#### MARTHA TAYLOR

Martha Taylor, the "Famed Young Derbyshire Damsel," was described by John Reynolds<sup>2</sup> in 1669. It was claimed that she had existed without any appreciable amount of food and drink for at least 13 months, and although she had been diligently watched by physicians, surgeons, and others "for at least a fortnight together," there had been no detection of fraud. Richmond<sup>3</sup> claimed that her condition showed that without any miracle the composition of human bodies may be so altered that life may continue for a long time without meat or drink.

The first adequate description of self-imposed reduction of food intake that emphasised psychological factors is ascribed to Morton,<sup>4</sup> who in 1694 reported two cases of what he termed "nervous atrophy." He regarded this as a type of consumption that had its origin in an "ill and morbid state of the spirits" and was characterised by "want of appetite with a falling away of the flesh." He distinguished between this condition and consumption due to systemic organic disease and emphasised the total suppression of the menses that might result from "multitudes of cares and passions of the mind."

Morton's psychological insights did not at first have much influence on the general attitude to fasting girls, and until the mid-nineteenth century serious consideration was still given to the possibility that certain people could exist for long periods without food, perhaps through the intervention of some supernatural agent.

#### ANN MOORE

Ann Moore, the "Fasting Woman of Tutbury, Staffordshire," claimed to have existed during 1807-13 without nourishment. Her case was summarised by Richmond<sup>3</sup>:

It had been repeatedly asserted that since the Spring of 1807 she had not swallowed any kind of solid food, with the exception once in the month of June following of the insides of a few black-currants, and that since the Autumn of 1808 she had not swallowed any liquid whatsoever. She also maintained that she could not swallow (if she did attempt it) without danger of immediate suffocation, that she felt neither appetite nor thirst, and had no evacuation.

The possibility of absorbing nourishment direct from the atmosphere was seriously suggested to explain her remarkable state.

Ann Moore eventually confessed that she had, in fact, taken sustenance during the six years of her alleged fast. This is probably the first example of a careful watch being made on a person's eating behaviour by a well organised committee of investigators, whose duties included regular estimations of weight. Her condition rapidly deteriorated when she was placed under close surveillance but improved when the watch was called off.

#### SARAH JACOB

Sarah Jacob, the "Welsh Fasting Girl,"<sup>5</sup> was also the object of much interest. In February 1867, at the age of 13, she developed an illness characterised by abdominal pains,

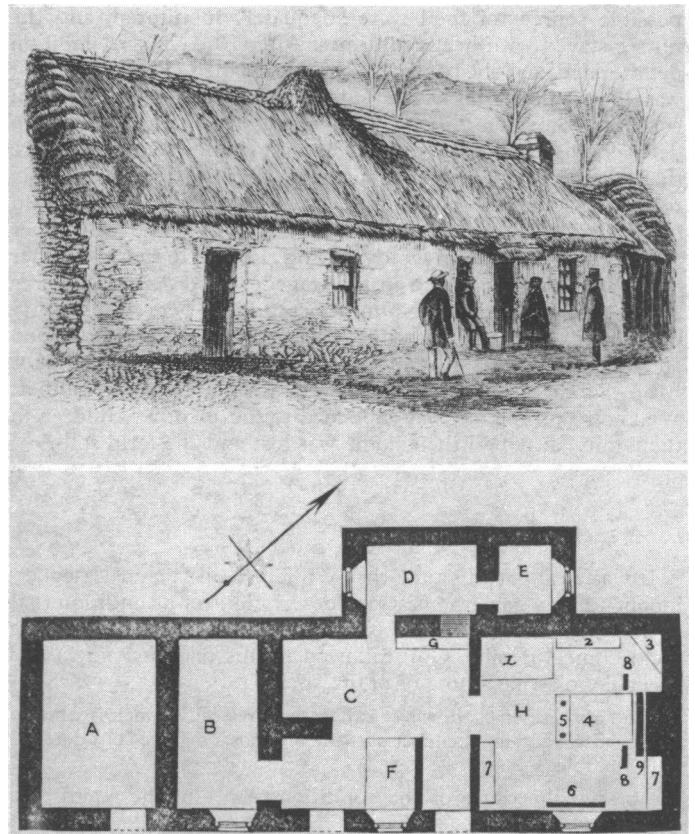


FIG 1—Home of the "Welsh Fasting Girl" at Llethernoyadd-ucha, Carmarthenshire.

A, Cowhouse; B, Servant's bedroom; C, Kitchen; D, Back kitchen; E, Dairy; F, Table; G, Dresser; H, Parents' and Sarah's bedroom.

1, Parents' bedstead; 2, Wardrobe; 3, Corner cupboard; 4, Sarah's bedstead; 5, Head of bedstead, on which two lighted candles were placed in the evening and night of the last watch; 6, Table; 7, Linen press; 8, Chairs on which the two nurses sat and watched; 9, Bookshelves. (From Fowler.<sup>5</sup>)

haemoptysis, pleurisy, temporary loss of consciousness, opisthotonos, and fits. She took no food for a month and became emaciated and almost moribund, although later she improved, recovering consciousness and taking small amounts of food. Her food intake gradually diminished again, however, and from October 1867 until her death in December 1869 both she and her family claimed that she took no nourishment whatsoever. Although she lived in a small, isolated farmhouse (fig 1), she aroused widespread interest and acquired a reputation as a "miraculous faster." Her parents apparently fostered this image, and Fowler<sup>5</sup> described how visitors from far and wide found Sarah well prepared for them:

The child was lying on a bed, decorated as a bride, having around her head a wreath of flowers, from which was suspended a smart ribbon the ends of which were joined by a small bunch of flowers, after the present fashion of ladies' bonnet-strings. Before her, at proper reading distance was an open Welsh book supported by two other books upon her body.

Those who had journeyed to see her were not discouraged from leaving monetary tokens on her chest. She remained apparently bedridden but was fully able to converse with visitors and seemed well nourished. There was much discussion at the time about the true nature of her condition, and the controversy gradually gathered momentum until it reached national proportions. Sarah's reputation as a miraculous faster was seen as a matter of Welsh national honour and something that had to be defended against criticism by those who attacked what they regarded as local credulity and foolishness. After an earlier, abortive attempt at surveillance a watch by professional nurses was organised by a committee of local medical and other

professional men. Scrupulous care was taken to ensure that all possible sources of food were adequately monitored, and the nurses stayed with her at all times. After 18 days her condition deteriorated, and she became delirious and died. The experiment was ill-conceived because it did not allow the medical men concerned to administer nourishment when her condition deteriorated. Her parents resisted any such intervention because they claimed that it would kill her; when she had previously reacted adversely to food they had sworn to her that they would never force her to eat. Probably Sarah had, in fact, deceived her parents and had eaten secretly during the last 26 months of her life. Of all those involved in the tragedy, however, the parents alone were singled out for punishment. They were found guilty of having caused her death by deliberately withholding food and were given prison sentences of hard labour—two years for Evan, Sarah's father, and six months for Hannah, her mother. We know nothing of what happened to the six other children in the family, although their home was lost and the farm sold.

### First lucid accounts

It was at about this time that William Gull<sup>7-9</sup> and Lasegue<sup>10</sup> independently gave the first two descriptions of a condition that is now recognisable as anorexia nervosa. As well as providing lucid clinical details, Gull followed up his patients (fig 2) and was able to strike a note of optimism:

none of these cases, however exhausted, are really hopeless while life exists; and for the most part the prognosis may be considered favourable.

He placed the cause of the condition firmly in the realm of a morbid mental state:

that mental states may destroy appetite is notorious and it will be admitted that young women at the ages named are specially obnoxious [liable] to mental perversity.

Although Gull noted the difficult relationship that patients with anorexia have with close relatives, Lasegue described it in more detail:

The family has but two methods at its service which it always exhausts—entreaties and menaces—and which both serve as a touchstone. The delicacies of the table are multiplied in the hope of stimulating the appetite; but the more the solicitude increases the more the appetite diminishes.

The family's dilemma is made worse by the patient's attitude to the problem, described by Lasegue as:

the state of quietude—I might almost say a condition of contentment truly pathological. Not only does she sigh for recovery, but she is not ill pleased with her condition, notwithstanding all the unpleasantnesses it is attended with. In comparing this satisfied assurance to the obstinacy of the insane, I do not think I am going too far.

These detailed descriptions, which emphasised psychological factors, were apparently ignored for a long time, just as Morton's ideas had been previously.

### Medical man's attitude

At the beginning of the twentieth century, published work disclosed an undisguised hostility towards young fasting girls. In 1911 Albutt and Rolleston<sup>11</sup> described anorexia nervosa under the heading of hysteria in the following way:

out of such material, when the friends and surroundings supply the element of fraud and credulity, are made the fasting girls who from time to time become notorious and whose exploits have been known to terminate in death.

FIG 2—Original woodcuts from Sir William Gull's papers on anorexia nervosa<sup>8, 9</sup> showing appearances of four fasting girls before and after recovery—Miss A, aged 17; Miss B, aged 18; Miss C, aged 15; and Miss D, aged 14.

Woodcuts reproduced by kind permission of *Transactions of the Clinical Society of London* and the *Lancet*.



Miss D

A further, striking example of this attitude is to be found in Samuel Gee's discussion<sup>12</sup> of a young woman's repugnance for food:

a young maiden with small experience of the world expects more from life than life can give: the sympathy desired is not forthcoming; hence dissatisfaction and discontent. In the extreme degree of melancholy the patient suffers from perverse conceit and strange notions. Look at the first wood cut in Sir William Gull's paper for the portrait of a young woman, 17 years old, the very picture of pathetic resignation worthy of a medieval saint.

Presumably Gee was referring to Miss A (fig 2). Looking at her today we might conclude that his reaction provides greater insight into his own mistrust of the fasting girl than it does into her psychological problems. Such hostility to a young woman with eating problems is remarkable. It may be understood, however, when regarded as a reaction to a long era in which there had been many absurd yet widely publicised claims concerning "miraculous fasting," towards which the medical profession had not always shown as much sophistication and insight as it might have done.

A further hindrance to appreciating fully the extent to which psychological factors may impair food intake existed until quite recently and was, according to J A Ryle, the "lure of endocrinology." In 1914 Simmonds<sup>13</sup> published a paper entitled "Fatal Hypophyseal Atrophy," in which he described a case of atrophy of the pituitary, which was related to antecedent puerperal sepsis. It so happened that the patient was also generally wasted, and there followed a widely held misconception that pituitary atrophy caused weight loss. As a result, an endocrinological approach to emaciation of this kind held precedence for two or three decades, and many cases of anorexia nervosa were probably treated with pituitary extracts and implants without attention to psychological problems. In the 1930s, however, certain clinicians protested, and Ryle<sup>14</sup> stated:

Physicians subject to the lures of endocrinology have been tempted sometimes to find a basis for the symptoms of the disease in a primary deficiency or disharmony of the internal secretions. . . . I believe, however, and shall hope to show, some striking physical stigmata notwithstanding, that the origins of the disease are, as Gull maintained, to be sought in a disturbance of the mind and a prolonged insufficiency of food and in nothing more.

In 1939 Sheldon<sup>15</sup> and Richardson<sup>16</sup> emphasised that any endocrine disturbance in anorexia nervosa was only a secondary cause of the disease. The importance of the psychological factors, however, was not widely recognised until 50 years after the acceptance of the classic papers of Gull and Lasegue. The controversy was finally resolved in 1949, when Sheehan and Summers<sup>17</sup> described the postmortem findings in 95 cases of pituitary gland atrophy that were unaccompanied by hypo-

thalamic symptoms. They concluded that emaciation was not usually associated with this type of lesion.

Today many of us acknowledge the powerful psychological forces that may distort the normal process of food intake in a young girl. We still have great difficulty, however, in disengaging ourselves from an attitude which implies that her resistance to eating could be controlled with adequate exercise of will on her part. We are of course anxious to feed those who take insufficient food, but if frustrated our anxiety quickly turns to hostility at what seems to be an unnecessary, self-imposed disease. This historical account shows that the seeds of our suspicion towards fasting girls of today were sown long ago: we need to come to terms with them if our treatment is to be more effective than that of our predecessors.

I thank Mr Nicholas du Quesne Bird for drawing attention to early work on Jane Balan, and Professor D Russell Davis and Dr J Welbourne for helpful discussions. Julia Blackwell, assistant medical librarian, University of Bristol, kindly guided me through the early literature.

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ONE HUNDRED YEARS AGO Christmas at Guy's Hospital was of the usual festive character. The inmates were regaled with an ample allowance of roast beef and plum pudding, to which the majority did ample justice; and an important adjunct to the meal, in the shape of dessert, with pipes and tobacco for the male wards, and toys and bonbons for the children, was liberally contributed by the students. All the wards were gaily decorated with holly and flowers, natural and artificial, according to the bent of their respective sisters, who were ably seconded in their efforts by the dressers and resident staff, who had spared no pains to make their work effective. A large body of ladies and gentlemen visited the wards at dinnertime to express sympathy with the patients, and to wish them, with the compliments of the season, a speedy return to health, and at the same time, to admire the flowers and devices, which all agreed were unusually attractive. On account of their novelty, the arrangements in the clinical and Luke wards are worthy of special notice. In the former, apart from the ordinary decorations, an energetic clerical assistant surpassed all previous ingenuity by extemporising a primeval forest over the central fireplace, while the latter was emblazoned with some excellent and appropriate cartoons combining the *genius loci* with the

amenities of Christmas-time. One of these, the work of a former house-surgeon, is likely to attract more general and lasting attention, not only on account of its intrinsic excellence as a work of art, but as a practical commentary on the topics of the day, as exemplified by the lady-doctor mania. The picture is entitled "Guy's in 1977," and represents the operating-theatre crowded with golden-haired graduates, viewing, with evident satisfaction, the operation of the day, which the notice-board informs us is excision of the heart, male. After a brilliant performance, the organ is being held up by the lady operator in conscious triumph that she has surpassed her male predecessors, while the offices of sisters and nurses have descended to bearded members of the latter sex, with whom, by the way, another notice informs us, "the students are requested not to flirt." In the background, battling with the billows, are some excellent representations of the present esteemed surgical staff, hopelessly cast adrift from their moorings on the great ocean of the future. The picture, we believe, is a present from the artist to his old teacher, Mr Cooper Forster, and is well worthy of a visit from all old Guy's men. The festivities passed off pleasantly; and next day, the patients professed themselves to be all the better for the temporary indulgence. (*British Medical Journal*, 1878.)