

their improvement on oestrogen therapy, is powerful evidence that there should be an acceleration in coronary risk if untreated.^{17,18} No such acceleration is found, for coronary heart disease, stroke, or all-cause mortality, despite a presumably hormone-dependent deceleration in cancer mortality in women at that age.

Epidemiology is therefore issuing a challenge to researchers of menopause. The myth has metamorphosed into paradox. Is the postulated increase in risk factors and risk too small to show up against the effects of age, or are there unidentified coronary protective factors associated with the ending of menstruation which prevent the expected rebound? Researchers should be stimulated by focusing on the reality of this menopause paradox, rather than remaining caught up in the futile and erroneous circularity of the menopause myth, with its commercial and promotional overtones.

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Essay

Anorexia nervosa: rediscovery of a disorder

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In 1874, Sir William Gull noted that self-starving adolescent girls were not only emaciated but also restless and hypothermic.¹ Considering the patients' poor physical condition, Gull was surprised by their restlessness, which was not only difficult to control but also "seemed agreeable".

Although he knew that self-starvation could be fatal, he was apparently capable of curing his patients, since some were reported to recover in 1–4 years; an extremely emaciated patient recovered after only 3 months of treatment.² Gull warned against "allowing the starvation-process to go on"; yet it is not clear precisely how he managed his patients, although he did point out the importance of reducing physical activity and supplying

external heat during treatment. He found no gastric disorder in self-starvation and consequently believed that "... its origin is central and not peripheral"; to imply involvement of the brain rather than the gastrointestinal tract, he named the disorder *anorexia nervosa*.

Today, the outcome for patients with anorexia nervosa seems to have worsened since Gull's time. Thus, patients have less than a 50% chance of recovery within 10 years and a 6.6 to 15% risk of dying 10–20 years after the onset of the disorder. Also, in many patients the disorder becomes chronic with frequent episodes of relapse, and there is no effective treatment. In fact, of only two studies published in which a treatment was evaluated scientifically, one reported a minor effect,³ and the other reported no effect.⁴ Anorexia nervosa is one of the most serious health problems facing teenaged girls.

If more than 100 years ago Gull was able to cure anorexic patients, why has their situation deteriorated since then? We suggest that the reason can be found in the late 19th century when the distinction between

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organic and functional diseases was introduced in neurology. For example, by noticing the beneficial effect of removing anorexic patients from their parents, Charcot came to believe that anorexia nervosa is a functional disease, with no concomitant brain dysfunction.⁵ By emancipating the disorder from the biological substrate suggested by Gull (the brain), Charcot opened the door for unrealistic hypotheses of the causes of anorexia.

Unrealistic models of disease and behaviour are a common result when biology is ignored. A well-known example is hysteria, a "disease" that has been analysed ad nauseum starting in the days of Charcot and continuing to this day. In retrospect, the hypotheses developed by Charcot and his contemporaries were unrealistic. At the time, however, they appealed to many, not least to clinicians who believed their work had a scientific basis.

Why do unrealistic hypotheses and imaginary diseases attract interest? We suggest it is because they have an entertainment value. Realistic models of the nature of man must rely on facts. Such models, however, are probably enjoyed only by those who developed them and are likely to seem esoteric, perhaps even boring, to the uninformed. There is, on the other hand, no need to be realistic to entertain. On the contrary, the unreal is undoubtedly more entertaining than the real. A witness from a demonstration at Charcot's clinic at the Hôpital de la Salpêtrière in the 1880s wrote:⁶

"The big auditorium was filled to the last chair by a varied audience attracted from all over Paris: authors, journalists, famous actors, fashionable demimonds, all morbidly curious to witness the remarkable phenomenon of hypnotism.

Some of them smelled with delight on a bottle of ammonia having been told it contained eau de cologne, others ate a piece of charcoal given to them as chocolate. A woman crawled on the floor barking madly when told she was a dog, waving her arms to fly when told she was a pigeon and holding up her shirt screaming when made believe that a glove on the floor was a snake".

Clearly, in this case what went on was more spectacle than anything else.

Entertainment has an important role in life, not only for the medical writer, who wants to publish in a leading clinical journal,⁷ but also for the scientist/inventor who wants to make a profit. For instance, many instruments now used in science and education were initially developed for the purpose of entertainment. Witness the slide projector, constructed by Christian Huygens in 1659. Huygens named his invention "laterna magica" and merely regarded it as a piece for amusement.⁸ Over the centuries, however, shows with the *laterna magica* attracted audiences who paid to see things that must have been as amusing and emotionally arousing as the demonstrations at the Hôpital de la Salpêtrière. The history of instruments⁸ provides, as does the history of medical teaching,⁹ many examples of when science and entertainment, fact and fiction, were indistinguishable.

From the 16th century on, self-starving girls were used for entertainment. Audiences came to see "hunger artists", who could live without eating, and a self-starving man appeared on the scene as recently as 1952.⁵ By contrast, Gull's description of anorexia nervosa and his suggested treatment lack entertainment value. No-one would pay to listen to an account of how to reduce physical activity and supply external heat to a hyperactive, hypothermic, self-starving patient. In stark contrast,

Pierre Janet, 40 years Gull's junior, provided a much more colourful description of the anorexic girl with an obsessional aversion to her body that had been triggered by a puberty-induced fear of maturing sexually.⁵ Add to this the radical sexual explanations of Freud, and self-starvation resumed its role as entertainment.⁵ This, we suggest, is why Gull's description of anorexia nervosa went unnoticed.

Diagnostic criteria for psychiatric practices were initially based on consensus among clinicians, not on research. Some of the criteria used for anorexia nervosa are, therefore, remnants of unrealistic hypotheses from the days of Janet and Freud (criteria three and four below). Yet these criteria have guided research and the publication of some 1000 papers on anorexia nervosa published in the past 5 years. Thus, in many of these papers, the patients were diagnosed according to the four criteria cited in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM). Sadly, these criteria are unchanged in the new version, DSM-IV. Yet, no paper states an objective protocol by which to make the diagnosis; nor does the manual offer advice on how to go about it. To establish two of the criteria is easy: a low body weight and the absence of menstruation; the third one—"fear of gaining weight"—can probably be assessed with a questionnaire. But how does one measure the fourth criterion: "disturbance in the way in which one's body weight or shape is experienced?" The estimation of actual body size has been measured and found unchanged in anorexics. In one study, for example, the patients were first diagnosed with DSM-III-R criteria and then examined and found not to differ from controls.¹⁰ When a change in the perception of body shape was reported, other clinical groups were not assessed, thus challenging the differential diagnostic significance of the finding. Perhaps experience of body shape is better reflected in an affective measure. It has been suggested that such a measure is inseparable from "fear of gaining weight", and that both of these are better labelled "weight concern", which can be measured. Again, however, when this was done, no comparison or control group was included.¹¹ Many young women are concerned with their weight (perhaps a good thing in these days of increasing obesity); others, including self-starving patients, are not.

A recent, comprehensive analysis shows that there is no evidence that the perception of body shape has changed in anorexia nervosa.¹² Bruch, who first suggested that this might be the case, believed this to apply also in other groups of patients.¹³ It is impossible, therefore, to know whether the patients cited in the 1000 recent papers on anorexia nervosa fulfil the DSM-IV criteria; consequently it has not been established whether the disorder described in this manual even exists. We suggest it does not. We also suggest that the reason research on these criteria continues is the same as the reason for the lively interest in previous imaginary diseases: it is entertaining. For example, it allows the following recently published fictional metamorphosis:¹⁴

"The anorectic is... in a profound bio-psychological avoidant stance which is highly unstable and which she needs to defend at all costs... This converts the typically compliant scrupulous child into a desperately wily, secretive, manipulative and tyrannical person".

This is conspicuously similar to another more famous and 115-year-old fictional metamorphosis:¹⁵

"I compounded the elements . . . and drank off the potion. . . . I knew myself, at the first breath of this new life, to be more wicked, tenfold more wicked, sold a slave to my original evil . . ." ¹⁵

which was written more appropriately to entertain. The latter metamorphosis does, however, raise important moral issues, and in doing so it is an obvious advantage to use the format of fiction since no-one is to blame for the destructive forces described. The proposed anorexic metamorphosis, on the other hand, uses the same format in a clinical setting, thereby stigmatising the patient. This can only do harm. In Webster's recent and incisive analysis, it is just another example of how Freudian thought reflects medicalisation of western moral values. ¹⁶ To depict the anorexic patient as "wily, secretive, manipulative and tyrannical", perhaps as wicked as Mr Hyde, is merely a variation of a common theme: man is born with "original sin", the strategy used for ages by the Roman Catholic Church to control human behaviour. ¹⁶

It is time to rediscover the disorder described by Gull over 100 years ago. ¹ On the basis of his observations, two risk factors for anorexia nervosa emerge: reduced food intake and enhanced physical activity. There may be more, but no others have been shown. Recent neurobiological research allows a realistic hypothesis of how these two factors act on the brain, the substrate for anorexia suggested by Gull, prompting reward and attention and thus accounting for Gull's observation that the anorexic patient's physical activity can be "agreeable". ¹⁷ This hypothesis also includes a description of how the disorder develops, and on this framework a method of treating self-starving patients and its results were recently reported. ¹⁸

Although some may regret the absence of entertainment in the writings of Gull and his modern followers, patients will be relieved by the renewed possibility of a rapid recovery. And in these days of budgetary restrictions on health-care systems worldwide those who want to make their health-care budget go further will also be relieved. The financial burden that management of anorexic patients imposes on the community can be estimated. Based on (a) published prognoses of recovery and chronicity, (b) a mean length of treatment of 4 months, (c) a daily cost of £400 for inpatient care, and (d) a loss of income due to a 60% absence from work from the onset of the disorder at 14 years to retirement at 65, the typical patient will cost society about £400 000. The population of an average European country may be 25 million, of whom about

900 000 will be 14–19-year-old girls. With a prevalence of 1%, this hypothetical country has 9000 anorexics and an annual financial burden of around £75 million. The estimated cost of the new treatment is £65 000 per patient, including a risk that in some patients the disease will become chronic. ¹⁸ If this treatment is implemented, our hypothetical country will be £63 million better off each year.

The show is over.

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