

ordinary chemical reaction (hydrazone formation) between a substituted hydrazine and an aldehyde, which occurs readily at room temperature in dilute aqueous solution; this would be sufficient explanation for pyridoxal deprivation.

Fisher (1954) showed that haemin antagonizes the effect of isoniazid; however, Albert and Rees (1955) and Knox *et al.* (1955) proved that haemin catalyses the oxidative destruction of isoniazid even in the absence of tubercle bacilli.

Recent work by Cymerman-Craig *et al.* (1955) presents experimental evidence that the action of isoniazid appears to include an essential chelation step, but this is not the whole story.

Summary

Pellagra developed in a woman who was receiving isoniazid for disseminated sclerosis. Her intake of food was poor. The dermatitis appeared during a particularly sunny summer.

Isoniazid was stopped. During the next three weeks her symptoms persisted. She continued to take the same inadequate diet. The burning sensations in both hands and feet were so severe that they caused her great distress. She was unable to sleep at night with her limbs covered. These latter symptoms were quickly relieved when nicotinamide was given. The dermatitis cleared completely in just over two weeks.

As the symptoms of pellagra came while isoniazid was taken, there seemed to be a causal relationship.

Other clinical observations are mentioned which point to isoniazid being a contributory factor in producing pellagra if the patient is in a pre-pellagrous condition.

These clinical findings suggest a possible metabolic antagonism between isoniazid and nicotinamide. Isoniazid bears an undoubted structural similarity to nicotinamide, which is an integral component of an essential oxidation-reduction co-enzyme—that is, D.P.N.

Experimental work has shown that it is possible by enzyme action to cause an exchange of isoniazid for the nicotinamide portion of D.P.N., which points to a mechanism whereby isoniazid might produce nicotinamide deficiency; but in experiments on the whole animal this has not yet been demonstrated. The biological antagonism between isoniazid and pyridoxal is due to a purely chemical reaction.

The suggestion that the pellagra-producing effect of isoniazid depends on the patient's initial level of nicotinamide being low would cover the facts observed in our case.

The interest of these observations is not so much the causation of pellagra as the demonstration of an apparent relationship between isoniazid and a condition which is caused specifically by a nicotinamide deficiency; this would therefore point to an interference by isoniazid in nicotinamide metabolism; as an integral component of D.P.N., nicotinamide has its most important known metabolic function. The question remains whether these observations are a reflection in the human of the mechanism whereby the tubercle bacillus is inhibited by isoniazid.

The photographs were taken by Miss E. Mason, St. James' Hospital.

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CASE OF FETISHISM TREATED BY AVERSION THERAPY

BY

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Fetishism, or more accurately "erotic fetishism," is the tendency to be sexually attracted by some special part or peculiarity of the body or by some inanimate object. Of all the sexual aberrations, fetishism is one of the most intriguing, perplexing, and varied. The literature is rich in detailed case reports and in speculation about theories of causation. I have been able to find, however, only three apparently successful results in established cases; one attributed to a co-operative wife (Hirschfeld, 1939), one to psycho-analysis (Romm, 1949), and the third to temporal lobectomy (Mitchell, Falconer, and Hill, 1954). I have been unable to find any previous record of a fetishist who responded favourably to aversion therapy. The following case is also of interest in that the fears implicit in psycho-analytical theory, and stressed by East and Hubert (1939), of releasing homosexual or sadistic drives, have not so far been confirmed.

Case Report

The patient, a married man aged 33, was referred in November, 1954, from the out-patient department of a mental hospital for consideration of a prefrontal leucotomy after he had attacked a perambulator. This was the twelfth such attack known to the police, and because of the previous incidents they were taking a serious view of his recent actions in following a woman with a perambulator and smearing it with oil. Since his first involvement with the police his career had been as follows.

First Charge (six incidents).—In September, 1948, whilst in the R.A.F., he slashed two empty prams on a railway station before setting them on fire and completely destroying them. He also admitted five other incidents involving cutting or scratching prams, which had been the subject of police investigations over a period of months. He was convicted of causing malicious damage and put on probation to accept medical treatment. He then left the R.A.F. and was in a mental hospital from March to April, 1949, before being transferred to a neurosis unit, where he stayed for a further month. The view was there expressed that he was unsuitable for psychotherapy, was potentially dangerous, and should remain in a mental hospital.

Seventh and Eighth Incidents.—He did not remain in a mental hospital, and early in 1950 he smeared some mucus from his handkerchief on to a handbag and also damaged a pram by scratching and cutting it. He was not charged, but was admitted to a mental hospital and stayed there from February, 1950, until June, 1951.

Second Charge (ninth incident).—In April, 1952, he deliberately rode his motor-cycle combination into a perambulator with a baby in it. He swerved at the last moment but hit the perambulator and damaged it. He was convicted of careless driving and was fined.

Third Charge (tenth incident).—In August, 1952, he damaged a pram and a woman's skirt and stockings by squirting oil on them. He was convicted of causing malicious damage and was fined.

Fourth Charge (eleventh incident).—In 1953 he rode his motor-cycle through a muddy puddle, splashing a pram and its coverings and the woman who pushed it. He was charged with driving without due care and attention, but the court gave him the benefit of the doubt.

Fifth Charge (twelfth incident).—In September, 1954, came the first incident mentioned. He was charged and convicted of causing wilful damage, and was put on probation to accept medical treatment.

During the court proceedings arising from his latest escapade, the prosecuting counsel, while stressing that the accused deserved sympathy, had said nevertheless that he was still a menace to any woman with a pram. He went on to speak of "a real fear that he may cause serious injury to a baby or mother unless he is put under some form of restraint."

The patient said that he had had impulses to damage perambulators and handbags since about the age of 10, and that, although the police knew of only twelve perambulator attacks, the number of times he had so indulged was legion. He had sometimes made several attacks in one day, but he estimated the average at about two or three a week, fairly consistently. With the handbags he was usually satisfied if he could scratch them with his thumbnail, and as this could be done unobtrusively, a handbag had only once led him into trouble with the police.

He had received many hours of analytical treatment and had been enabled to trace his abnormality back to two incidents in his childhood. The first was when he had been taken to a park to sail his boat and had been impressed by the feminine consternation manifest when he struck the keel of his yacht against a passing perambulator. The second was when he became sexually aroused in the presence of his sister's handbag. He had been led to see the significance of these events and to understand that perambulators and handbags were for him "symbolic sexual containers," but the attacks continued.

His mother was a paraphrenic who was certified at the age of 54 (when he was 12) and died aged 66. His father died aged 66 (when the patient was 15). His work took him away from home for long periods. There was one sister, twelve years his senior, who had played the maternal role, and to whom he was much devoted.

Personal History

His physical health as a child had been good, and his schooling had been normal. He left at the age of 14, having reached the top standard.

Occupational.—After leaving his elementary school he attended a technical school for three years before joining the R.A.F. as an engine fitter. He served for ten years and was then discharged because of his fetishism. Since then he had worked well at a job requiring a degree of mechanical skill and ingenuity, and also a facility for making personal contacts. He was industrious and successful, and his employers thought well of him.

Sexual and Marital.—From the age of about 10 he had masturbated, with fantasies of prams and handbags, and particularly of damage being caused to them by their owners. He first had sexual intercourse after his marriage at the age of 27; but intercourse, he said, was only possible with the aid of fantasies of handbags and prams. There were two children, and his wife said that he was a good husband and father. The domestic perambulator and his wife's handbags, however, were not immune from attack.

and a handbag filled to capacity and bulging often provided piquancy to his masturbation. While it was true that handbags and perambulators aroused him sexually, his attacks upon them were never accompanied by emission, though he was usually conscious of release of tension.

He described himself as a good mixer, but said he was never perturbed by solitude, and had always been a day-dreamer. He read a good deal, especially adventure and crime novels, and he was keen on gardening and woodwork. His knowledge of perambulators and handbags was considerable, and there was no doubt that a good deal of his leisure time was devoted to them.

Treatment

On examination he was found to be a man of good intelligence, who showed no psychotic abnormality. He said he was depressed because he doubted whether anyone could help him, and though he said self-reproachfully that his trouble was lack of will power, it was noticeable that he gave his history in a facile way, and, it seemed, with a certain amount of relish.

In reflecting upon this man's plight, the despair of his family, and his poor response to treatment previously given, the idea was conceived that he might benefit from aversion therapy similar to that used in the treatment of alcoholism.

It was explained to the patient that the aim of treatment was to alter his attitude to handbags and perambulators by teaching him to associate them with an unpleasant sensation instead of with a pleasurable erotic sensation. Though he was frankly sceptical about the treatment, he said he was willing to try anything, for his despair had been deepened by recent sexual arousals when handbags appeared in the ward on visiting-day, and by illustrated advertisements in newspapers.

A collection of handbags, perambulators, and coloured illustrations was obtained, and these were shown to the patient after he had received an injection of apomorphine and just before nausea was produced. The treatment was given two-hourly, day and night, no food was allowed, and at night amphetamine was used to keep him awake. At the end of the first week, treatment was temporarily suspended and the patient was allowed home to attend to his affairs.

He returned after eight days to continue the treatment, and he reported jubilantly that he had for the first time been able to have intercourse with his wife without use of the old fantasies. His wife said that she had noticed a change in his attitude to her, but was unable to define it. Treatment was recommenced and continued as before, save that emetine hydrochloride was used whenever the emetic effect of apomorphine became less pronounced than its sedative effect.

He was asked to write an account of the attractive qualities of perambulators and handbags, and this he did between treatments, writing at considerable length and with a wealth of technical detail. He also wrote an account of the ways in which they are commonly and carelessly misused. At this stage his difficulties were discussed, and attention was chiefly directed towards the pride with which he had always cherished his eccentricity, the exhibitionistic element in his attacks on perambulators, and ways in which they had become a threat to his liberty. After five days he said that the mere sight of the objects made him sick. He was now confined to bed and the prams and handbags were continually with him, the treatments being given at irregular intervals. On the evening of the ninth day he rang his bell and was found to be sobbing uncontrollably. He kept repeating, "Take them away," and appeared to be impervious to anything which was said to him. The sobbing continued unabated until the objects were removed with ceremony, and he was given a glass of milk and a sedative. The following day he handed over a number of photographic negatives of perambulators, saying that he had carried them about for years but would need them no

longer. He left hospital but continued to attend as an out-patient.

After a further six months it was decided empirically to readmit him for a boosting course of treatment. He agreed to this, although he did not consider it at all necessary. A coloured cinematograph film was made of women carrying handbags and pushing prams in the careless, provoking ways which he had described previously. The film was started each time just before the onset of nausea produced by an emetic and was continued throughout the period of nausea. He was also given handbags to handle.

When asked to write an account of any change which he thought had taken place, he said that he no longer regarded himself as an expert on perambulators, and often made mistakes about them in the street. He wrote: "The will power had been there all the time, but before treatment prams and handbags had a fascination for me which my will power was too weak to overcome." The fascination, he said, had become much less because his will power had "matured."

Progress

Nineteen months after he first had aversion therapy he still appeared to be doing well.

Patient's Report.—He says that he no longer requires the old fantasies to enable him to have sexual intercourse, nor does he masturbate with these fantasies.

Wife's Report.—She says that she is no longer constantly worrying about him, and about the possible imminence of police action against him. Their sexual relations have "greatly improved."

Probation Officer's Report.—He says that the patient has made "very noticeable progress" and that "his general attitude to life, his conversation, and his appearance have all shown a marked improvement."

Work Record.—He has been promoted to a more responsible job.

Police.—He has not been in any trouble with the police.

Literature

Among the earliest speculations on this subject are those of the French philosopher Descartes, who was himself a squint fetishist. In 1649 he wrote: "From whence came those extraordinary passions which are peculiar to certain men? There is so close a union between mind and body that once we have combined a certain action with a certain thought, the one never subsequently presents without the other." Referring to strange aversions (anti-fetishisms) that some people have, he concluded that they may well have formed in early infancy to "remain imprisoned in the brain until the end of life."

Binet (1888), however, first gave the term "fetishism" its sexual connotation, defining it as the erotic idolatry of something which cannot directly satisfy the ends of reproduction. He stressed that everyone was to some extent a sexual fetishist and that the difficulty was in knowing where the normal became abnormal. Fetishism, he said, arose from an "accident acting on a predisposed subject," and the predisposition was in the form of a general nervous hyperaesthesia. According to Binet the form taken by any sexual perversion was determined purely fortuitously by an external event, and he stated that "the man who can love only men could easily have been a nightcap fetishist or a shoe-nail fetishist." He distinguished a minor and major fetishism. In minor fetishism some effective detail or object was the centre of attraction, but did not overshadow the person to whom the love was gradually transferred. In major fetishism there was no such transference. Minor fetishisms, he said, were not at all obvious or easy to recognize, but in them lay the secret of many strange loves and astonishing marriages.

Krafft-Ebing (1939) accepted Binet's conclusion that in connexion with the first awakening of the fetishist's sexual life some event determined the association of lustful feeling

with a single impression. The fetishist's abnormality, according to Krafft-Ebing, lies not in what stimulates him, but in what does *not* stimulate him—that is, in his limited sex interest. He classifies fetishes according to the type of fetish object: (1) part of female body, (2) part of female clothing, (3) special materials, (4) animals. Group 1 may be physiological or pathological, but the other three are always pathological.

He stresses its *forensic importance*, because it may present as strange acts aimed at defiling the object or at its theft, and its importance as a *cause of impotence*.

Havelock Ellis (1906) states that fetishism tends to occur in sensitive, nervous, timid, and precocious individuals, and can usually be traced to a definite starting-point in some sexually emotional episode in early life. The degree to which this influences an individual's subsequent life depends on his "morbid emotional receptivity."

Hirschfeld (1939) elaborates Binet's theory and says that the predisposition is not a generalized nervous hyperaesthesia but a specific psychological make-up and that it is only a certain type of "accident" which is capable of arousing fetishism. In summary, he says that "fetishism is based on a conscious or unconscious associative absorption of sensual perception that is in accord with the individual's psycho-sexual constitution."

Freud's (1928) views may be briefly, and no doubt inadequately, summarized as follows. A fetish object is a substitute for the woman's (mother's) phallus in which the boy once believed. It remains as a triumph over the castration threat, and saves the fetishist from becoming homosexual by endowing women with the attribute which makes them sexually acceptable. The object may, however, symbolize the boy's last impression before the traumatic discovery which it screens from his conscious memory.

Stekel (1930) states that fetishism can be totally explained as flight from the woman, and in his experience homosexuality was the end of every case. It is, he says, a complicated compulsive neurosis giving rise to impulsive, often sadistic, acts carried out in a twilight state and expressed in symbolism which can be interpreted only by psycho-analysis. Stekel stresses the fetishist's pride in being unusual, his psycho-sexual immaturity, his harem cult, and his impulses to exhibitionism.

Karpman (1934) states that sadism is the root of fetishism, though sado-masochistic fantasies may not be present. Common to sadism and fetishism are predominance of fantasy life, depreciation of the sexual partner, and incestuous attachment.

Rarity in Females.—All authorities agree that fetishism is predominantly a male disorder. Krafft-Ebing (1939) considered that pathological fetishism had been observed only in men, and Havelock Ellis (1906) noted the "great rarity of fully developed fetishism in women" but thought that slight degrees might occur. Stekel (1930) stated that it was "generally a male disease," and Fenichel (1945) that it was "very rare" in women. Kinsey *et al.* (1953) state that it is "an almost exclusively male phenomenon." Of 7,789 females, they reported only two or three who were regularly aroused by objects not directly connected with sexual activity.

Fetishism in Homosexuality.—East (1949) states that fetishism is not confined to heterosexuals, for in rare cases it is associated with homosexuality. Thoinot and Weyssse (1920) recorded the case of a male homosexual fetishist who was erotically excited by contemplating the patent-leather shoes of other men.

Frequency as a Primary Medical Problem.—In a series of 4,000 patients seen in private practice, Curran (1954) found only five cases in which fetishism was the *primary* problem. None of these was on a charge.

Frequency as a Legal Problem.—Fetishism, according to East (1949), is seen infrequently in the criminal courts. It is also quite rare in divorce proceedings (R. Ormerod, 1956, personal communication).

Treatment.—Despite the wealth of descriptive case reports, very little has been said about the treatment of fetishism. A search of the literature has revealed only three cases in which successful treatment was claimed.

1. A case seen by Krafft-Ebing is referred to by Hirschfeld (1939) as "one of those rare cases in the literature of sexual pathology in which a therapeutic success has been achieved." The patient was a limp fetishist who, after he married an understanding woman, was "educated" by his wife and eventually cured of his fetishism.

2. Romm (1949), in a notable case report, states that after 662 hours of analysis over six years, the patient (a hair fetishist) achieved a genital relationship with his wife. In the social and business spheres he became much more effective. On rare occasions, when under environmental stress, he had fetishistic fantasies but with no impulses to action. He retained a more than usual interest in his wife's hairdress.

3. Mitchell, Falconer, and Hill (1954) reported a case of temporal lobe epilepsy in which the viewing of a fetish object precipitated seizures. Relief of both the epilepsy and the fetishism followed temporal lobectomy.

Discussion

To use aversion therapy in treating this patient seemed a logical approach if one believed that the results obtained in alcoholism are not dependent upon the specific biochemical changes produced by any drug but upon the establishment of a conditioned response. The fetishist's predisposition propounded by Binet as a general nervous hyperaesthesia may well be expressed as an unusual capacity for forming conditioned responses, and this capacity might prove as great an asset in treatment as it was a liability when the fetish was formed. To use nausea and vomiting as a means of producing the aversion was clearly less appropriate than in alcoholism, but familiarity with the procedure, the ease of administration, and reluctance to use other available stimuli favoured its use. Also the modification of attitudes and psychological conversions are more easily obtained in states of exhaustion and hunger, and from that point of view the technique was suitable.

It was thought that should aversion be successfully established there might be some risk that impotence would ensue. According to Freud's (1928) view, overt homosexuality might emerge if the protective fetish objects were removed; while Stekel's (1930) experience suggested that this would happen anyway. East and Hubert (1939) stress the danger of changing a sexual fetish into strong homosexual or sadistic drives by treatment. So far none of these eventualities has arisen.

Romm's case is interesting because apparently the impulses to aggressive action disappeared or were controlled, although unusual interest in what had been the fetish object still remained, and was even occasionally used in fantasies.

Much of what our patient says—for example, that he makes mistakes about perambulators—also indicates that the habits of observation persist to some extent. He insists, however, that observation is more casual, and that sexual stimulation never occurs as a result.

Summary

A report is given of a case of fetishism believed to be unique in that the patient responded favourably to aversion therapy. A brief review of the literature is given and discussed in relation to the treatment of this case. It is suggested that the predisposition to fetishism, first discussed by Binet, may lie in an unusual capacity to form conditioned responses, and that this capacity may be used as an asset in treatment.

I am indebted to Dr. Desmond Curran for the opportunity to treat this patient, and for permission to publish this report. I also thank him and Sir Paul Mallinson for much helpful criticism and advice in the preparation of this paper. It is a pleasure to acknowledge the help and co-operation of the nursing staff at Atkinson Morley's Hospital.

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ACTION OF DIBENYLIN ON THE PERIPHERAL CIRCULATION

BY

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"Dibenyline" (phenoxybenzamine hydrochloride) is chemically related to though much less toxic than "dibenamine." It has been thought to cause increased blood flow in many tissues by an action mainly involving the vasomotor nerves. Studies with dibenyline in patients with peripheral vascular disease have yielded conflicting results. Moser *et al.* (1953), Haimovici (1951), Friend and Edwards (1954), and Wertheimer *et al.* (1954) found it valuable when given intravenously or orally in the treatment of vasospastic disorders, causalgia, and acrocyanosis. Wertheimer *et al.* (1954) claimed some benefit in arteriosclerosis obliterans, but most workers consider the drug to be less efficacious in organic vascular disorders.

Animal investigations have suggested that the vascular response to dibenyline is largely dependent upon an adrenergic blocking action on the sympathetic nervous system (Nickerson *et al.*, 1953; Green *et al.*, 1954; Harvey and Nickerson, 1954).

The present investigation was designed to assess the effect of the drug on diseased blood vessels and to study the role of the sympathetic nerves in the response to dibenyline in man.

Subjects and Methods

The blood flow responses of 22 sympathectomized limbs to dibenyline were studied. Most patients were given dibenyline while still in hospital in the immediate post-operative period following surgical sympathectomy. A few were tested with the drug as out-patients after sympathectomy.

The subjects belonged to one of two fairly distinct categories: (1) patients with hyperhidrosis or uncomplicated Raynaud's phenomenon who had no evidence of organic vascular disease and were therefore considered to have comparatively healthy blood vessels (eight limbs); and (2) patients with arteriosclerosis, scleroderma, or Raynaud's disease with ischaemic lesions, in whom there was undoubtedly organic vascular change (14 limbs). The effects of intravenous and of intra-arterial dibenyline were separately investigated.