PRACTICE OBSERVED

Practice Research

Eye screening in general practice with the Arden grating test

CONRAD M HARRIS

Few general practitioners are likely to have both the skills and the equipment necessary for full examination of their patients' eyes. Snellen charts test only visual acuity, and there is still a need for a simple screening procedure that indicates which patients should be referred to a specialist clinic.¹

The Arden grating test is a test of visual function that uses sine-wave gratings to measure the sensitivity of the eye to contrast. In 1976 these gratings were reproduced on plates that could be made up in the form of a book.² Each eye is scored separately, using a set of six standard plates: the point at which a contrast is detected is marked against the scale on the side of the grating. Scores are affected by many factors, including the patient's age, the number and form of the plates, illumination conditions, and diseases from which the patients may be suffering.³

The Arden grating test was believed to be suitable for screening in general practice. It was said to be little influenced by refractive errors, to pick up glaucoma and other sight-threatening diseases in their earliest stages, and to be useful in the routine monitoring of patients with diabetes. Its place in the surgery depended therefore on three considerations: how easy it was to use, and whether or not the false-positive and false-negative rates were low enough to make its adoption worthwhile.

Preliminary answers to the first two of these considerations could be obtained by supplying several general practitioners with the test and having them refer all patients with abnormal scores for full eye examination. A small trial along these lines was therefore designed in co-operation with Professor Arden and Moorfields Eye Hospital. The problem of the false-negative rate was unlikely to be elucidated by this arrangement, since it

was thought that not enough patients with normal scores would be willing to accept an appointment for the Moorfields clinic. A detailed report of the trial has been published elsewhere,⁴ but it is written from the perspective of the clinic in which the patients were seen and its conclusions are based on the Arden grating tests and Snellen tests which were performed in the hospital. It deals with 140 patients, only 129 of whom were in the trial; it includes eight who were referred with normal scores and three who did not come from the general practitioners involved. These differences affect the author's approach and results; therefore it seems worthwhile to present the findings in a way more relevant to general practice, where the interest centres on the defects discovered in patients whose abnormal scores were discovered under normal surgery conditions.

Methods

Seven practices associated with the department of general practice of this medical school expressed an interest in using the gratings. Doctors from these practices were taught how to use them by Professor Arden and were given books of plates to take back to their surgeries. A special clinic was set up in Moorfields Eye Hospital to permit rapid referral. Forms were designed for patients investigated further or followed up, and 6/6 bilaterally in the surgery reached the proper level of 130-150 lumens/m², though it was found that a 60-watt pearl bulb in an Anglepoise lamp, 26 inches (66 cm) above the desk, was satisfactory.

The general practitioners' task was to find people with abnormal scores rather than to screen particular groups of patients. Abnormal scores were more likely to occur in patients who were elderly, hypertensive, diabetic, had a family history of glaucoma, or who were taking drugs thought to affect the eye; it was reasonable therefore that the doctors should tend to test such patients rather than select at random, but no constraints were put on the doctors and no patients were excluded from testing on clinical grounds.

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Patients with diabetes and abnormal scores were referred to the Hammersmith Hospital rather than to Moorfields. Referral to the special clinic was arranged only if the doctor would not otherwise have referred them elsewhere. An abnormal score using the Arden test was defined as a total score of 78 or more for either eye, a difference of 10 or more between the two eyes on any of the plates, or a score of 17 or more on any one plate with either eye. Patients with reading glasses kept them on while being tested.

The feasibility of delegating the testing to unqualified practice staff was explored in two ways: in one surgery some of the receptionists were trained by the doctors, and a lay assistant was recruited to visit some of the other practices once or twice a week to test patients who had agreed to this at an earlier normal consultation.

Results

Of the 129 patients with abnormal scores referred to the clinic at Moorfields, 52 were under the age of 60—half of these were in their fifties—and a further 46 were in their sixties. Full eye examination, which normally included history, an Arden test, Snellen visual acuity test, with refraction if it was worse than 6/6, ocular motility, visual fields, slit-lamp inspection, and fundoscopy under mydriasis, revealed definite defects (as judged from the letters sent to the referring doctors) in 95 of the 129 (74%). The severity or significance of these defects varied considerably.

Minor surgery for conditions not related to the Arden test was performed on two patients—one for entropion and one for a meibomian cyst. Two patients with normal eyes were sent to a specialist to exclude a neurological cause for the abnormal score. Twenty-six (20%) were referred within the hospital for further investigation or for follow-up (table). Four patients whose need

abnormal finding was usually implied in the wording. The Snellen visual acuity reached 6/6 bilaterally in 10 of the 129 patients investigated further or followed up, and 6/6 bilaterally in another three. For two patients the Snellen score was not mentioned, and in the remaining 18 the acuity of at least one eye was worse than 6/6.

Discussion

Weatherhead calculated that if the criteria for an abnormal score were reset to a total score of 80 or more for either eye, a difference of 13 or more between the two eyes on any of the plates, or a score of 17 or more on any one plate, under clinic conditions, at least 95% of the abnormal eyes would have been detected. Having tested each patient's visual acuity with Snellen charts, he showed that a score of 6/5 was necessary to achieve the same detection rate, at the expense of a significantly poorer ratio of false-positives to false-negatives on his own Arden grating tests.

It is, as usual, a matter of opinion whether or not these findings suggest that the test would be a worthwhile addition to the procedures used in primary care. Some kind of action resulted from 48 of the referrals (37%) in addition to the relief that many of the remaining patients must have experienced when told that their eyes were healthy.

The Arden test, which takes 5-7 minutes to perform, was practical in the surgery. No equipment apart from the plates is required, though several practices had to buy an Anglepoise lamp. It was simple to train unqualified staff to use the gratings, and there was no indication that their findings differed from those of the doctors.

Conclusions

The Arden grating test plates are very expensive to produce, and a larger study would be needed before their adoption could be recommended. The question of the false-negative rate remains. If it is low, this would make the test useful regardless of the false-positive rate. There are occasions when it would be valuable to be able to reassure a patient, on the basis of a normal score, that a specialist opinion is not necessary.

A study to determine the false-negative rate would not be easy to carry out from general practice. It would be simpler in an occupational health setting, perhaps within the premises of a large firm which could also accommodate an ophthalmologist and the equipment required for full examination of the eye. It is to be hoped that someone will carry out such a study.

I thank Professor Geoffrey Arden, Mr Robert Weatherhead, and Mrs Sandra Max for their help, and the following general practitioners for their co-operation in referring patients: A Bailey, P Brent, M Bray, D Coffman, J D Cohen, D Cowper, N Davis, A Elder, P Esmond, A Evans, G Graham, A Haidar, M Harris, I Jacobs, S E Jee, P P Magill, and D M Smith.

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Details of 26 cases investigated further or followed up

Problem	Procedure	No of cases
Abnormalities of macula	Fluorescein angiography	10
Cataract	Operation	3
Need for refraction complicated by other eye disease		3
Glaucoma	Treatment	2
Family history of glaucoma	Visual field checking and tonometry	2
Chronic angle-closure glaucoma	Treatment	2
Chronic keratitis	Treatment	2
Central retinal vein occlusion	Treatment	2
Lamellar hole at fovea with traction membrane	Investigation	2
Diffuse peripheral fundal pigmentation	Electro-oculogram, electroretinogram, and optokinetic	1

for surveillance was definite but not immediate (two with disease of the macula and two with lens problems) were invited to return when necessary but not given an appointment, and 14 (11%) were advised to visit an optician. In the remaining 47 patients (36%), the defect was judged to require no further action or simple advice only. More than half of them had opacities in various parts of the lens and a quarter had lesions in the macula. Multiple defects were common.

Most of the letters to the general practitioners commented on the results of Arden tests carried out in the clinic. For 27 (21%) they were within normal limits, but for 88 (68%) they were again abnormal; for 14 (11%) they were not, but an

Sex Problems in Practice

Dealing with fear of failure

ELIZABETH STANLEY

Failure can be defined only in relation to success, and if our patients' notion of success is unduly narrow or unrealistic this can feed directly into the vicious cycle caused by fear of failure shown in the diagram. One aspect of treatment is helping couples redefine for themselves a broader and more realistic concept of "normal," "successful" sex. A specific treatment too that may help this process is the "ladder concept," which I have evolved over the years with the help of my patients. This helps the couple to look at "success" in terms of sharing pleasure rather than in "performing" and reaching goals.

Ladder concept

A ladder with six rungs, resting on the ground, is used as the basis for discussion. The ground and each rung of the ladder are defined in terms of the intensity of physical pleasure experienced and the changes occurring in the genital region with increasing sexual arousal (table). Described in terms of this ladder, the notion of "successful" sex held by so many couples with sexual

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problems is that each partner has to climb the ladder at the same rate and arrive at the top together. This view places the emphasis on performance and goals rather than on sharing pleasure. By using the ladder as a framework for discussion, the couple can begin to review their ideas of what for them could constitute sexual "success." It is suggested that if they so choose they could consider that (a) the pleasure they experience on any given rung of the ladder can be valued in its own right and shared with their partner, without necessarily progressing to higher rungs every time; (b) a mutually satisfying sexual experience need not demand that both partners progress up the ladder at the same pace, always arriving at the top together; (c) that orgasm is not necessarily essential for individual satisfaction, as a problem by the couple.

The ladder concept

	Feelings	Genital changes
Ground level	No interest or pleasure in physical contact	None
Rung 1	Physical and emotional pleasure while cuddling without genital stimulation	None
Rung 2	Feelings above heightened and early genital awareness	None or minimal
Rung 3	Moderate sexual arousal	Partial erection
Rung 4	Strong sexual arousal; couples not fit to be essential	Full lubrication
Rung 5	Intense sexual arousal with physical and emotional discomfort if orgasm does not	As above
Rung 6	Orgasm	As occur with orgasm

until rung five is reached. It does appear, however, that the drive for orgasmic release is greater in men than women, possibly determined both by cultural factors and intrinsic male-female differences. This may, but need not, be perceived as a problem by the couple.

With two ladders drawn on a piece of paper, they are asked to examine the many possible options for shared pleasure. For example, a woman on rung two can still find intercourse enjoyable (preferably using K-J jelly to compensate for her own lack of lubrication), if it is simply regarded as a cuddle with a few extra square centimetres of skin contact—that is, penis and vagina. This usually requires a shift in attitude to one that accepts that neither has failed if they do not move further up the ladder on every occasion. As another example, if a man is at rung five while his wife is fixed at rung one she can still masturbate him to orgasm with mutual satisfaction, if not equal levels of intensity of pleasure; alternatively if the (or he) is at ground level pleasure can still be shared if he masturbates himself (or herself), as long as it is beside each other rather than on their own in separate rooms, so that their pleasure can be shared. Success in the latter instances depends, of course, on both partners accepting masturbation as a healthy means of sexual expression, but few reject this idea when they see how such attitudes can

cater for the varying needs of each partner in a way that minimises the chance of failure and eliminates destructive performance pressures. If, however, any one pattern of activity predominates to the exclusion of others desired, such as a rung one-five combination, this would indicate that their problem has been insufficiently resolved.

The ladder is also useful because it provides the couple with a common language which facilitates clear communication. There are, however, certain concerns relating to the ground and rung two that are consistently raised by couples during discussion of the ladder concept.

THE GROUND

Many couples say that in the past if A was on the ground while B was, for example, at rung four, such lack of interest displayed by A would probably be assumed by B, correctly or incorrectly, to be a personal rejection. It can be shown, however, that when the communication skills described in the previous article are put into practice, this problem can be avoided. Since, hopefully, conflict will already have been dealt with as soon as it arose or was suspected, each can then trust that if the other does not desire physical contact this is because of factors external to their relationship and not because of unexpressed or unresolved interpersonal conflict. Even if this is still suspected at the time of a sexual approach, it can be immediately checked out so that either reassurance can be given or previously unexpressed feelings can be brought out into the open and discussed.

RUNG TWO

Intercourse cannot take place for the man at rung two, but it can for the woman. This has often been the typical pattern before help was sought for the problem, but the woman has not been able to appreciate the pleasurable rung two sensations, or valued them in their own right, because she has been too preoccupied with anxiety about whether or not she will become more highly aroused. On the other hand, some women have specifically stated that their partners on occasions this can be a very enjoyable experience without necessarily becoming any more highly sexually aroused. Typically, however, the man has refused to accept this, feeling that he has "failed" because he has not brought her to orgasm. This in turn can quite needlessly also leave the woman feeling a "failure." What few people seem to realise is that no man can "give" a woman an orgasm or vice versa. All any person can do is give the right stimulation to their partner to enable them to have their own orgasm. Orgasm requires the ability to "let go" and "give up control" of the body's responses to pleasurable stimulation, and only that person himself or herself can ultimately be responsible for letting this happen. Certainly no one else can do this for them.

Sensate focus

Another treatment tool that can be used to help couples break out of the vicious cycle of fear of failure is based on the concept of sensate focus as described by Masters and Johnson.⁵ It is best used in conjunction with education, teaching communication skills, and discussion of the "ladder concept." Its diagnostic value in highlighting those blocks to sexual responsiveness specific to each couple can be as great as its treatment value. There are two stages in this procedure, throughout which a complete ban on intercourse is imposed to remove for the time being any possibility of sexual failure, which is usually perceived only in relation to intercourse. In this way, a situation is created in which the couple are more readily able to appreciate the tactile, gentle, sensual, and emotional feelings experienced at rungs one and two of the ladder. It is out of these feelings that stronger ones grow, leading to mounting sexual arousal and

orgasm (given the continuity of appropriate stimulation). By the time help is sought, many couples have lost the ability to experience such pleasurable feelings, largely because any form of touch by this time usually signals anticipated intercourse, which in turn will lead to yet another fear. These forms of physical contact have usually been avoided for often years, or if it happens it is seldom really enjoyed.

FIRST STAGE

In the first stage the couple is asked to set aside three evenings or other periods of time in which they can be alone together for at least two hours. Lack of such deliberate planning in the past may well have contributed to the sexual problem, but it is often needed because of the busy lives led by most people. They are asked to take it in turns to "set the scene," using anything, such as a candlelit dinner or especially favoured music, which for them creates a romantic mood. Such activities have seldom been pursued before the courting days, but may on occasions lay an excellent foundation for sexual pleasure at any stage in a marriage.

They need to make the room warm enough so that they will not feel uncomfortably cold in the nude. At this stage in the instructions it may emerge that, even though long married, the couple have never been together completely unclothed, and their feelings about this may need to be discussed before proceeding further. For those who hold the idea of full nudity too threatening at this stage, the task can initially be carried out in their underwear. They are asked to purchase some bland and inexpensive body lotion and warm it up before they do their "homework" by placing the container in hot water or the airing cupboard. They are also recommended to place a towel on the floor in case any lotion is spilt. It is suggested that the living room is used, since the bedroom can be too strongly linked with feelings of failure for comfort. One partner is then asked to lie on the towel, as relaxed as possible and with a passive frame of mind. Using the body lotion (though possibly oils or talcum powder if preferred), the other partner then begins to explore all parts of his or her body, excluding the genital area, breasts and nipples, and the anal region. (Many couples do not appreciate the potential for pleasure of the anal region, though not all who do may choose to use this potential.) They are asked not to view this exploration simply as a massage, since this implies only heavier forms of touch, and it is often the lighter ones which the couple have failed to recognise and enjoy.

It is explained that this is primarily an exercise in sensory awareness, in which they need to focus this awareness just on what they are experiencing at a tactile level at any given moment. They need to become aware of the differing textures of every part of their partner's body, while making a conscious effort to exclude any extraneous and intrusive thoughts from their minds. It may be helpful to use the analogy of a circle in which there is only one central point and explain that, just as the circle has only one central point, they can only have one set of sensory feelings or thoughts at the centre of their awareness at any given moment. As long as they are both in an appropriate mood, they will find that by keeping pleasurable sensual feelings central to their awareness, pleasure will build progressively upon pleasure. So often the anxiety about impending failure becomes the central thought in their minds, pushing to the periphery or even outside of their awareness altogether those very feelings which would ensure increasing sexual arousal and orgasm. It is, however, stressed that in this first stage of "homework," sexual arousal per se is definitely not an objective. The partner being "explored" also needs to focus his or her awareness on what is being experienced in each part of the body as it is being touched, second by second.

For many couples it is perhaps the next set of instructions that can most perplex, at least initially. The partner carrying out the body exploration is asked to give priority to his or her own pleasure, and think in terms of "using" the partner's body to

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achieve this end. Such an attitude is usually contrary to all their beliefs of what constitutes "good" sex, and most claim that they could never be so selfish! It is explained to them, however, that their own pleasure need never be at their partner's expense, providing that any particular dislikes are communicated immediately. If they have already begun to put into practice the communication skills learned in relation to emotional feelings they will readily appreciate that if each partner clearly states their physical needs when these differ they are in a position to negotiate and reach some mutually satisfactory compromise. In this way each partner assumes responsibility for his or her own pleasure, and distracting guestwork about the other's response is avoided. This kind of attitude enhances rather than detracts from mutuality, and such apparent "selfishness" can be seen as constructive rather than destructive. The partners can then not only feel freer to focus on their own physical feelings in a way that will be exciting sexual arousal and orgasm when this is desired, but also they can derive more pleasure from their partner's pleasure, secure in the knowledge that all that is happening is enjoyable to both, unless otherwise stated. The emphasis is placed on giving negative rather than positive feedback as the former is usually more difficult than the latter. This certainly does not negate the value of giving positive feedback to one's partner during love-making, however.

The couple is then instructed to change places as the "explorer" and the "explored" on each occasion, and to carry out this "homework" on three separate occasions, each lasting no less than two hours apiece, the exploration of each partner not lasting less than 20 minutes, with a useful break in between each exploration. At this time the couple is best seen at weekly intervals if this is possible. The first stage is then reported back to the doctor, and the issues that this raised are fully discussed before the second stage is begun.

SECOND STAGE

The second stage is precisely the same as the first, with the important difference that the breasts, nipples, genitals, and if

Clinical Curious

The patient was a capable PA secretary, an unmarried woman in her 50s. She became ill with pneumonia while on holiday abroad. The pleural effusion was heavily blood stained, so the possibility of underlying malignant disease was at the back of our minds. She recovered enough to be flown home as a stretcher-case, and completed her treatment uneventfully in our local infectious diseases hospital. There her case was thoroughly reviewed but the only finding of note was a pelvic tumour, agreed by the gynaecologist to be fibroids. She went home for six weeks of convalescence and then was readmitted for hysterectomy, but at operation the fibroids were small and insignificant, and the main tumour bulk was an adherent ovarian carcinoma. As near to a total hysterectomy as possible was performed, but were already peritoneal seedlings and multiple nodules in the liver. A week or so later, therefore, with a prognosis of two to three months, she was sent home to my care—as her general practitioner—to die.

This was all of 20 years ago. Apart from some troublesome leg oedema her post-operative recovery was satisfactory, yet I was keen to delay her return to work for as long as possible. It is so damaging for morale if one has to give up work only a few weeks after starting. After two or three months, however, I had to let her start work part-time, and a few months later she began full-time work. She years later drew her pension. Five years after that I successfully treated her thyrotoxicosis. About seven years later she had some trouble with her cervical spondylitis. I think it quite likely that she will outlive me.

I am relieved that we did not fully share her prognosis with her as we probably would have done today. I suspect that quite a few colleagues meet one such case in their clinical lifetime. The spontaneous involution of disseminated malignant disease must be a rare

wished, the anal region, are no longer out of bounds. It is stressed that these more erogenous areas should receive only intermittent attention and the rest of the body should continue to be included in the exploration. It can also be useful to "ban" erection, i.e. to avoid sexual arousal and orgasm for the duration of the second stage of homework. This often proves to be invaluable paradoxical intention! The second stage is then reported on the following week and the issues that this raised are fully discussed.

Masters and Johnson describe a third stage of "homework" according to the specific sexual problem of that couple. I personally have rarely found it necessary as often by the time the couple reports back from the second stage of their homework (if not before) the sexual failure is reversed. Sometimes, however, a more gradual reversal of the failure takes place over subsequent weeks without further therapeutic intervention. The couple should be offered a follow-up appointment about six to eight weeks later so that they can consolidate their learning in the light of mistakes made during this time.

Conclusion

As doctors we have no universal sexual techniques that we can teach our patients to improve their sexual lives. We can, however, educate, and give "permission," and help them break into the vicious cycle of fear of failure. In particular, we can help open up channels of communication between couples who experience sexual problems, whereby each can teach the other how to become a good lover, and emotional feelings can be shared in a way that enhances all aspects of a close and loving relationship with another human being.

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phenomenon, but I would be interested to hear of any similar cases in some detail. Since I will never forget the impact when one of my old chums discovered that he had done an abdominoperineal resection for an amoeboma, I request that any cases reported to me should have definite histological confirmation of the diagnosis.—E WILKES, professor of community care and general practice, University of Sheffield.

Recurrent vaginal candidiasis is occasionally a difficult problem in general practice, and I have recently made an observation concerning this problem. A 40-year-old married woman had recurring episodes of vaginal candidiasis over more than 12 months despite all the usual local treatments both to her and her partner. She was not on the contraceptive pill, and there was no sugar in her urine. The recurrences have stopped since she has been on oral iron for a chronic iron deficiency anaemia, which was discovered at the end of the 12 months but which obviously had been present for a considerable time before that. Since the return of her haemoglobin to normal about six months ago she has had no recurrence of the candidiasis.

I have been unable to trace any comment in the medical literature on the relation between recurring vaginal candidiasis and anaemia, and I thought that this observation might be of interest to other practitioners.—P H TATTERSALL, general practitioner, Durham.

We will be pleased to consider for publication other interesting clinical observations made in general practice.—Ed, BMJ

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and gained the right to choose their own doctor" (from A H John's book *The Industrial Development of South Wales*). But this right did not exist at Aberdare in 1908 when my father came here. There was no free choice of doctor until the National Health Insurance scheme started on 1 January 1913. At Geady, Ysguborwen, and Dylas collieries the miners were compelled to have Drs Davies, Rhys, and Wilson, and at the Bwlfa collieries Dr Evan Jones and his family of doctors.

The owners still had considerable control over the doctors. My father had considerable difficulty on one occasion in getting his poundage payment from a local coal-owner who was in financial distress. An important part of a doctor's income then was the provision by the coal-owner of four loads of coal a year. My mother used to complain that she had been brought down from Aberdare under false pretences as the doctor's coal concession had been stopped because the ownership of the Dylas collieries had been taken over by a new company.

Geady Colliery on the River Dare in 1971.

In Tredgar, Penygruff, and elsewhere poundage and the payment of the salaries of the doctors were controlled by trades union committees, but at Aberdare and in most of the industrial valleys these schemes did not exist and payment came direct from the colliery office.

Before 1913 poundage covered the medical needs of the miner and his family. After 1 January 1913, the miner's national insurance payment covered his sickness benefit and his medical needs, and the poundage those of his family. There was then also a free choice of doctor. The hospital care of the miners by the doctors was also covered by the poundage. Periodically, my father and two or three other senior doctors would meet the trades union representatives of the miners and other groups of workers to negotiate the poundage. Latterly it was 3 pence. One of the conditions agreed was that the medical services would continue to be provided as usual, without payment, if the wage earner was ill or unemployed.

So when there was plenty of work our income went up, but after the miners' lockouts of 1921 and 1928 and the long recession between the wars, with high unemployment ever present, down went our income. By 1928 my father had an overdraft of £800. We five doctors were pleased with the improvement in services that came with the National Health Service and also with the financial stability that it gave us. In 1947-8 I earned £1200, but in the nine months from July 1948 to April 1949 I increased to £1800.

Health education in 1882

Health education for the general public was an important part of the work of Drs Davies and Rhys in 1853, but there

were other doctors who taught preventive medicine. For, according to *The Gopeller* (the parish magazine), "The South Wales Branch of the British Medical Association held its quarterly meeting at Aberdare on 26 October 1882. Dr Evan Jones, the president, presided at the meeting. The members attending were Dr Jones, Dr Davies, Dr Rhys, Dr Wilson, Dr Williams, Dr Williams, and Dr Williams. The doctors discussed the 'prevention of infection at funerals.' The December issue of *The Gopeller* published a letter from Dr Jones. Here are a few extracts:

"Sir,

Having been asked to write an article on public funerals, with a view to lessening contagion, I take this opportunity of expressing my opinion that this is beginning at the wrong end. Before treating of the disposal of the dead, I think it would be better to prepare the public, or rather teach them, how to manage the sick patients.

If a future contribution would be acceptable, I propose in my next to give a set of rules for guidance in the matter of infectious diseases.

I hope your nerves will not suffer when I tell you I am in favour of cremation.

Yours truly,
Evan Jones, Surgeon."

The editor's nerves appear to have suffered for there is no other letter in *The Gopeller*, at least until December 1883.

Dr Jones started a series of public lectures on first aid to the wounded in January 1882, and this important contribution to skillful care during accidents—for coal-miners in particular—has continued until now. The same copy of *The Gopeller* contains the name of my wife's grandfather. He was a coal-miner who was killed in a colliery explosion in 1886. His son's life was saved, but he was so badly affected by the accident that he was never able to work again.

Evan Jones was in 1854 a "medical assistant." He qualified in 1858. He also employed "medical assistants," one of whom was "Dr" Evan Walters, but "Dr" Walters never qualified as a doctor. He had been a coal-miner and had no doubt considerable practical experience of mining injuries and of miners' diseases—such as miners' phthisis and progressive massive fibrosis of the lungs, which was usually complicated by tuberculosis.

From vaccination to immunisation

When my father came from Aberdare to Wales in 1907 and to Aberdare in 1908, there was a long tradition of increasing public control over the health services and the recognition within the practice of the importance of public health and the effect of social conditions and occupations (particularly coal mining) on causing ill health, severe injury, and premature death. The practice doctors were public vaccinators. My father once told me of his difficulty in convincing one of his partners, 70 years ago, to use antitoxin in children suffering from diphtheria. It was also a great belief—60 years ago—in the use of Almoth Wright's antistreptococcal serum for purpural fever. He believed that poverty, bad housing, and ignorance caused ill health. In one part of the town the poorest people, those who lived on parish relief, had to be attended by the parish doctor; they had no free choice of doctor, but my father and the rest of our family of doctors provided free services to many of these poor people who preferred to be attended by us.

I was fortunate in being trained as a schoolteacher and in becoming an elected councillor before I became a doctor. My schoolchildren and my fellow councillors—unemployed miners, railwaymen, and others—gave me a salutary lesson in modesty. For I soon found that they were able to teach me more than I could teach them. As a councillor I was one member of a committee making decisions with other councillors about clean food, the condition of slaughterhouses, the tuberculosis

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The Way It Used To Be

In Aberdare

ALISTAIR WILSON

Aberdare is now a small industrial town of about 38 000 people. In 1921 there were 55 000. In 1849, the year of our worst cholera epidemic, it was an important iron and coal producing town. The practice in which I have worked for over 40 years existed then. Two of my predecessors were Dr David Davies of Brynagor and Dr Watkyn Rhys, whose son Dr Watkyn Llewellyn Rhys was my father's first partner.

Under the Public Health Act of 1848 a preliminary inquiry into the sewerage, drainage, and supply of water and sanitary condition of the inhabitants of the Parish of Aberdare was held by Thomas Webster Rammell at the Boot Hotel on 10 January 1853. Among those who gave evidence to the Rammell Commission were Dr Davies and Dr Rhys. In 1854 a local health board of 12 members was elected, all the electors "being seized or possessed of property, real or personal, or both, to the value of 500L or being rated to the relief of the poor on an annual value of 25L."

Dr Davies became the medical officer to the Health Board, the first in Wales, and later Aberdare's first medical officer to the urban district council. In his evidence to the commission Dr Davies said: "Fever generally prevails. We have a great deal of smallpox. The town is very badly drained, and I find most diseases in the most filthy localities." Dr Watkyn Rhys said: "Until latterly, the class of diseases which have prevailed have been fevers of a typhoid type . . . and other epidemic diseases, which I attribute almost entirely to organic poisons . . . arising from imperfect drainage and accumulation of filth . . . I wish to notice the state of Greenbach (little Green, the centre of the old town). The houses . . . are densely crowded together, have no outlet, and the same practice of throwing out slops of all kinds into the streets prevails."

When I was living at Brynagor surgery in 1946, as I was entering a house in Greenbach to deliver a baby a rat ran from the house into the River Dare. In a pamphlet about the initial conditions of the town in this year I wrote: "High Street, Dare Court, Greenbach (Greenbach), and the condemned houses stand in ugly contrast with the beauty of St John's Church. . . all the buildings from High Street to the river should be cleared—Dare Court and the rat-infested shacks in this neighbourhood." The district council, of which I was then a member, subsequently cleared the whole area.

Caring for every health need

Dr Davies died in 1910. Part of our students' training is to visit his grave in the churchyard opposite the health centre and

to hear about his contributions to the health of our town. My brother, Dr Jack Wilson, lived and worked at his Brynagor surgery for over 30 years. Dr Davies was one of those responsible for great improvements in public services at Aberdare in the last century—the enclosing of the open sewers, the clean water from the new reservoirs, and the improved standards of house building and sanitation. He was also the factory doctor, concerned with occupational health, and, of course, worked in the community as a general practitioner. In him was united the community physician and the general practitioner. He was attempting to care for every health need. This tradition of public health, preventive medicine, and health education for the public, associated closely with general practice, and the work of general practitioners to improve social and occupational aspects of health has continued in the practice up to now. My father, brother, sister, brother-in-law, and myself have all been doctors in this town.

Doctors had to try to provide a wide variety of services from 1848 (and earlier) to 1948—medical, surgical, obstetrical, orthopaedic, and pathological—at one time operating in bedrooms and on kitchen tables, as my father and his partners did before the local hospital was opened. Dr Davies and Dr Evan Jones started the fever hospital in 1870, and my father and two other doctors, with coal-miners, coal-owners, and others started Aberdare General Hospital in 1917.

My father in 1911 and all five of the practice doctors in 1948 supported the National Insurance and National Health Service Acts, initially holding a minority position within the medical profession, though on the starting days of 1 January 1913 and 5 July 1948 almost all general practitioners joined these schemes.

Poundage

From the industrial revolution until the National Health Service started the main source of the income of general practitioners in the South Wales valleys was poundage. Iron works (until about 1875) and collieries (2 or 3 pence out of each pound earned for medical attention, and also at Merthyr Tydfil in 1830 for their children's education. In this century miners' hospitals and other voluntary hospitals were financed in the same way.

In his book *The Miners of South Wales*, E W Evans writes: "Truck doctors were medical practitioners engaged by the employers to care for the workmen and their families, their salaries being paid by means of compulsory deductions made from the men's wages. . . . It was the workmen who paid the doctor's salary but they had no voice in his selection and dismissal."

There were strikes by coal-miners to try to secure the dismissal of unpopular doctors in 1826 at Clydach and in 1871 at Llettyshenkin Colliery at Aberdare; and in 1831 at Cyfartha Iron Works at Merthyr Tydfil "the men demanded

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testing of cattle, and the pasteurisation of milk; that vaccination against smallpox, and later immunisation against diphtheria; about the condition of houses, dust clearance, and the rehousing of people with tuberculosis. We were trying to get better public assistance and home help for tubercular patients and an increase in old age pensions and winter relief grants for the unemployed. We were responsible for primary education, local transport, and electricity, and were trying to improve the social and occupational conditions upon which the health of individual patients and the health of the community depended. All this was done in co-operation with my fellow councillors as equal representatives, one doctor and 27 other councillors acting on behalf of those who elected us.

Doctors—to teach

Like our predecessors, Dr Davies, Dr Rhys, and my father, we doctors all worked as general practitioners trying to care for every aspect of the needs of the people—delivering babies, giving anaesthetics for my brother and other GP surgeons, reading x-ray films, attending to accidents, putting fractures in plaster of Paris (including fractured spines), and doing post-mortem examinations. We had long surgeries and a large number of house visits.

We did a good deal of health education for the public as well. My father talked about this to the Medical Register. He spent the 1930s we talked about tuberculosis and the need for a National

Oddity remembered: Rose Villa

My grandfather qualified in Edinburgh in 1874 but had to wait a few months until he was 21 to get on to the Medical Register. He spent the time working as an assistant for his elder brother, who had put up his plate a year or two earlier at Ryton on Tyne. When he registered he bought a practice in Whickham. It was much the smaller of two practices and at the wrong end of the village but he was confident that the new medical science learned from Lister (then professor of surgery at Edinburgh) would soon attract more patients. The next typhoid epidemic at nearby Nordon on the banks of the Tyne gave him the opportunity to try these scientific principles into practice and gained him a local reputation. But this made less impact in Whickham on the hills above the river which did not get typhoid epidemics because its water supply was from uncontaminated wells.

When the old established doctor died his widow sold the practice but continued for a while to live in the old surgery house, Rose Villa. Grandfather said that this house was the key to general practice in Whickham but realised that she would not sell it to him. So he and his solicitor devised a stratagem; the latter, Mr Stobo, approached her saying he was acting for a prospective buyer whose name he could not reveal but contrived to imply it was a Mr Gracie, a successful businessman, also at the wrong end of the village, who might be expected to want to move to a better situated house. Negotiations went on for months with frequent visits to Rose Villa by Mr Stobo. One occasion grandfather happened to be walking down Rectory Lane in view of the house just as his solicitor was coming down the drive. They passed each other in the street without greeting, as though they were strangers. There is no reason to suppose the widow was watching from the window, but she might have been and they were taking no chances. She certainly believed that Mr Gracie was the buyer because when the details were finally settled, the contract signed, she said, "Now Mr Stobo, tell me the name of your client. It is Mr Gracie, it is not 'No it is not,' he replied, then paused. 'What then is it?' Dr Stobo," he said. We may suppose that the parlour maid was summoned by a grim-faced widow and Mr Stobo shown to the front door. But he took the contract of sale and left.

I wish I could add that once again grandfather happened to be coming down Rectory Lane and that he and Mr Stobo met in the

street and warmly shook hands in full view of the house, but this did not happen. In a short while grandfather moved into Rose Villa, duly became the established Whickham doctor, and laid the foundations of a practice that grew steadily over three generations until even a purpose-built group practice centre attached to the house was too small and it moved across the road to a health centre in the grounds of the Cottage Hospital.—ANDREW SMITH, general practitioner, Rose Villa, Whickham.

Clinical Curious: case finding by the community

A diabetic carpenter recognised the features of declining health in one of his fellow carpenters as diabetic symptoms. He gave him some Clinistab tablets and advised him to test his own urine to confirm his suspicions. The man, who was a 41-year-old patient of ours who had been 10 years ago with optic ataxia. He was a reluctant patient who had not wanted to trouble us with his 9-month history of thirst and frequency of micturition and he was pleased to lose three stone (19 kg) so effortlessly. His urine turned the Clinistab tablets orange. When for good measure he tested the rest of his family he found that his 13-year-old daughter's urine also turned the tablets orange. For three months the two had had thirst and frequency of micturition (she was getting up five times each night). In the preceding week she had had right-sided facial swelling with fever and malaise, which I presume was mumps. Her blood glucose concentration was 20 mmol/l (360 mg/100 ml) and his was 15 mmol/l (270 mg/100 ml). Neither had developed ketonuria; it was expected to be referred to hospital. Both father and daughter are now adjusting to their new diets and drugs and the unexpected intrusion of the medical profession. If cases of diabetes are to be also found in the community, by the community we must encourage people to emulate the clinical acumen of the diabetic carpenter and discourage them from falling into that familiar medical trap—diagnosis by the doctor. The man was Dr Stobo, only on abnormal results.—SIOBHAN STREET, general practitioner, Kidlington, Oxford.

We will be pleased to consider for publication other interesting clinical observations made in general practice.—Ed, BMJ

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