our type of society, much lip-service to the importance of the family as a stabilizing unit, but we do not yet attempt to teach the most important member of that unit her proper role and responsibilities at a sufficiently early age. Primitive peoples are in advance of us in this respect.

The trouble is, of course, that we are not taught ourselves. Even medical students receive little or no instruction in the subject, and I am frequently shocked at the ignorance of undergraduates and some senior members of the university on sexual matters. At present we spend much time and money in encouraging "youth movements" without bothering to explain to young people why this provision is necessary.

A most useful experiment would be to design a course of instruction for senior pupils—that is, those who have attained the age of 12 years and upwards—with the purpose of explaining the biological importance of the changes taking place at puberty both to the individual and for the survival of mankind. This would give the opportunity to explain the reasons why our type of society requires that intellectual and emotional maturation should also occur before the individual can assume his full responsibilities in it. Doctors are especially well equipped to take a leading part in such instruction, and they are, indeed, the only people with the necessary training and experience to do so effectively.

Conclusion

I am not sure that a brief introductory paper should attempt to reach conclusions, but the points I have tried to bring out are: (1) The changes at puberty are the result of an ancient and stable mechanism designed to fit the male for reproduction and the female for child-bearing. (2) Unlike primitive peoples, we tend to gloss over the sexual changes in favour of intellectual development. The time lag between puberty and full social responsibility may be ten years or more. (3) As a result of this there is often a lack of harmony between physical, emotional, and intellectual development. (4) Two measures to remedy this disharmony are suggested: (a) close supervision of children at the age of puberty, to correlate the progress of physical maturation, mental advance, and emotional stability; and (b) instruction of those who have attained the age of 12 years and upwards in the biological importance of the changes at puberty, and the reasons why our type of society requires that intellectual and emotional maturation should also occur before the individual can assume his full responsibilities.

In this matter we might well paraphrase the poet Cowper's "Tirocinium":

Schools, unless instruction were double strong,
Detain their adolescent charge too long.

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THE PROGNOSIS IN INDUSTRIAL DERMATITIS

BY

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Accurate information about the prognosis in industrial dermatitis is almost entirely lacking in the literature; even textbooks devoted to the subject, such as that of Schwartz *et al.* (1947), say little about it. Prosser White (1934) discusses relapses at some length and says "that, given a healthy man, with a healthy skin, which has quite recovered from a dermatosis caused by the usual industrial chemical agents, he can revert to the original labour without fear of a relapse." And again, "under modern conditions, except for the carcinogenic agents, the author has not found it necessary or advisable to warn many workers to change their employment permanently on account of allergic eruptions. On the other hand, for recurrent *idiopathic* eczema that advice has been tendered frequently."

This rather optimistic outlook is very different from the conclusions of Bentley Phillips (1954) in a survey of 139 patients followed up one to four years after they were examined for compensation claims. In every instance compensation for industrial dermatitis was still being paid. Not one had recovered fully and been able to resume his original occupation without trouble, and "hardening" was not in evidence. The great majority of the females had never worked again, but had continued to draw compensation. These patients were, of course, a selected group in whom one might have expected a poor outlook. In patients with dermatitis studied in a factory, and presumably much less severe cases, Squire, Cruickshank, and Topley (1950) found that 10% were off work for more than six months.

Present Investigation

It is important to consider the exact nature and the severity of the industrial dermatitis in any discussion on prognosis. The patients under review here were all suffering from eczematous dermatitis; the outlook in oil folliculitis and allied conditions is much more favourable and will not be discussed further. Many employees develop mild eczematous dermatitis when they first start a new process and, possibly with some restriction of exposure for a period, the rash gradually disappears in a few weeks without the man ever being off work. This is known as "hardening" and may be due to some immunological process or may simply be the result of mechanical toughening of the skin. This type of reaction is excluded from the present discussion, which considers only those patients who have had dermatitis so severely that they had to be off work and who in my experience are not likely to develop "hardening."

The material for this inquiry consisted of workmen who were examined personally four to six years ago for the Ministry of National Insurance; they represented a fair sample of those patients who had to stop work because of industrial dermatitis, though possibly there may have been a somewhat higher proportion of cases with some diagnostic difficulty requiring a specialist's opinion. A questionnaire was sent out to 196 patients. Of these, 14 were untraced, 8 were dead, 4 gave incomplete answers despite further inquiries, 46 failed to reply, and 124 gave satisfactory answers. Thus about a quarter failed to reply, but it does not seem likely that they would have altered our general conclusions, based on those who did reply. They were drawn from a wide variety of trades, as is shown in Table I.

Table II shows the age and sex incidence of the patients. The only significant figures here are those in the 11-20 age group, the only ones in which women outnumber men. It

TABLE I.—*Trades of the 124 Patients*

Type of Work	Men	Women
Coal-mining	38	0
Engineering	9	1
Domestic work, laundry, etc. .. .	4	10
Textiles	3	4
Leather industry	3	4
Baking, etc.	5	3
Chemical industry	5	0
Building, joinery, etc. .. .	4	1
Painting	5	0
Sweet manufacture	0	4
Hairdressing	1	3

The remaining 17 were in printing, electric work, plumbing, plastics, etc.

TABLE II.—*Age and Sex Incidence*

	11-20	21-30	31-40	41-50	51-60	61-70	Total
Men	4	8	17	25	22	15	91
Women	5	3	5	12	7	1	33

has been suggested by R. Vickers (personal communication) that many of those are really cases of puberty eczema and that when the school-leaving age was raised to 15 the incidence in the 14 to 15 age group remained about the same even though these children were not now employed in industry.

Effects

The serious effect of industrial dermatitis is clearly shown in Table III. Further attacks of dermatitis were experienced in 95 out of 124 patients (77%), the incidence in men (80%) being rather higher than that in women (67%). The importance of these relapses is shown in Table IV, where the

TABLE III.—*Incidence of Subsequent Dermatitis*

	Men	Women	Total
Subsequent dermatitis	73	22	95
No further dermatitis	18	11	29

TABLE IV.—*Effect on Earning Capacity*

	Men	Women	Total
Earning capacity diminished	57	16	73
„ „ unaffected	34	17	51

effect of the original attack of dermatitis on subsequent earning capacity is analysed. No fewer than 73 out of 124 (59%) were worse off because of their dermatitis. Women (48%) suffered less than men (63%); the probable explanation of this is that men are more often employed on skilled work than women, so that a change of work in a man often leads to loss of pay, whilst women doing unskilled work can usually find suitable alternative employment at a comparable wage.

Table V compares the effects of dermatitis on earning capacity in those aged 50 and over and those under 50. In the latter, 53% were worse off, compared with 68% in the older group. Two factors at least may be important here.

TABLE V.—*Effect of Age on Subsequent Earning Capacity*

Age:	50 and Over	Under 50	Total
Earning capacity diminished	32	41	73
„ „ unaffected	15	36	51

First a young man can more readily change his job and reach a comparable position in his new work, whilst any change in an older man, at least if he is a skilled worker, almost always leads to a down-grading. Secondly, the skin of older workers often breaks down through prolonged wear and tear, and once this has happened it is very hard to restore the skin to its previous resistance, and it is apt to

be irritated by all sorts of primary irritants such as friction, soap, water, etc. With a younger man, particularly if he is sensitive to only one specific substance, avoidance of the irritant may be followed by a return to a normal skin.

The nature of the external irritant has some influence upon prognosis. These were divided into two groups—primary irritants and sensitizing agents. By primary irritants are meant agents, such as soap and other detergents, friction, sweating, etc., which would irritate any skin if it was sufficiently exposed to them, though of course some patients are much more readily irritated than others. Sensitizing agents include a wide range of substances which in a given patient produce a reaction out of all proportion to the exposure, whilst other people can handle the substance with impunity. Examples of these are the gardener who is sensitive to the *Primula obconica*, the painter sensitive to turpentine, or the leather-worker who reacts to the slightest contact with chrome. These are probably true antigen-antibody reactions. Table VI compares the effects of these two groups of irritants and shows that with primary irritants only 8 out of 59 (14%) escaped further trouble, whereas with sensitizing agents 21 out of 65 (32%) remained clear. This

TABLE VI.—*Incidence of Subsequent Irritants*

	Primary Irritants			Sensitizing Agents		
	Men	Women	Total	Men	Women	Total
Subsequent dermatitis	42	9	51	31	13	44
No further „	5	3	8	13	8	21

difference is partly due to the fact that with a specific sensitivity a patient has a better chance of avoiding his own peculiar irritant and thus remaining clear; for instance, the joiner who is sensitive to teak can handle other woods with impunity. Also dermatitis from primary irritation is often the result of a complete breakdown in the skin's resistance, particularly in older people, and, as mentioned above, is very hard to clear up entirely.

Question of a Change of Work

One of the most difficult questions for the dermatologist to decide is whether a patient should be advised to alter his work. Many people do change their job, as is shown by Table VII; thus 89 out of 124 (72%) changed and only 29

TABLE VII.—*Frequency of Change of Work*

	Men	Women	Total
Change of work	67	22	89
No change	22	7	29
Never worked again	2	4	6

(23%) were still employed in the same work, while 6 (5%) never worked again. This, however, does not prove that such a change is always necessary; it is probable that many workers are advised to change their work before the possibility of their continuing at it with some slight modification or extra protection has been fully explored. Of the 29 who did not change their work, 22 (76%) had further attacks and 7 (24%) remained clear, whilst among the 89 who changed work 67 (75%) had further attacks of dermatitis and 22 (25%) remained clear. It appears that once an employee has developed dermatitis he is likely to go on having trouble whatever he does, and cannot escape by changing his work. This is particularly true if his skin has broken down to primary irritants; thus he would often do better to continue as best he can in the job he knows rather than to turn to fresh work, where the chances of relapse may be just as great.

Mayr (1938), who followed up 301 patients over a period of up to 10 years, found that only 13% eventually had changed work—figures very different from ours, and perhaps reflecting more on the possibility of changing work than on the dermatitis itself. Eventually 161 were found to be healed and 139 still active. Among those who were

examined after three years 30% were cured, but in those examined after 10 years this figure rose to 68%. These findings suggest on the face of it that if a man continues at work despite his dermatitis it will eventually tend to subside. This may not, however, be an entirely correct interpretation of the figures.

In our series 29 patients had no subsequent dermatitis; of these, 22 had changed their job and only 7 were doing their old work. Among the 7 at least 4 had had some modification of their conditions of work: a bath attendant used a different method of cleaning, a joiner avoided glue, a lamp-fitter wore gloves, and an engineer used a heavy barrier cream. The other three were a baker, an office cleaner, and a ripper in a coal-mine, about whom I have no detailed information. These figures suggest that complete immunity from further attacks rarely comes except with a change of working conditions. Miescher (1938) got somewhat different findings when he retested 86 patients two to three years after their attack of dermatitis due to a true sensitization shown by a positive patch test. Among those in whom the noxa was eliminated 4 had relapses and 40 had none; when the noxa was still present 31 had relapses and 11 none. It is striking that 11 men were able to continue at the same work without further trouble. This also impressed Koch and Peters (1939), who re-examined 71 miscellaneous patients who had given a positive patch test and also a group of 60 bakers. Their figures for the two groups were as follows:

		First Group	Bakers
Work changed	no skin trouble	23	29
	further skin trouble	24	9
Work unchanged	no skin trouble	8	12
	further skin trouble	16	10

Thus out of 131 patients 20 continued at the same work with no further skin trouble. This seems contrary to our experience, but a possible explanation may be that these authors included mild cases in which hardening might be expected to occur, whereas we were dealing with cases of such severity that the patient had to be off work. In our experience once dermatitis of this degree has occurred the patient will not then become "hardened." Koch's (1941) own conclusions, despite his 20 cases, were that the best treatment for a man with dermatitis was for him to change his work, and the earlier he did this the better.

Coal-mining contributed the largest number of patients (38) from any one industry, and the effects of dermatitis in these are analysed in Table VIII. It will be seen that the

TABLE VIII.—*Industrial Dermatitis in Coal-miners*

	Yes	No
Subsequent dermatitis	34	4
Change of job	28	9*
Diminished earning capacity	26	12†
Still working at pit	32	5*

* One never worked again. † Four with specific sensitivity.

influence of dermatitis here is more marked: 34 out of 38 (89%) had subsequent dermatitis, compared with 77% in the whole group; 26 out of 38 (68%) earned less money, compared with 59% in the whole group. On the other hand, although approximately the same proportion had changed their type of work, no fewer than 32 (84%) were still employed by the National Coal Board. There are at least two reasons for this. A miner is of all workers the least willing to change his trade both for social and for economic reasons; he is probably the son of a miner and has been brought up in a mining community, and his work offers certain advantages in housing, free coal, wages, etc. In addition mining includes such a wide variety of work that it is often possible to move a man to a job where he is less exposed to irritants. Thus a "coal-getter" working in the hottest and dustiest part of the pit may be moved to haulage work and be able to continue working without too much trouble here. It means loss of wages and prestige, especially if the man has to stop working underground altogether. Nevertheless, in most instances a man is much happier work-

ing with his old employer even at a reduced wage, and, conversely, when a man must have light or special work he is much more likely to get it with his old employer, in this case the National Coal Board, than with someone else.

Discussion and Conclusions

Industrial dermatitis severe enough to necessitate cessation of work is a serious disability for a workman. Of the sufferers 77% have subsequent dermatitis whatever they do, and 59% will have diminished earning capacity; this is more marked in men than in women. It is also greater in those aged 50 or more than in those under 50. There is a better outlook for the man who is specifically sensitive than for the man whose skin has broken down to non-specific primary irritants such as heat, friction, or detergents.

Complete immunity from subsequent attacks is likely to occur only after a change of work. It therefore seems that if a man is truly sensitized he ought to be removed from the offending agent as soon as possible. However, a change of work does not guarantee freedom from trouble, particularly for those reacting to primary irritants, as the incidence of subsequent attacks was just as high in those who changed their work as in those who carried on. There is, indeed, some evidence in the literature that if a worker can carry on at his work the attacks of dermatitis may gradually subside over the course of years. This suggests that, at least in most cases, every effort should be made to keep the man working at his old job with suitable precautions rather than advise him straightaway to change his work. A similar opinion has been expressed by Bourne (1957), who says: "A return to the old type of work with education and supervision and adequate protection will usually result in the work being carried out efficiently and without further difficulty. Rarely, one may be faced with the problem of a patient who retains sensitization to even minute amounts of offending materials and then alternative work must be found." One feels that in these cases the man is often eczema-prone, and the effect of his work has only been to reveal a constitutional tendency which is already there; alteration of work will not affect this predisposition. In other cases the breakdown of the skin occurs only with increasing age and after years of wear and tear; and once the man has reached this condition change of work is not likely to prove a satisfactory remedy.

In an industry such as mining, where sweat, coal-dust, and friction play such an important part in causing dermatitis, its effect is even more severe on the worker's ability to carry on at his old job. Nevertheless, most miners can continue to work in or at the pit because the variety of the work allows for his changing to less exposed conditions. Such a move, however, almost always is associated with a loss of wages.

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Probation is the subject of a special number of the *British Journal of Delinquency* (Vol. 8, No. 3), published to commemorate the fiftieth anniversary of the Probation of Offenders Act, 1907, and in recognition of the work of the British Probation Service. Contributors include representatives of a number of disciplines concerned with probation, among them a judge, a Home Office inspector, and two academic penologists who describe contemporary developments, respectively, in the United States and in France and Belgium. There is also a review of probation in Scotland by the chairman of the Scottish Central Probation Council, and an article by the general secretary of the National Association of Probation Officers.