likely to originate directly from a defect in the wall of one of the dilated venules in the haemorrhoidal plexus.

Clinically, the injection of piles is usually followed by an immediate, and to the patient dramatic, cessation of bleeding. The injection is given above the haemorrhoid and not into the venous plexus. Dukes observed that injection of 10% phenol in glycerin was not followed by evidence of intravascular thrombosis until the fifth day. It is submitted that bleeding stops initially because of compression of the small mucosal vessels by the submucous bleb of oil and interference with the free flow of blood in the superior rectal veins.

The importance of reflux in these veins and the mechanism by which this reflux causes gross venous dilatation in the haemorrhoidal vessels will be discussed in detail elsewhere (Graham-Stewart, 1961).

Summary

The histological changes caused by the injection of 5% phenol in almond oil and of pure almond oil have been compared. It is concluded that the tissue changes caused by these two sclerosant fluids are the same. It seems likely that symptomatic improvement after the injection treatment of piles is due to the almond oil rather than the dissolved phenol. A theoretical reason is given why the phenol in a 5% solution is inert and does not cause vessel thrombosis.

I wish to thank Mr. R. W. Nevin and Mr. H. E. Lockhart-Mummery for their help and for giving me access to cases under their care; Dr. J. L. Pinniger for the histological report; Miss J. Dewe for the drawings; Mr. C. Hardwicke for the radiographs of the specimens; Mr. T. Brandon for the photographs; Miss D. Penney for the photomicrographs; and Miss P. L. Evers for typing the manuscript.

ADDENDUM

Sections have now been examined in two further cases, which were injected 5 and 13 days respectively before operation. The tissue changes on the periphery of the oil globules confirm the findings in the three original cases, and again there is no evidence of intravascular thrombosis.

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"To convince ourselves and our neighbours, all new and rapidly developing for whom industrialization has become almost a status-symbol, of the necessity to direct more attention to farming and increasing the production of food will prove a difficult task. Yet there is no other way out. There are still too many people who rely on doctors and pharmacists for the resolution of their ills. So long as we fail to readjust our outlook to the view that our health problems stem more from poor economics than from poor doctoring, so long will efforts to remedy them be largely misdirected. We as doctors wish [Chief Akin Deko] the new Regional Representative of the Food and Agricultural Organization success in his post. We do so realizing that in assuming his new command he is in fact carrying on the fight against disease on a second front. A second front which to us is no less urgent and no less vital than that other that proved so decisive in the 1939-1945 World War." (*West African Medical Journal*, Editorial, December, 1961.)

PREVALENCE OF IMBECILITY AND IDIOCY AMONG CHILDREN

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The present century has seen a striking fall in the infant death rate in England and Wales, from 154 per 1,000 live births in 1900 to 22 per 1,000 in 1959. The decline in infant mortality has undoubtedly led to an increase in the numbers of children with certain types of physical handicap, usually or frequently associated with severe mental defect. Thus Carter (1958) has shown that the mortality of mongols decreased by 10% between 1944-8 and 1949-55, with the result that whereas the prevalence of mongolism among 10-year-old children was 1 in 4,000 in 1929 it had doubled to 1 in 2,000 in 1949 and doubled again to 1 in 1,000 by 1958. Nash (1956) has commented as follows on the growing prevalence of spina bifida: "It seems likely that an average of 450 to 500 severe cases are being salvaged each year, these representing the group of children who would have died before the antibiotic era." Benda (1952), in the United States, believes that there must have been an overall increase in the prevalence of mental defect owing to higher survival rates. There is no direct evidence for this, but if one considers only changes in the expectation of life of physically handicapped children the conclusion appears inescapable. However, many factors influence prevalence, and empirical studies are needed to assess changes (Tizard, 1953; Penrose, 1954; O'Connor, 1958).

The Present Study

The present inquiry is concerned with the numbers of idiots and imbeciles "ascertained" by—that is, brought to the notice of—the local health authorities of London and Middlesex, and with the true prevalence of idiocy and imbecility among Middlesex children. The study of true prevalence has been confined to children because the criteria of mental deficiency in adults are much less clear-cut than in children and because case-finding presents insuperable difficulties. For the same reason we have concerned ourselves only with severe mental defect—namely, idiocy and imbecility.

In an attempt to assess trends in the prevalence rate the present findings were compared with those obtained by Dr. E. O. Lewis, who between 1925 and 1929 investigated six areas in England and Wales, each with a population of about 100,000 persons (Lewis, 1929). Though undertaken more than 30 years ago, Lewis's study is still unrivalled in the size and representativeness of the sample, the thoroughness with which the investigation was carried out, and the detail in which the findings were reported.* It forms a baseline from which trends over the last 35 years can be measured.

"Ascertained" Prevalence

The County of Middlesex forms part of greater London, and is contiguous with the County of London

*Dr. Lewis has recently informed us that all the original data, on which he had hoped to work in more detail after the war, were unfortunately destroyed at the beginning of the war by enemy action.

to the west and north. London County has an area of 117 square miles (303 square km.) and a population of 3,200,000; Middlesex has an area of 232 square miles (601 square km.), and contains a population of 2,250,000. There is an average of 45 persons per acre (111 per hectare) in London and 15 (37) in Middlesex.

The local health authorities of both London and Middlesex have made extensive provision for the needs of the severely subnormal, and maintain up-to-date central registers of all cases of mental subnormality brought to notice. As a starting-point in the survey these files were scrutinized for particulars about the following groups as on January 1, 1960. In London a 1 in 12 sample of all defectives on the books was taken; in Middlesex the records of all mentally subnormal children under 16 years of age, irrespective of grade of defect, all mongols, and all adults graded by medical officers of the health authority as imbeciles or idiots were examined. The gradings were those found in the records.

The ascertained prevalence rates of idiocy and imbecility in the two counties are given in Table I.

TABLE I.—*Prevalence of Ascertained Idiocy and Imbecility. January 1, 1960*

Age-group	Authority	Estimated Population	Imbeciles and Idiots	
			No.*	Rate per 1,000
0-4	London	229,560	17	0.89
	Middlesex	154,700	141	0.91
5-9	London	193,224	30	1.86
	Middlesex	138,122	371	2.69
10-14	London	222,412	52	2.81
	Middlesex	158,978	450	2.83
15 and over	London	2,549,384	228	1.07
	Middlesex	1,800,620	1,693	0.94
All ages	London	3,194,580	327	1.29
	Middlesex	2,252,420	2,655	1.18

* Number in a 1 in 12 sample for London.

Population figures are Registrar-General's estimates: The London 0-14 years population was from a special count in April, 1960; the 15 and over are the Registrar-General's estimate. The Middlesex figures are the Registrar-General's estimate for under 5, 5-14, and 15 and over, and the 5-14 group has been split into two 5-year age-groups in the same proportion attained in London.

Except in the case of children aged 5-9, there is very close agreement in the numbers of cases reported per thousand population of the same age. The discrepancy in rate in those aged 5-9 years is due, in part at least, to the custom of classifying young mentally handicapped children, referred for ascertainment to the local health authority, as "feeble-minded" rather than "imbecile" in order to "give them the benefit of the doubt." In the London figures the grading given was that on first referral; for Middlesex the grading was the most recent made.

True Prevalence

It is well known that the true prevalence of severe mental defect, even in counties such as London and Middlesex in which there is relatively good provision, exceeds the numbers brought to the notice of the local health authority. In order, therefore, to obtain as good an estimate as possible of the true prevalence of idiocy and imbecility in a single area, further inquiries were carried out in Middlesex. As already mentioned, this study of true prevalence was confined to children, as it was not feasible to attempt to locate all, or even a majority, of adult imbeciles and idiots.

As a first step, records of all children under 16 on January 1, 1960, on the books of the local authority who were designated as "feeble-minded" or as "not yet classified" were further examined and, if necessary,

reclassified for the purpose of the survey. This assessment was done by the institution in the case of children in residential care, by the special training centre for those attending these centres, and by examination of individual case records for the remainder of the children. A sample of records of children designated as "imbecile" was also examined to check the classification by grade of mental defect. The number of imbeciles who from the information in the records appeared to be "feeble-minded" rather than imbecile or idiot was extremely small. But the dividing line between imbecility and idiocy was not clear, and these two groups have therefore been combined in this study.

Inquiries were also made about any children with I.Q.s of under 50, whose homes were in Middlesex, who were in approved homes or certified institutions—that is, private homes for the mentally subnormal—at schools for the educationally subnormal or physically handicapped, in residential or out-county schools, in Sunshine Homes (for blind children), or in the main Rudolf Steiner School in the area.

For all these children the following particulars were obtained: sex, age, date of birth, last I.Q. if any, and whether mongol or not. The additional names we received were checked with the lists obtained from the health authority to avoid duplication of cases.

The final figures for "true" prevalence of severe mental defect (idiocy and imbecility) are given in Table II. It is clear that the ascertainment of young children is incomplete—the rate for children aged 10-14 is more than three and a half times that of children aged 0-4 and 20% more than that for children aged 5-9. This is true even of children suffering from mongolism (Table III, last column). Such children tend to be notified younger to the health authority than do other imbeciles. But 16% of all mongols notified were not notified till after the age of 10.

It also seemed that the great majority of children brought to notice through the supplementary inquiries were already known to the health department. Only 51 new names were added, though a further 129 children who were already on the books of the local authority

TABLE II.—*"True" Prevalence of Imbecility and Idiocy Among Children. Middlesex. January 1, 1960*

Age-group	Estimated Population	Imbeciles and Idiots				Rate per 1,000 Population
		No.* Known to Health Authority	No. Still in Education System†	Others‡	Total	
0-4	154,700	146	0	5	151	0.98
5-9	138,122	398	14	5	417	3.02
10-14	158,978	547	24	3	574	3.61
0-14	451,800	1,091	38	13	1,142	2.53

* Including those unclassified or called feeble-minded, but properly imbecile or idiot.

† Including residential schools and schools for the physically handicapped, excluding those children already known to the health department.

‡ Including Board of Control approved homes, Sunshine Homes, certified institutions, excluding those children already known to the health department.

TABLE III.—*Prevalence of Mongolism Among Children (Rate per 1,000)*

Age-group	E. O. Lewis* (1925-7)	Penrose (1949)	Carter (1958)	Middlesex. 1960	
0-4	0.05	0.07	—	54	0.35
5-9	0.15	0.31	1.06†	136	0.98
10-14	0.34	0.46		180	1.14
0-14	0.17	—	—	370	0.82

* Dr. Lewis's figures for mongols were not published in his report; they were kindly supplied by Professor Penrose.

† At age 10.

Penrose's figures are for suburban areas south and east of London. Carter's figures are for London and the Home Counties.

as feeble-minded or unclassified were added to those who had already been officially classified as idiots or imbeciles.

Comparison with Lewis's Findings

In his report, Lewis (1929) divides his idiot and imbecile children into younger and older age-groups. One comparison he makes is between the numbers of children aged less than 7 years who were ascertained by him and those aged 7 to 15 years inclusive. Instead of the ratio of numbers in these two groups being at least seven to nine, it is less than one to four. In the present study there was a comparable under-reporting of younger children, though, possibly because of the increasing importance being given to early diagnosis to-day and because of the better services in the Metropolitan area, proportionately more young children had been brought to notice.

The most useful comparison of true prevalence that can be made between the two surveys is between children aged 7 and under 14 in Lewis's sample and in ours. In both surveys these were the age-groups in which the ascertainment was most nearly complete. The number of defectives ascertained in Lewis's inquiry is an underestimate of the true numbers inasmuch as in one of his three urban areas some of the private schools did not collaborate in the inquiry. However, as only six imbeciles attended private schools in one of the urban areas, while none at all attended in another, the losses are likely to have been minute. The denominator does not include children at home, which has the effect of slightly increasing the rates. The numbers and rates are given in Table IV.

TABLE IV.—*Prevalence of Idiocy and Imbecility Among Children Aged 7 and Under 14 Years in 1925-9 and in 1960. Rates per 1,000*

	Population	Rates	Number
	1925-9		
All urban areas	39,930	3.71	148
„ rural „	31,930	5.61	179
Total	71,860	4.55	327
	1960		
Middlesex	213,945	3.45	738

1925-9 figures from Lewis's Tables 15 and M.
1960 population figures are estimated from the Middlesex 5-14 population by dividing them in the proportion known to obtain in London.

Lewis himself does not quote these rates, but gives instead (in his Table 13) rates for each area based on the number of children attending public elementary schools and special schools, but excluding those in private schools and secondary schools. His prevalence rates based on these denominators are 3.76 for all urban areas, and 3.88 for an "extra metropolitan area" which he included as one area in his survey.

Discussion

Two conclusions emerge from the data. First, the prevalence in Middlesex of severe mental defect, amounting to idiocy and imbecility, is higher than that reported in most recent surveys, such as that by Kirk (1957), in which a rate for Illinois of 2.81 per 1,000 school population was obtained.

Secondly, the prevalence rate in the Middlesex inquiry was lower than that obtained by Lewis for his urban areas. To bring our rate up to that estimated for all urban areas by Lewis an increase of 56 cases aged 7 and under 14 would have been needed. If we take into account the known increase in the prevalence of mongolism, the numbers of non-mongol defectives which

would have been needed to make the two rates equal are much increased. The rate for mongols in the age-group 10-14 was 0.34 in Lewis's survey and 1.14 in ours, a difference of 0.80 per 1,000. Thus the rates for non-mongol defectives aged 7 and under 14 in the two inquiries may be about $3.71 - 0.34 = 3.37$ and $3.45 - 1.14 = 2.31$. To bring our numbers up to a rate of 3.37 for non-mongol defectives an extra 227 cases would have to be found. It seems to us extremely unlikely that so large a number could have been missed.

We therefore believe that, mongolism excepted, there may have been a real decline in the prevalence rate at 10-14 years of what is technically called idiocy and imbecility of something like one-third ($\frac{3.37 - 2.31}{3.37} =$

31%). If more children who are born mentally subnormal are surviving to-day the fall in incidence—that is, the numbers who are born alive—may have been much greater.

To account for this supposed decline a number of explanations can be given, and there is probably no way in which these can be tested at the present time.

1. The criteria used in the two studies may have differed. Lewis gives a complete list of the tests he used. His cut-off point on the Burt revision of the Binet test which he used as a measure of intelligence was "from 45 to 50." In the present inquiry the cut-off point of I.Q.50 was used, this being the usual criterion employed by the educational psychologists, who test most of the borderline cases, to divide "imbeciles" from "feeble-minded" or "educationally subnormal" children. However, the test was different, and a difference of only a few points would result in considerable changes in the reported prevalence rate.

2. Confusion of physical handicap with mental retardation may have been more widespread in the 1920s. Nine per cent. of the ascertained imbeciles and idiots in Middlesex aged 5-14 inclusive showed some degree of cerebral palsy; but it is probable that better recognition and better facilities for training and educating physically handicapped children mean that fewer such children are to-day called *mentally* handicapped. It is also possible that the number of children included in our survey from schools for the physically handicapped is too low. Most of the "borderline" children would have been tested, either by school medical officers or by psychologists. However, some may have had undue allowances made for their disabilities in the interpretation of their responses to items in an intelligence test.

3. The increase in the proportion getting training (and presumably better training) may well improve the I.Q. of some so that they are no longer classified as imbecile. Lewis, speaking of imbecile and idiot children, says: "About 40% of these children were at home, where with few exceptions they received no instruction or training other than that given by their parents or guardians." This compares with about two-thirds of the Middlesex children aged 5-14 years not in institutions who are now receiving training at special training centres. Kirk (1958) has shown that early education of "educable" mentally retarded children has the effect of raising test intelligence. Similar findings in regard to trainable or imbecile children have been reported (Lyle, 1959; Tizard, 1961).

4. The incidence of some specific forms of mental defect such as that resulting from congenital syphilis (Berg and Kirman, 1959) has almost certainly decreased.

Improvements in other prophylactic measures for specific conditions in the mother may also have led to some decrease in incidence.

5. It seems likely that the changes that have brought about the remarkable fall in infant mortality may have resulted also in great changes in morbidity. The extent of these changes as they affect mortality is well described by Baird (1960) and by Morris and Heady (1955). In their introductory review of the literature on this topic Morris and Heady describe mortality as "only the top of the iceberg of morbidity." It is obvious that the iceberg of morbidity is itself related to the climate of public health and general social conditions.

Unfortunately diagnosis, as opposed to classification of mental subnormality by grade, is so uncertain that we have few ideas regarding the nature of any such changes that may have taken place. Further epidemiological research is needed, if only to give rough base rates from which to estimate future trends.

6. The close association between biological and social factors acting on the parents, and in particular on the mothers, which could have combined to lessen the incidence of non-genetic defect, should be mentioned. Fairweather and Illsley (1960) draw attention to the high incidence of obstetric abnormalities in the mothers of the mentally handicapped and to the low birth weight of mentally subnormal children, and note the association of these with poor *maternal* health and physique, in turn related to poor social conditions and low I.Q. Rickets and malformed pelvis were far from uncommon in the interwar population, and marked improvements in nutrition and in antenatal and post-natal care have occurred in the last 30 years.

7. Changes in fertility and in patterns of fertility could have led to changes in the incidence of mental defect. Women are completing their families at an earlier age; and the number of really large families has decreased in the last 30 years (Royal Commission on Population, 1949). There is a raised incidence of physical defect among the children of older mothers (Masland, Sarason, and Gladwin, 1958) and possibly of associated mental defect also.

The greater availability of genetic counselling may have led to a slight reduction in the number of children born to women who are likely to have mentally subnormal offspring.

8. Finally, it is possible that surveys carried out in other areas may reveal rather different trends. Middlesex was not one of the areas Dr. Lewis studied. Demographically it is in many ways not typical of urban areas in England and Wales. There is a need for similar studies to be carried out elsewhere, in areas in which the ascertainment is relatively good, and in which "non-ascertained" cases of mental subnormality can be discovered. Such surveys would also throw light upon urban-rural differences. Lewis maintained that the prevalence of all grades of mental defect, both in adults and in children, was much higher in rural than in urban areas (Lewis, 1929, Table 5). This may have been so in the past, but it may no longer be true. Replications of the present study both in urban areas and in rural areas would throw much light upon the prevalence of mental defect in England and Wales.

It need hardly be added that such studies can be made only if the old grading of mental defect is adhered to. The egregious term "severe subnormality" of the 1959 Mental Health Act bears little relation to any grading of the severity of mental defect in this or

any other country prior to the coming into operation of the new Act.

Summary

A study from records of the "ascertained" mental defect in London and Middlesex and of the true prevalence of idiocy and imbecility among children in Middlesex has been carried out. The rates for true prevalence in the age-group 7 and under 14 (the most completely investigated group) are compared with those obtained by Lewis (1929) in his survey of urban areas in England and Wales in the years 1925-7. The data suggest that if Middlesex is typical of urban England in respect of the numbers of mentally subnormal children per thousand children of school age there has been a decline in the overall prevalence of what is called idiocy and imbecility over the past 30 to 35 years. The prevalence of mongolism in this age-group has increased fourfold during that period; but the prevalence of other forms of mental defect may have declined by as much as one-third. The possibility that this supposed decline is attributable entirely to the use of different criteria to-day from those used by Lewis in his study cannot entirely be rejected, though this is thought to be unlikely. Other factors which could account for a decline in prevalence include better education and training facilities, the lessened incidence of certain specific forms of mental defect, and socio-medical factors which have lessened the incidence of morbidity, as well as mortality among children.

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