
The author emphasizes the importance of combined clinical and dietary investigations in studying the prevalence of dietary deficiencies in samples of a population, and gives two illustrative examples drawn from the results of the National Nutrition Survey in Ireland. The first relates to the incidence of rickets in Dublin, which was 173 per 1,000 children in 1943, and appeared to have risen since the extraction of flour had been increased from 70 to 100 per cent. A dietary survey showed also that the incidence of rickets was highest in those children whose intake of milk and vitamin D was lowest. The reduction of the extraction rate (and hence the phytate content) of flour was followed by a marked fall in the incidence of rickets and the addition of calcium phosphate to flour resulted in its further reduction to 70 per 1,000 in 1948. The second example refers to a survey of haemoglobin values and plasma protein content in adults. The incidence of anaemia and of low plasma protein values seemed surprisingly small until the clinical findings were corroborated by the results of the dietary survey, which showed that the intake of iron and of protein was adequate in all the groups studied.

J. Yudkin


Total body water was measured by determining the volume of dilution of "antipyrene" (phenazone) in a group of 51 normal men (ages 24 to 96 years) and 31 women (ages 21 to 94 years). In the men the average value was 53 per cent. of the body weight (range 40 to 68 per cent.) and in the women 45 per cent. (range 30 to 53 per cent.). and the variations between individuals are considered to be correlated with variations in degree of obesity. There was no correlation between age and total body water. Determinations in a group of oedematous individuals showed a range of 58 to 71 per cent. of body weight, five values lying within the range for normal males.

F. W. Chataway


Thirteen elderly inmates of St. Louis City Infirmary Hospital, Missouri, were the subjects of this experiment, six healthy volunteers, aged 22 to 36, acting as controls. The patients were aged from 57 to 91 years, and though none was bedridden or suffered from acute illness, all were debilitated to some degree.

Under fasting basal conditions they were exposed, unclothed and motionless, to temperatures of 5° to 15° C. (41° to 59° F.) for between 45 and 120 minutes in a modified Burdick fever cabinet. Serial observations were made of oxygen consumption and body temperature (oral, rectal, and skin surface).

The aged were less able to maintain their body temperature than the young, although the increase in oxygen consumption which occurs in both groups was of earlier onset in the aged. It is inferred that the mechanism of prevention of heat loss [as by contraction of skin vessels] is less efficient in the old than in the young. There was no correlation between the ability to maintain body temperature and the clinical degree of debility.

[It would be unwise to draw general deductions from this experiment conducted on a small group of debilitated hospital patients.]

P. D. Bedford


Three persons suffering from silicosis, and in whom the disease was diagnosed in its early stages, underwent tests with the spirometer in order to determine the degree of disability. Tests were made while they were at rest and also when working, the energy output being measured by an ergometer. It was evident that the methods used did not permit close comparison of function with the pulmonary lesions, since circulatory efficiency and the efficiency of tissue respiration were also involved.

In the three cases the degree of disability had been estimated clinically, the findings being confirmed by the court. This fact, and the apparent effect of nervous factors or of unwillingness to co-operate fully, tended to vitiate the experiments. In general, the readings made during physical exertion were more reliable than those obtained during rest. As the experiments were continued for some years, it was noted that results became more reliable, this being largely due to psychic factors but also to improvement as regards superadded symptoms of respiratory catarrh, bronchitis, or bronchial spasm. The harm done by litigations in these cases was reflected at intervals by peculiar variations in the readings.

G. C. Pether

ABSTRACTS

(This section of the Journal is devoted to selected abstracts of articles on social medicine appearing in the current literature. The section will be edited in collaboration with the two abstracting Journals, Abstracts of World Medicine, and Abstracts of Surgery, Obstetrics and Gynaecology.)
**ABSTRACTS**


Observations were made on over 4,000 people from various areas to assess whether or not the presence of fluorine in drinking water influences the mottling of dental enamel.

Four degrees of mottling were distinguished. In the first degree up to one-third was affected; in the second degree mottling extended to one-half of the tooth; in the third degree more than one-half but less than the whole tooth was involved; in the fourth degree the whole surface of the tooth was mottled.

A definite relation was found between the concentration of fluorine in the drinking water and mottling of dental enamel. If the concentration of fluorine was less than 2 mg. per litre there was no evidence of mottling. On the other hand, with concentration of fluorine above 2 mg. per litre third-degree and fourth-degree mottling appeared. At fluorine concentration of 4-2 mg. per litre, the teeth of one-third of the population were mottled.

E. W. Collis


Fluoridation of the Grand Rapids public water supply began in January, 1945. Analysis of the 1949 dental examinations at Grand Rapids shows a reduced amount of dental caries experience when compared with the pre-fluoridation rates of 1944-45. The findings indicate that the reduction is most pronounced in the younger age groups whose dentition was largely calcified following the addition of one part per million of fluoride to the previously fluoride-free public water supply. Sufficient time has elapsed to evaluate water fluoridation in the older age groups. —[Authors’ summary.]


The Wisconsin Dental Societies appointed a Fluorine Committee in 1943 which reviewed the literature and also investigated caries incidence in districts in which appreciable amounts of fluoride are found naturally. This committee recommended that in public water supplies deficient in fluorides the concentration of fluoride should be raised to 1 part per million to inhibit dental decay, providing that such addition is under dental, medical, engineering, and public health control.

"Natural fluorides in a public water supply prevent about two-thirds of the incidence of dental caries in those consuming a constant supply of the fluoridated water."

The fluoride ion can be added to water and the amount added can be controlled to one-tenth of one part per million.

In the first 44 months of fluorination of the public water supply at Sheboygan, Wisconsin, the incidence of dental decay was reduced 39-6 per cent. in deciduous teeth, 24 per cent. in permanent teeth in the 9 to 10 year age group, and 18 per cent. in the 12 to 14 year age group.

A programme of dental health education is still needed in communities adopting a fluorination programme.

D. Robertson-Ritchie


The evolution of psychosurgery is traced, with special emphasis on the pioneer work done on the subject by Knobloch, in Prague, 266 patients operated on at his neuropsychiatric clinic over 4 years forming the basis for the observations in this article. Prefrontal lobotomy gave good results in cases of depression (except the involutorial forms), batatonic and paranoid schizophrenia, obsessional states, and some cases of intractable pain. The affective psychoses, where advanced personality changes have not taken place, are most improved and a limited operation is usually adequate. The lower grade psychoses with more advanced personality changes were found to require more extensive operations, either of the standard Freeman-Watts, or the radical Freeman-Watts type as modified by Knobloch. The age, sex, and length of history did not affect the prognosis, the choice of operation being largely determined by the state of the patient’s personality. Unilateral operations were unsatisfactory in all cases. Post-operatively, apart from psychiatric changes, usually in the desired direction, autonomic disturbances were noted, such as enuresis, vasomotor changes, and trophic changes. An adequate follow-up is essential as improvement may continue for one to 12 months after the operation. Of the patients 65 per cent. were definitely improved. Others derived more limited benefit, but on the whole results were gratifying. Operative mortality was 3 per cent. Apart from the purely psychiatric and surgical factors, the patient’s home environment must be studied. Finally an occupation suited to his mental capabilities must be found. Thus a rehabilitation centre is an important link in the patient’s progress from the institution to the unsheltered life in the outside world.

J. Kodèèek


The author reports the results of a clinical follow-up investigation carried out on 330 out of a total of 340 patients who underwent prefrontal leucotomy at Graylingswell Hospital, Chichester, between October, 1942, and December, 1947. The technique used was that of Freeman and Watts, all the operations being performed by the same surgeon. All patients after operation received intensive occupational therapy, took part in planned social activities, and were given supportive psychotherapy wherever possible [and consequently these results may not have been due entirely to the operative procedure]. The follow-up examination in each case consisted of one or two psychiatric interviews, at least one year being allowed to elapse after the operation before the patient was examined. The relatives were interviewed by a psychiatric social worker.

Of 209 patients with schizophrenia or paranoia, 74 had been discharged, 115 were still in hospital and twenty were dead. Of 95 patients with affective reaction types of psychosis, 74 had been discharged, eight were still in...
hospital, and thirteen were dead. Of 28 cases of schizophrenia in which operation resulted in full remission, seven were of the catatonic and fifteen of the paranoid type. In thirteen out of sixteen cases of recurrent depression, eighteen out of 24 cases of manic-depressive reaction, and 25 out of 33 cases of involuntional depression full remission was obtained. The usual personality change associated with a frontal-lobe lesion took place in nineteen of the 22 cases of schizophrenia and in all except five of the 56 cases of the affective reaction types in which there was complete remission. Fits occurred in 11 per cent. of all cases treated at intervals up to 5 years after operation. Of the 34 patients who had died since operation fourteen died within 2 months, eleven of these deaths being due to causes associated with the surgical treatment.

G. de M. Rudolf


A physician reports observations on variations in blood pressure in certain situations, with a note on the personality of fifty patients with essential hypertension.

The average rise in systolic blood pressure when mental stress was induced was 10 to 15 mm. Hg in young male subjects with vasomotor instability, and in patients with disorders other than hypertension, whereas the average rise in patients with essential hypertension was 21 mm. Hg. The rise in systolic blood pressure in the cold pressor test in patients without hypertension was 20 to 30 mm. Hg; in those with essential hypertension the rise was usually over 30 mm. Hg. In 100 hypertensive patients, blood pressure was recorded every 1 to 2 minutes during a session in which the patient was asked to read some printed matter containing case histories of sufferers from hypertension. The variation in systolic pressure in this session was as low as 15 mm. in nine patients, and as high as 40 mm. in eighteen patients. Elevations in systolic blood pressure were found most often in association with discussion of hypertension and its incidence and prognosis. The initial interview between patient and doctor might produce a rise in pressure as high as that induced by any of the pressor tests.

The personality of 26 male and 24 female patients with essential hypertension was studied. Nearly 40 per cent. had immediate relatives with neuroses, psychoses, or notable nervous instability. A quarter of the patients had had a neurosis or "nervous breakdown". Most of them seemed to be extraverted in attitude, and were enterprising, talkative, and socially well-adjusted. Explosive ill-temper was noted in eleven. The group as a whole were independent, resolute, industrious, and efficient people, but outstanding talents and skill were not found, and most of the patients were of only average intellectual capacity. The chief characteristics of the group thus seemed to be practicality, objectivity, and adaptability. The hypothesis is advanced that this pattern is imposed by cultural demands, that tension may result when such an outer "coat" does not fit the subject's inner disposition, and that hypertension may be symptomatic of suppression of the subject's individuality.

[The stimulus adopted for the experimental interview seems inappropriate. Tension may indeed result from an ill-fitting personality "mask", but no evidence is produced that this is a cause of hypertension in the patients under review.]

Desmond O'Neill


The author studied 29 patients between the ages of 20 and 45 who suffered from "premenstrual tension", the chief symptoms being depression, anxiety, painful swelling of the breasts, abdominal bloating, nausea, and vomiting. Seventeen patients reported increased appetite or a craving for sweets in the premenstrual phase; five experienced sudden attacks of faintness relieved by eating. Basal temperature and body weight were recorded in all cases: 23 patients were subjected to endometrial biopsy immediately before, or within 18 hours after, the onset of menstruation. Other investigations included vaginal smears and hormone assays. These investigations indicated a decreased or absent secretion of progesterone which permitted an excessive secretion of oestrogen in the premenstrual phase. In sixteen out of 23 cases pre-menstrual glucose tolerance curves revealed an increased sugar tolerance. Twelve of these patients developed apparent hypoglycaemic attacks during the investigation. None of these showed a hypoglycaemic curve in the postmenstrual phase. Treatment of premenstrual tension was by the administration of 500 to 1,000 units of chorionic gonadotrophin twice weekly in the last 2 weeks of the cycle, together with salt restriction and dietary measures.

L. A. Cruttenden


An investigation into the incidence of congenital malformations of the teeth and eyes in association with mental deficiency was carried out on 322 mentally defective patients at two hospitals, cases in which the mental deficiency was obviously the result of birth injuries, trauma in early infancy, or congenital syphilis being excluded. With regard to the teeth, only bilateral lesions were accepted, the disorders found being enamel hypoplasia, malformation of shape, and microdontia. The eye changes were mostly lenticular, other conditions found (in one or two cases each) being incomplete persistence of hyaloid artery, persistent pupillary membrane, opaque nerve fibres, inferior crescent, pigment round the disk, gliosis of the disk, and choroideremia. The changes in the lens consisted of arcuate opacities, dot-like or flake opacities, and suture cataracts. The author concludes that the mental and lenticular disorders are prenatal in origin, that the anomalies of the dentition are aetologically related to the other congenital defects, and that the factors responsible for the disorders lie in the ectoderm.

G. de M. Rudolf


The hereditary cataracts of the Olsen family in Denmark have been reviewed from time to time since 1878 when Giersing recorded twenty instances among 25 members of the group. The present author brings the information up to date, the study covering a total of
238 individuals in a period of about a century and involving eight generations. Altogether there are 132 known cases of cataract.

The condition is dominant, 50 per cent. of those with cataract having affected offspring. The type of cataract found is variable and indiscriminate, and the opacities are bilateral and symmetric. Study of successive generations reveals some degree of anticipation in the age of onset, and the age at operation has become proportionately less in general. The post-operative results as regards vision show no appreciable difference from those in other forms of cataract: discussion with subsequent curette evacuation seemed to give the best results (76 per cent attaining 6/18 vision or more). As in other forms of hereditary cataract the visual result was often better in one eye than in the other. Three members of the family have been voluntarily sterilized, and five instances of preventive abortion are recorded. P. Jameson Evans


Out of 42 Tasmanian children with congenital deafness, rubella was responsible for the condition in 31. In the remaining ten the deafness was inherited or of uncertain aetiology.

The children with deafness due to rubella were born in the years 1938-41, the majority in 1938 or 1941. Retinitis was present in five. In four of these cases no history of maternal rubella could be obtained and the diagnosis was based on the characteristic retinal changes.

The audiograms of the rubella-deaf children do not show any one type of curve, and an asymmetry between the audiograms of the two ears in a single case is common and may be extreme. The downward trend of the audiogram from low to high tones is usually not so steep as in typical inner-ear deafness. The degree of deafness in the cases due to rubella was rather less than in the others, so that twelve out of the 32 children were suitable for individual hearing aids, as against two out of the ten other children. The deafness in the 1941 group was more severe than in the 1938 group.

Analysing the ten cases not associated with rubella, the author finds that seven have the typical audiograms of inner-ear deafness, while three cases are atypical, the audiograms being flatter. He considers that these three cases are probably due to rubella in spite of the negative history.


Proper grouping of the anatomical findings in inherited nerve deafness is very difficult; none of the present classifications is really satisfactory. The author describes the findings in two cases of deaf-mutism. In one case the existence of deaf-mutism was presumed from the post-mortem findings, as no clinical history was available. In one case there was no change in the bony framework of the cochlea; in both cases there was hypoplasia of the primary acoustic nuclei in the brain stem. It is concluded that anatomical findings in inherited deafness can be divided into two types: (1) Primary changes in the cochlear duct and saccule. (a) Changes confined to the epithelial parts of the cochlear duct, with or without involvement of the saccule—the "sporadic deaf-mutism" in man, deafness in dogs and cats with pigment anomalies, deafness associated with locomotor anomalies in rodents. (b) Additional slight anomalies of the bony cochlear framework in man. (c) Marked anomalies in the membranous and bony structure of the cochlea, saccule, endolymphatic duct, and sac—the "Mondini type," found in man and in dogs. (2) Primary degenerative atrophy of the spiral ganglion on the basis of an "inherited localized organ weakness of the cochlear system" found in man and in horses.


Out of 64 of the 82 children affected by maternal rubella in Western Australia and examined by the author, no less than 62 were deaf. Of the 64 children, 36 had retinitis, six had cataract, one a subluxation of the lens, and one myopia; four were mentally defective. In no instance had the retinitis affected vision.

The incidence of retinitis is certainly higher than that found in Queensland by Marks, or in Tasmania by Hamilton and others; the author urges similar surveys in South Australia, Victoria, and New South Wales, with a periodical check-up of these unfortunate children.

J. B. Hamilton


The incidence of severe developmental defects after rubella in pregnancy has been over-estimated in earlier work. There is a probable chance of severe affection of the foetus in 25 to 50 per cent. of cases if the disease develops in the first hundred days of pregnancy.

The legal position for termination of such pregnancies is extremely difficult, the maternal life and health being in no danger, except that the worry of producing and looking after a handicapped child will cause mental strain. There is a place for termination in occasional cases after careful obstetrical and psychiatric consideration.

D. B. Fraser


The clinical details and audiograms in twenty cases of deafness associated with kernicterus are reviewed. In these cases the jaundice was due to Rh-factor iso-immunization, though this type of jaundice is not invariably due to this cause. In the majority of cases direct pure-tone audiometry with consistent test findings was possible. In the younger children the conditioned-play technique was used.

There were fifteen cases of perceptive deafness, all but one with high-tone loss. In two patients deafness was complete. In one the hearing closely approached normal, and one had severe mixed deafness. The remaining three had conductive deafness. The degree of deafness bore no
constant relation either to the extent of the extrapyramidal lesion, or to the level of intelligence.

In contrast to cases associated with maternal rubella, the hearing organs develop normally, but the cochlear nuclei are damaged in kernicterus. Examination of the brain stem and temporal bones in one case showed a normal state of the organs of Corti, nerve fibres, and ganglion cells, but marked changes in the ventral and dorsal cochlear nuclei in the brain stem. "The cell bodies of the nerve cells in many instances had completely disintegrated or faded away. In other instances the cell outline alone was visible and the nucleus had disappeared. In a few instances the cytoplasm of the cell had a homogeniouse appearance and stained brightly with eosin, while the nuclear material was collected into two or more small clumps."  

Stephen Suggit

Nuclear Deafness and the Nerve Deaf Child: the Importance of the Rh Factor.  


The causes of infantile nerve deafness are not well known, and with two exceptions the classification of these causes has not varied since Politzer set them out over 50 years ago. The first exception is rubella in the mother during the first 3 months of pregnancy, and the second exception is discussed in this article.

The cause of erythroblastosis is the presence of Rh antibodies in the maternal blood. In America the incidence is about one in 150 births. The various forms of damage to the central nervous system in erythroblastosis have been called kernicterus, and this term includes both the anatomical lesions and their physical signs. There is usually damage to the basal ganglia with extrapyramidal spasticity, athetoid and choreiform movements, and emotional instability with mental retardation. Erythroblastosis is the common cause of kernicterus, although there are other causes, such as difficult labour. The associated deafness is thought to be nuclear, as so many of the lesions of kernicterus occur in the brain-stem. There is, at all events, no evidence of damage to the cochlea. The deafness is usually symmetrical and moderate, and it is associated with the athetoid form of cerebral palsy; children suffering from cerebral palsy without athetosis are not deaf.  

William McKenzie

The Study of Congenital Anomalies by the Epidemiologic Method, with a Consideration of Retrolental Fibroplasia as an Acquired Anomaly of the Fetus.  


Congenital anomalies cause about 5 per cent. of all deaths in infancy. In the present paper the problem of these anomalies is attacked by the epidemiological or statistical approach. For example, it can be shown that cases of congenital blindness (due to cataract) occur most frequently when the mother contracts German measles between the first and second months of gestation ("the mean critical period for cataract is 1-17 months"); congenital deafness, on the other hand, is noted most often in the child when the mother suffers from German measles between the second and third months ("mean critical period is 2-17 months"). The difference between these means is statistically significant, and cannot be explained by regularly occurring alteration in the virulence of the virus or by changes in the external environment. The explanation is to be sought in the development of the foetus, and embryologists have pointed out that the period of active differentiation of the primary lens fibres lies between the 5th and 8th weeks, and that of the cochlea between the 7th and 10th weeks. "These observations on rubella demonstrate that the basic principles of animal teratology [the science of antenatal pathology] operate in the pathogenesis of acquired human anomalies."  

The evidence that mongolism is a stage-specific deformity due possibly to anoxia occurring between the 7th and 9th weeks of pregnancy is discussed. Congenital abnormalities, such as anencephaly, have been produced in mice, their occurrence depending on the degree of anoxia to which they are subjected, and also on the stage of development of the foetus. Similarly, deficiency of riboflavon may produce cleft palate, again depending on the stage at which it is induced.

The gradient in severity of deformities is then illustrated by examples. All degrees of deformity between a two-headed monster and joined twins are seen between a vestigial eye and cyclopia and between cyclopia and duplicate eyes, and between complete absence of a phalanx in the hand of mongols and its presence, have been observed.

The importance of retrolental fibroplasia in the investigation of this type of problem is discussed. This condition develops in the eye of premature infants, and affords an opportunity to watch an anomaly form in the foetus. In view of the great difference in incidence of this condition as reported from different hospitals, a plea is put forward for a planned investigation on a large scale, contributions being needed from ophthalmologists, obstetricians, paediatricians, pathologists, embryologists, and statisticians.

Finally "the error of assuming that an anomaly is inherited simply because it is present at birth should no longer be perpetuated." There is now ample experimental and statistical evidence to support this.  

[This is a well-written review which should be read by all those interested.]  

A. T. Macquen

Erythroblastosis Fetalis. II. Prognosis in Relation to History, Maternal Titer and Length of Fetal Gestation.  


The authors have studied 340 cases of erythroblastosis foetalis seen at the Children's Hospital, Boston, Massachusetts, and the Boston Lying-In Hospital during the years 1945-48. Statistical analysis showed that a higher degree of sensitization followed transfusion of an Rh-negative woman with Rh-positive blood than followed a single pregnancy with an Rh-positive foetus, the mechanism apparently being the same, but the stimulus of transfusion being the more potent. However, a higher incidence of stillbirth due to erythroblastosis was followed sensitization due to previous pregnancy than by transfusion. In a general way the outcome of the disease was related to the amount of Rh antibody in the maternal blood. When the maternal antibody titre reached one in 64 there was a greater danger of stillbirth or neonatal death, whereas if the titre was less than one in sixteen there was a better chance of the infant's survival.
Statistically, there was no consistent relationship between the
prognosis for the child and the type of maternal antibo-
dy, although the authors formed the clinical impression
that the outlook was better if the antibody was of the
saline-active (early immune) type rather than of the
hyperimmune type active in albumin or serum. The
length of gestation in relation to the outcome has been
discussed in a previous paper by the same authors
(Pediatrics, 1950, 6, 173) and further figures now avail-
able confirm their previous findings. Most fatalities
occur in children born of mothers with high titres of
antibody in the blood after less than 38 weeks' gestation.

Comparison of the figures for two separate years, when
the induction rates were 13 and 37 per cent. respectively,
showed that induction in itself did not cause a higher
foetal or neonatal mortality, except in so far as it short-
tened the gestation period, it being, in fact, the degree
of immaturity which was the deciding factor. The authors
estimate that the number of stillbirths avoided by
induction was roughly equal to the number of cases of
kernicterus in immature infants. Since a stillbirth is
generally regarded as a more satisfactory outcome than a
living child with kernicterus, there is no indication for
premature induction.

The analysis of this series of cases suggests that the
prognosis in cases where previous infants have been
affected, although worse than for the first affected child
of the family, is much better than has generally been
allowed by other authors. On the other hand, when the
first- or second-born Rh-positive child of a family is
affected the prognosis is likely to be worse than when two
or more Rh-positive children have previously been born
unaffected, it being suggested that in the former case the
mother is more susceptible to sensitization.

J. G. Jamieson

The Experience of the Tübingen Gynaecological Clinic
in 35 Cases of Erythroblastosis due to Rh Incom-
patibility. (Erfahrungen der Tübingen Frauenklinik
an 35 Rh-bedingten Erythroblastosefällen.) Haile, H.
(1950). Z. Geburth. Gynäk., 133, 207. 7 figs,
23 refs.

In 34 'out of 35 cases of foetal erythroblastosis, Rh
incompatibility of the parents' blood was found. Only
in three cases out of 172 pregnancies was erythroblastosis
present in the first child without the mother's having
received a blood transfusion. The highest incidence of
icterus gravis was found in the second pregnancy and
that of hydrops in the fourth pregnancy. The author
distinguishes between hypochromic and hyperchromic
forms of icterus gravis; the prognosis in the latter is
worse. Out of 63 infants with icterus gravis, 36 died as
the result of kernicterus; ten others died later either of
cirrhosis of the liver or of intercurrent disease. Five of
the eleven surviving children suffered from late effects of
kernicterus.

For the treatment of erythroblastosis exchange-
transfusion is advised. As long as no specific hapten
is available, the author recommends treatment of
expectant mothers with injections of serum of pregnant
Rh-negative women who have failed to develop anti-
bodies in spite of having an Rh-positive husband. Male
children appear to be more liable to erythroblastotic
disease. Franz Heimann

Follow-up of Rhesus-negative Primigravidae. Develop-
ment of Rhesus Immunization. Weiner, W., and

The authors followed up 62 consecutive cases of
Rh-negativity in primiparae who had borne Rh-positive
children. The mothers' sera were tested at intervals after
delivery against samples of group O cells of which ten
were Rh-positive and two Rh-negative. Tests in saline
and albumin, and indirect Coombs tests, were performed.

In two cases low anti-D antibodies in low titre were found
9 months and 2 years respectively after delivery. In
both cases the reaction was stronger in albumin than in
saline. In neither case was there any known antigenic
stimulus other than the single pregnancy.

The authors discuss the significance of this late anti-
body development, and suggest that it might be advisable
to look for anomalous antibodies in all primiparae
contemplating a second pregnancy.

G. Jacob

The Development of Children of Eclamptic Mothers.
(Die Entwicklung von Kindern an Eklampsie erkrank-
6 refs.

This interesting paper is based on a follow-up study of
117 Hamburg children born of eclamptic mothers
between 1920 and 1947. Both physical and mental
development was assessed and compared with a control
group born during the same years after normal preg-
nancies. In the two groups the percentage of patients
in normal health was 76-9 and 90-9; of those suffering
chronic ill health 17-5 and 6-8; of those who had died
5-9 and 0-9; of mental defects, 9-2 and 2-6; of those
with delayed speech development, 13-7 and 6-8 respec-
tively, the second of each pair of figures referring to the
children of normal pregnancies. Under "ill health"
were included bronchial asthma, tuberculosis, and heart
and kidney diseases. Complications of infectious dis-
eses were more frequent in the group born of eclamptic
mothers. The mortality figures do not include death
from prematurity or neonatal death. All degrees of
mental deficiency were noted, including cases of severe
hydrocephalus. The adverse effects of eclampsia were
even more pronounced when cases were grouped accord-
ing to the severity of symptoms in the mother. Of sixteen
children born of severely eclamptic mothers (more than
three fits), four died under the age of two. In successive
pregnancies a positive correlation was found between the
severity of the eclampsia and the degree of mal-develop-
ment of the child.

These results are compared with others published
recently in the German literature and the author con-
cludes that eclampsia is of greater importance in the
future health of the child than is generally realized.

J. T. Leyberg

The Inheritance of the Lutheran Blood Groups in Forty-
Eugen., Camb., 15, 255. 5 refs.

The anti-Lu4 serum Egl (of Ikin) can be used satisfac-
torily at room temperature with a 2 per cent. suspen-
sion of erythrocytes in saline for testing cells of all ABO
groups when diluted with an equal volume of A1
B-secretor saliva. Specimens of blood from members of
47 English families were tested for the presence of the
Lu^a antigen. Of 34 Lu(a−) by Lu(a−) matings all the 77 children were Lu(a−). Of twelve Lu(a−) by Lu(a+) matings there were twelve children who were Lu(a+) and five who were Lu(a−). Of a single Lu(a+) by Lu(a+) mating there were two Lu(a+) and one Lu(a−) children. Thus the Lu^a antigen is inherited as a Mendelian dominant gene character. In the families of the Lu(a−) by Lu(a+) it was found that the Lu^a gene segregates independently of the ABO, MNS, Rh, Lewis, and Kell systems.

The gene frequencies of Lu^a and Lu^b in England were estimated by combining the results of the three large surveys so far published. Assuming that the Lu^a antigen is inherited as a dominant the gene frequency of Lu^a is 0.039 and that of Lu^b 0.961.

C. O. Carter


Blood samples from 150 English families were tested with anti-C-c-C+w-D-E and anti-e sera. (A further thirty English families of which details have already been published (Sanger et al., Heredity, 1948, 2, 131) are included in the analysis.) The three allelic polymorphic antigens, C, c, E, and d were first taken separately and the expected proportions of the various mating types and their children were calculated from the known gene frequencies of the antigens. In the case of Dd, only the phenotypes D and dd are distinct in the absence of anti-d, and the expectations were obtained by appropriate pooling of the genotypes. The proportions observed agreed well with those expected. Secondly, the proportions of the various phenotype matings expected, defined by the use of anti-c-C-D and anti-E sera only, were calculated and these again were found to agree well with the proportions observed. The calculation for the expected protection of phenotype matings involving R, r made by Race and Sanger was applied and found to fit well with the observed phenotypes of the children.

It is thus confirmed that the antigens C and c, E and e, D and d are inherited as Mendelian characters and in threes—C or c, D or d, or E and e.

C. O. Carter


Samples of erythrocytes containing modified forms of the D antigen were investigated. These were obtained from donors found to be R^+ (Cde) or R^− (cDe) on routine testing, and from donors previously noted as giving weak or anomalous results with anti-D sera. Those erythrocytes reacting with a strong anti-C+D agglutinating serum, but weakly or not at all with an anti-E, and those reacting with the incomplete, but not with the agglutinating, anti-D sera, were considered to be examples of D^u and tested further with a series of 49 random agglutinating sera and twelve incomplete sera selected for high strength. A number of erythrocytes containing ordinary D and d were also tested as controls.

It was found that various types of D^u, reacting with various proportions of the sera used, could be distinguished. In general the results suggested a quantitative variation in the amount of D^u antigen in the erythrocytes of the various samples tested, but there were significant exceptions. High-grade D^u cells gave positive results with a proportion of the agglutinating sera, gave positive Coombs-test reactions with a proportion of incomplete sera, and gave negative results in the albumin test, with occasional exceptions. Low-grade D^u cells gave negative results with agglutinating sera, gave positive Coombs-test reactions with a proportion of incomplete sera, and gave negative albumin reactions with incomplete sera. With some sera and cells the Coombs test was positive and the albumin test negative, while with others the Coombs test was negative and the albumin positive. About one-third of a random sample of 209 sera containing anti-D antibodies reacted with fairly high-grade erythrocytes of type R^u (cDe^E).

The distinction between D^u and d is effected with specially strong anti-D agglutinating sera or with a series of incomplete sera using the Coombs test; several sera must be used. The distinction between D^u and D can be made roughly with the albumin test, using several strong incomplete sera, but to do this accurately it would be necessary to set up a chart comparing the reactions of various sera with various types of cell. The risk of overlooking D^u in supposedly Rh-negative blood can be minimized by using anti-C and anti-E sera. Agglutinating sera for use as Rh-testing sera should be tested with a series of Rh-positive cells, including high-grade D^u cells. In investigating transfusion reactions and cases of haemolytic disease both the Coombs and albumin tests must be used. The gene frequency of D^u is estimated as 0.444 per cent., but there is reason to suppose that this estimate is too low. The inheritance of D^u was traced in ten families and it was found to behave as an allele at the D-d locus. The reactions with anti-D sera of cells with D^w within a family are much alike.

C. O. Carter


Serological findings in 1,293 blood specimens from an unselected sample of the Basle population showed that 89.17 per cent. were Rh positive and 10.83 per cent. Rh negative. The percentage of Rh-negative women was slightly higher than that of men (11.9 per cent. and 9.2 per cent. respectively); there seemed to be some relation between the incidence of the Rh factor and the incidence of B and A B blood groups. Absolute figures were, however, small.

Examination of 251 families revealed 24 Rh-negative women and nineteen cases of foetal erythroblastosis. In 61 cases of habitual abortion there were 11.48 per cent. of Rh-negative mothers, none of whom had developed anti-D antibodies. It would appear that Rh sensitization is not responsible for abortion before the sixteenth week, a view in conformity with other authors' findings. During the second half of pregnancy, however, 25.76 per cent. of the mothers whose children died in utero had Rh-negative blood. Two of them had developed Rh antibodies. The author studied thirty cases of certain or probable haemolytic disease of the newborn. In 27 of
ABSTRACTS


The pedigree of a family is described in which the index case was a woman who was totally colour-blind, had bilateral otosclerotic deafness, and was hypertensive. The authors examined personally 46 of her living relatives, including all her sibs, and obtained information about 71 others. Of the woman's ten sibs, one brother had total colour-blindness, otosclerotic deafness, and hypertension, a twin sister (not identical) and another sister had total colour-blindness and otosclerotic deafness, two sisters had otosclerotic deafness and hypertension, four brothers had otosclerotic deafness alone, and one sister was normal. The woman's mother was reported to have had otosclerotic deafness and hypertension, and of the mother's three sibs one was found to have hypertension and one was reported to have otosclerotic deafness. The mother's mother was also reported to have had otosclerotic deafness and of her four children by another marriage one was found to have hypertension and another reported to have had otosclerotic deafness. None of the six children of the individuals with total colour-blindness were themselves affected. The criteria for the diagnosis of total colour-blindness were complete inability to interpret any but the first Isahara test plate, presence of the associated stigmata of photophobia and poor central vision, and characteristic findings on testing field of vision, dark adaptation, and spectral visibility. Otosclerosis was diagnosed when deafness was found to be gradual in onset after adolescence and was not preceded by suppurative aural disease. All the affected individuals examined gave a negative response to Rinne's test. Essential hypertension was diagnosed when the diastolic pressure was greater than 100 mm. Hg in the absence of a history of renal disease or pregnancy toxæmia.

The manner of inheritance in this family is consistent with the view that total colour-blindness is inherited as a Mendelian recessive and hypertension and otosclerotic deafness as Mendelian dominants. The pedigree provides good evidence against a close linkage between the genes for hypertension and otosclerosis, or for hypertension and congenital total colour-blindness, but provides no evidence against a linkage of the genes for otosclerosis and total colour-blindness. C. O. Carter


Detailed family information obtained from 1,241 diabetic subjects was analysed. Hereditary influences are much more strongly indicated in cases of early onset; thus about 7 per cent. of the sibs of those developing diabetes before the age of 30 may be expected to be similarly affected before the age of 40, whereas the figure is only about 1-3 per cent. for the sibs of those developing the disease after 30. The expectation amongst children of diabetic subjects is much lower than in sibs, as would be expected if the genes concerned are recessive, which is very generally accepted to be the case. It is possible that cases of late onset may be heterozygous for a gene which, in double dose, produces cases of early onset. J. A. Fraser Roberts


The incidence of peptic ulcer in the living sibs and parents of 309 patients with peptic ulcer was investigated and compared with that in a control population. The incidence amongst brothers and sisters was rather more than double that to be expected on the basis of the control population, and the incidence amongst fathers was also significantly increased, but the number of available mothers was insufficient for analysis. It is suggested that it is reasonable to conclude that hereditary factors are of importance in the production of peptic ulcers. Familial tendencies were stronger in cases of duodenal than of gastric ulcer, and also where the onset was early. There was a strong tendency for sibs to develop ulcers at the same site. J. A. Fraser Roberts


The authors review briefly the records of accepted instances of sickle-cell anaemia in white individuals, and report the occurrence of the condition in a 19-year-old Sicilian girl. Study of nine available relatives revealed the presence of the sickling trait in five. The authors think that transmission of the condition cannot be explained on the basis of simple Mendelian dominance. A. Brown


The case is described of a Negro who was observed to be anaemic during her first pregnancy at the age of 15. Examination revealed the presence of a severe anaemia associated with a reticulocytosis of 20-8 per cent. and an icterus index of 6-7 units. Erythrocyte fragility was greater than in a control specimen (lysis began at 0-50 per cent. NaCl and was complete at 0-36 per cent. NaCl). The bone marrow showed marked erythroid hyperplasia, and the erythrocytes in the marrow preparation were "characteristically microcytic and hypochromic, many having an oval shape". Attempts to demonstrate sickling were unsuccessful. On this basis a diagnosis of hereditary spherocytic anaemia was made and splenectomy was performed. The spleen was enlarged (280 g.). The patient made an uneventful recovery.

Study of other members of the family revealed asymptomatic microspherocytosis in six. A. Brown


A detailed account is given of investigations of a congenital, familial, chronic haemolytic anaemia which

was observed in three members of a French-Canadian family. Clinically the condition was characterized by jaundice, hepato-splenomegaly, bone changes, and a tendency to the development of mongoloid facies. The anaemia was normochromic and normocytic or macrocytic. The only morphological abnormality was a moderate degree of ovalocytosis. The only intracorporeal abnormality detected on examination of the erythrocytes was a decreased survival time on transfusion into a normal recipient. Spherocytosis, elliptocytosis, and sickling were absent and no acid haemolysis could be detected. The erythrocytes had normal mechanical and osmotic fragility.

A. Brown


An analysis of the social and domestic circumstances of the in-patients in the largest hospital for the chronic sick in the Birmingham region showed that if the need for frequent medical attention and for skilled nursing were regarded as the criterion of suitability for hospital admission, three-fifths of the patients could have been cared for outside hospital, had certain essential complementary facilities been available. Findings about patients already in hospital, however, could not be accepted as a guide to future policy or to the relative responsibility of different bodies for the care of the chronic sick in the light of recent legislation. An analysis was therefore made of the domestic circumstances and medical condition of 335 patients who actually entered hospital out of 393 for whom admission was sought between October 10 and December 22, 1949. Inquiries were made by an almoner in the home within 24 hours of application and the medical examination being carried out at home or shortly after admission to hospital.

Four categories were distinguished. Into the first group, which constituted 40 per cent. of the total, fell those patients who needed skilled nursing or medical attention, or both, not less frequently than once a week. They were either acutely ill, needed hospital investigation, or were in the terminal stages of malignant disease. The second group (10 per cent.), was mostly made up of senile demented patients, who needed admission to a mental institution as, because of their abnormal mental state, they needed personal supervision. More than half of them were old people who were both bed-fast and incontinent. The third group (24 per cent.) consisted of persons not requiring skilled nursing or weekly medical attention, but who could not be kept in their own homes. One-third of them had no pathological lesion and suffered merely from infirmity associated with advanced age. Nearly all the rest were partially incapacitated by illness; they did not need the special services available in the hospitals, but, on the other hand, they required more attention than could be provided at home or in municipal homes for the aged. Such patients would be suitable for accommodation in "long-stay annexes" associated with general or special hospitals. The social circumstances of those in the fourth group (26 per cent.) were such as to permit of their being cared for at home. This group required little medical attention and, although a few needed visiting more than once a week, most could be supervised by fortnightly or less frequent visits. Only about 16 per cent. of the group required skilled nursing (insulin injections, dressings, etc.) while nearly one-half needed no nursing at all. To enable such patients to be looked after at home, however, it is necessary to have not only an efficient home-nursing and home-help service, but also adequate housing, including a bath and hot water. The rising demand for hospital accommodation can be stemmed only if there is a marked improvement in national housing standards.

Caryl Thomas


"Antistin" as a therapeutic agent against the common cold was investigated under conditions similar to those
which governed the trials of the Special Committee of the Medical Research Council. During the period November, 1949, to April, 1950, volunteers reporting within 24 hours of the onset of a cold were given two tablets of "antistin", and a further tablet was taken every 4 hours except during the night. Controls were given tablets which were of identical appearance and practically identical taste but which contained small doses of quinine. Records were compiled for 1,744 persons, but only 745 of these records were complete—379 treated patients and 366 controls. Analysis failed to show that "antistin" had any significant effect on the course of the common cold. Side-effects were minimal. 

A. Paton


These clinical trials by the Medical Research Council demonstrate conclusively that when steps were taken to eliminate every possible source of bias the antihistaminic drugs tested had no value in either the prevention or the treatment of the common cold. The investigation was based on standards laid down in the similar trial of patulon (Lancet, 1944, 2, 373).

The first experiment, in prophylaxis, was carried out at Salisbury, where paired volunteers were given either "histanin", 50 mg. twice daily starting 48 hours before inoculation with virus and continuing for 72 hours afterwards, or "phenergan", 20 mg. twice daily 60 hours before inoculation and continuing for the same period; both these drugs have strong antihistaminic action. An equal number of controls were given identical tablets containing 1/2 gr. (16 mg.) phenobarbitone. Although the numbers were small, the experiment was carefully controlled, and there is no reason to doubt the validity of the negative results obtained.

Therapeutic trials were conducted between March and May, 1950, at nineteen centres in Britain with a total population of 50,000. The method was carefully standardized; all volunteers were over the age of 13, complications and allergic manifestations were excluded so far as possible, and a special effort was made to keep secret the identity of the tablets a particular patient received. This was done by a novel method of central coding, whereby the identity was known only to those in the Council's Statistical Research Unit. Thonzylamine was given in doses of 50 mg. three times a day for 3 days because of its low toxicity and reported efficacy. Records were kept of progress at 24 hours, 48 hours, and one week; the evidence obtained was, of necessity, largely subjective. Quinine-lactose tablets, identical in appearance, were given to controls.

Adequate records were obtained from 1,156 persons—579 treated and 577 controls—and these were analysed according to percentage cured and improved, different centres, a previous allergic history, time between onset and start of treatment, and reactions. No significant effect of thonzylamine could be demonstrated, and "indeed the similarity in response of the two groups seems more remarkable than any dissimilarity". Side-effects were similar in both treated subjects and controls and were probably attributable to the cold itself.


In the period 1938-48 a series of 297 cases were recorded as cases of infection of the frontal sinus at the Los Angeles County Hospital. Papers were lost in 26 cases. In 128 cases the diagnosis was not confirmed on discharge from hospital or by necropsy findings; in this group were included cases of psychoneurosis, acute alcoholism, cancer of the stomach, and a variety of other conditions. In 143 cases a diagnosis of frontal sinusitis was confirmed by clinical, radiological, and operative findings. This is admittedly an empirical method of diagnosis; for real accuracy the author considers that the basis should be pathological findings. In acute sinusitis, an acute inflammatory infiltration of the lining mucosa with segmented granulocytes and oedema must be present; in chronic sinusitis, plasmaocytes with areas of fibrosis and interstitial oedema of the mucosa are found.

As such evidence was not available in this series an infection which lasted for more than 30 days was considered chronic, and the intermediate diagnosis of "subacute frontal sinusitis" was not used.

The figures show that acute sinusitis is more common than chronic (88 against 12 per cent.); that frontal sinusitis is more common in men than in women (66 against 34 per cent.); that acute cases are more common in the white races; and that the greatest incidence is at about 25 years of age, with peaks at 15 and 33. In 103 cases the predisposing cause was a "head cold"; 50 infection followed swimming, and in such cases there was particularly dangerous. In seven cases "related conditions were present—four tumours and three mucoceles.

It was not possible to estimate mortality in acute and chronic cases. Out of 143 patients thirty died; this includes one with squamous-cell carcinoma. Of 100 cases admitted direct to the ear, nose, and throat department eleven were fatal; of ten from the contagious diseases department, six; of eleven from the neurological department, nine. The introduction of penicillin in 1944 was followed by an immediate fall in mortality. Out of twelve cases in which infection followed swimming there were two deaths, one case of osteomyelitis, one case of pyogenic meningitis, and two cases of subdural abscess. In all there were eighteen cases of osteomyelitis, of which nine were fatal.

The three cases of mucocele were secondary to previous operation, and all these patients recovered.

The author advocates early drainage through the sinus floor in acute cases. If there is any complication—osteomyelitis or intracranial lesions—the posterior sinus wall is removed. Local instillation of penicillin and its systemic administration are a routine. The indications for intrathecal administration are not described; 50,000 to 100,000 units are given at each puncture daily or more often if required. Attention must be paid to a history of allergy.

The incidence of frontal sinusitis has not been affected by penicillin, but complication and mortality rates have been diminished, and the length of stay in hospital has been nearly halved.

F. W. Watkyn-Thomas

This paper from the Radcliffe Infirmary and Institute of Social Medicine, Oxford, is in two parts. Part I gives an interesting review of mortality and morbidity statistics of appendicitis from various sources. It is calculated that in England and Wales some 60,000 cases of acute appendicitis occur each year; the mortality among males is higher than among females and there is evidence to suggest that the disease is commoner in males. There are two peaks of mortality, at ages 5 to 14 and over 55. An interesting point is that the mortality is greater in the higher social grades—possibly owing to some dietetic factor.

In the second part of the paper the authors review a series of 1,074 cases of proved appendicitis admitted to the Radcliffe Infirmary. The over-all mortality was 1·4 per cent. and that among patients with diffuse peritonitis was 6·2 per cent., which is a marked improvement on Grey Turner's (1938) figure of 29·2 per cent., the change being attributed to chemotherapy. Delay in operation is dangerous and the use of chemotherapy is advocated in all cases with peritonitis. The authors also discuss wound drainage and suggest that it is not as necessary as was at one time thought, and in the majority of cases should be dispensed with. Various factors influencing wound healing are discussed. [This is a sound and interesting paper.] Roland N. Jones


Lack of adequate nutrition was an important causal factor in the rise in mortality from tuberculosis which occurred in Holland during the two world wars. The author gives details of the food situation in Holland during the recent war, and shows that the tuberculosis trends in different parts of the country were related to variations in diet available. Other factors responsible for the rise in tuberculosis mortality were the spread of fresh infections resulting from mobilization of the army, the flow of people from the towns to the country in search of food, and the crowding in hiding-places of members of the underground movement. It is impossible to estimate how great was the factor of psychological stress.

In 1930-32 tuberculosis mortality was higher in women than in men; the position is now reversed the rate being higher in men, particularly above the age of 30. The author discusses the significance of the increasing morbidity rates. The percentage of “light cases” among new cases is constantly increasing. On the other hand, mortality from tuberculosis has fallen from 46 per 100,000 in 1946 to 28 per 100,000 in 1948. The author believes that the fact that this figure is lower than in most other European countries, including Great Britain, is due to the high standard of living of the whole population and to the efficiency of the dispensary system. Institutional accommodation has also been extended; in 1948 there were, for each annual death from tuberculosis, 4·1 beds for tuberculosis (the figure for England and Wales is less than 1·5). B.C.G. vaccination in Holland is still in its infancy” [so that it is clear that, whatever the factors responsible for the remarkable fall in the tuberculosis rate in Holland, B.C.G. vaccination is not one of them]. M. Daniels


A study of the records of all the cases of pneumonia admitted to two Manchester children’s hospitals between 1946 and 1948 formed the material for this paper. A total of 149 cases is included, all confirmed by radio- gram or by necropsy; just over half of them were in infants under 6 months old. It is concluded that the standard variations in chemotherapeutic treatment make no significant difference to the outcome in any age group. By far the most significant prognostic factor is the age of the patient. The disease is most deadly in the first 6 months of life, and it is at this age that therapeutic effort must be concentrated if the total mortality of this disease is to be reduced. An important factor in prognosis is the delay in the institution of chemotherapy, owing to the absence of early specific symptoms at this age: fifteen of the twenty infants in the group who died did so within 24 hours of a delayed admission to hospital. The authors make a plea for the early administration of chemotherapeutic drugs, even in the absence of a final diagnosis. They also note the possible significance of breast feeding as a prophylactic factor, and the lack of prognostic significance of the leucocyte count.

T. A. A. Hunter


The mortality from diphtheria, in common with that of other infectious diseases of childhood has been declining since the beginning of the century. Although it is generally accepted that the very large fall in mortality from diphtheria during the past decade has been due to the immunization campaign, there are some who maintain that the total decline in mortality from diphtheria over the past 50 years is not very different from that in respect of the common infectious diseases of childhood against which there has been no large-scale immunization. The author has, therefore, compared the trends of mortality from diphtheria, scarlet fever, whooping-cough, and measles in England and Wales during the last 85 years. The comparison was made by constructing for each disease a second-order logarithmic curve from the quinquennial death rates at ages under 15 years from 1866-70 to 1936-40, and extrapolating to 1949 to show the mortality which would have been expected had the trend from 1866 to 1940 been maintained, the observed mortality in each year being plotted side by side with the expected mortality.

The curve of observed mortality from whooping-cough during 1941-49 was in very close agreement with the extrapolated curve, showing that the rate of decline has not been disturbed by the introduction of any new factor since 1940. The observed rates for measles after 1940 were, however, somewhat less than the calculated rates,
and during 1948 and 1949 were only about half the expected values, being 23 and 30 per million respectively. The mortality trends of both scarlet fever and diphtheria showed considerable departure from the expected trend during 1941-49, and for both diseases the observed death rates have declined farther and farther below the calculated values. In 1949 the actual mortality from scarlet fever (1.4 per million) was only one-tenth, and that from diphtheria (7.1 per million) only 3%, of the value calculated from earlier mortality trends. The similarity of the recent trends of scarlet fever and diphtheria mortality was not due to the operation of similar factors. Notifications of cases of scarlet fever fell by 11 per cent. between 1938-40 and 1949, while the notifications of diphtheria fell by 91 per cent. during the same period. Thus the fall in the death rate from scarlet fever has been due to a decreased fatality and not to a decreased incidence, whereas with diphtheria the fall in the death rate has been due to a tremendous fall in the case incidence accompanied by a reduction in fatality.

It is thus clearly demonstrated that since the introduction of widespread immunization against diphtheria late in 1940 the mortality from diphtheria has been reduced to a far greater extent than that from whooping-cough and measles, and in a manner quite different from that in which mortality from scarlet fever has been reduced.

W. J. Martin


The trend of morbidity from diphtheria per unit of population has been much the same since 1915 throughout the United States. In general, there was first an increased incidence between 1914 and 1924, probably the result of one of the periodic increases in virulence which is characteristic of this disease. After the 5-year period 1920-24 morbidity in each age group declined fairly rapidly, so that at the end of 20 years the incidence had fallen to one-tenth of the previous figure. In recent years, in spite of the immunization of a relatively larger proportion of the child population, the decline has been at a slower rate. The incidence of diphtheria mortality, during the same period was similar to that of morbidity for the younger population, the rate having declined equally in all age groups under 20. In general, however, the decline has been less marked in those over 20 years of age. The case fatality rate showed marked variations between the various States, but again the most significant change in nearly all States has been a rise in fatality in persons of over 20 years of age. This could possibly be because reporting of milder cases amongst the older members of the population is less complete or because the disease, having become less common, is not now recognized until the later stages.

The fact that a simultaneous and parallel decline in diphtheria morbidity and mortality for all age groups has taken place in individual States located in different sections of the country and in which the extent to which the population has been immunized varies markedly, occurring after a cyclic increase in incidence between 1915 and 1925, suggests the operation or influence of other factors besides, or in addition to, artificially induced immunity. It is possible that natural forces such as a diminished infection frequency and a smaller ratio of cases to infections have influenced the decline of diphtheria morbidity. This view is supported by the fact that there has been an increase (?) cyclic in incidence during the last decade in various parts of the country where immunization has not been neglected.

Caryl Thomas


A statistical analysis is made of the deaths from cancer of the stomach in the 83 county boroughs of England and Wales during the years 1921-39. The stomach-cancer death rates in these towns show very large differences, considerably more than could be expected to occur by chance. These differences are apparent at all ages: in fact the differences are greatest at ages between 25 and 55 in males and at ages up to 65 in females. These relations with age are just the reverse of what would be expected if the differences in mortality arose merely from differing accuracy of death certification, which should exert its maximum effect in old age. It is also found that the recorded death rates from stomach cancer show no association with the death rates in the same towns from other digestive diseases—rates which would include wrongly certified cancer deaths. The differences appear, therefore, to be real. The high rates of mortality tend to appear in the northern towns rather than the southern and are positively correlated with the proportion of unskilled workers in the population. Grouping the towns according to the hardness of their water supplies suggests rather higher rates in those with very soft or very hard water, and lower rates intermediate. The facts appear to be consistent with the hypothesis that the development of gastric cancer depends on an irritant whose latent period is shorter in some towns than in others.

A. Bradford Hill


The deaths from all forms of cancer recorded in Australia between 1908 and 1945 are analysed and subdivided by sex and age. In the last quinquennium, 1941-45, the proportions of all deaths which were considered due to cancer were as follows:

- up to 14 years, about 0.6 per cent. in each sex;
- ages 15 to 44, 6 per cent. male, 11 per cent. female;
- ages 45 to 74, 14 per cent. male, 20 per cent. female;
- ages over 75, 10 per cent. male, 9 per cent. female.

Analysis of the 1908-45 death rates at various ages reveals no appreciable change in rates in childhood and early adult life (ages under 35), a decline in mortality in both sexes at the important ages of 35 to 44, 45 to 54, and 55 to 64, and a rise only in the age groups 65 to 74 and 75++. At these ages increased precision in diagnosis may well be a factor in the rise. In total, there has been no certain increase in cancer mortality in Australia over the period studied, though the ageing of the population has inevitably brought about an increase in the crude death rate and this increase will continue in the future.
ABSTRACTS

The age-specific death rates per million in 1911-20 and 1941-45 were as follows:

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<td>Crude rate</td>
<td>808</td>
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<td>771</td>
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</table>

A. Bradford Hill


The authors have made use of the United States Army medical records of casualties resulting from illness or injury during the two years 1944 and 1945 to estimate the incidence of cancer in a population which, in respect of males between 20 and 40 years of age, is probably the largest ever studied. Estimation of the incidence of cancer among the general population is difficult, and the figures available have been mainly derived from the analysis of mortality statistics. Moreover, there are problems of determining the size and age distribution of the population from which the cancer cases are drawn and the degree of accuracy with which such cases are reported which do not arise in connexion with military statistics. For this reason it is probable that the results obtained by the authors represent the closest approximation to the true incidence that has yet been made.

Estimations were first made on the basis of a 20 per cent sample of all cases of malignant disease diagnosed in each year among white males, and a further estimation made on the basis of the total number of such cases for 1944 only. The incidence of cancer (including lymphoma and leukaemia) per 100,000 white males per annum according to this last estimation was as follows:

- Less than 20 years of age, 12.67
- 20 to 24, 16.47
- 25 to 29, 26.51
- 30 to 34, 43.57
- 35 to 39, 67.75
- 40 to 44, 144.31
- 45 or more years of age, 289.83

The incidence, in each age group, of cancer in 25 anatomical sites and of eleven histological types was also calculated. The over-all figures were compared with those obtained in two surveys of large civil population, which were found in general to be higher. [For details of the anatomical and histological analysis and of the methods used the original paper should be consulted.] W. J. Martin


Nowadays more elderly patients than formerly expect operative relief for genital prolapse. This trend has resulted from the modern tendency towards greater activity at an older age, the spread of medical knowledge, and the increased expectation of life. Of the 500 cases of prolapse in women between the ages of 60 and 83 years reviewed in this paper, 87.6 per cent. were private patients and 12.4 per cent. hospital patients treated in an 11-year period. About half the patients were over 65 years of age and some 63 per cent. suffered from hypertension. In 54 out of the 500 some significant additional condition was also present, ranging from diabetes to carcinoma of the breast. The types of operation performed and of anaesthetic given are analysed (no less than 27.6 per cent. being operated upon under spinal analgesia). There were four deaths in the series, all due to embolism [this statement is valuable and significant]. In addition there were two cases of non-fatal pulmonary embolism, and phlebitis was observed in five non-fatal cases. It was noted pre-operatively that thirteen patients had marked varicose veins and, of these, three had a fatal embolism. The other post-operative complications are tabulated.

[The incidence of, and mortality from, embolism are interesting observations; this appears to be the principal hazard of operations for prolapse. In the discussion on the paper the question of pre-operative haemoglobin levels was raised and the treatment of anaemia stressed.] Kenneth Bowes


This paper is one of a series dealing with an investigation into outbreaks of poliomyelitis in Chicago during 1945 and 1946. Information was obtained concerning three groups, contacts, non-contacts, and controls. The non-contacts were children living within a radius of one block of a paralysed patient, but who had no history of contact with the patient during his infectious period, or with any other child in the neighbourhood during the 4 days before or after the onset of an illness whose features were compatible with a diagnosis of poliomyelitis. The controls were drawn systematically from areas ten blocks north, south, east, or west of the patient. Stools were collected over a period averaging 8 days from 104 children in 26 "control neighbourhoods", and monkeys were inoculated intraperitoneally, intranasally, and intracerebrally, the pooled stools of each child being injected into two or more monkeys, which were killed when paralysis developed or after 21 days. The contact group included 101 children and the non-contact group 55 children, stools being collected and monkeys inoculated in the same way.

Poliomyelitis virus was recovered from the stools of 8 per cent. of the controls, 11 per cent. of the non-contact children, and from 53 per cent. of the contact children. The largest infection rate was among children of preschool age. The proportion of intestine of saline or intraperitoneally inoculated those aged 2 to 4 was 13.6 per cent. in the combined
control and non-contact groups, compared with 3.8 per cent. among those of other age groups, while among the contacts the percentages were 7.2-7 for ages 2 to 4 and 38-6 for all other ages. The authors estimate that most of the children in Chicago have probably had one sub-clinical attack of poliomyelitis by their fourth birthday, and probably three-quarters of them have had two attacks, due either to different strains or to reinfection, by their sixth birthday. Paralysis in poliomyelitis, representing a condition occurring less than once in 200 cases, may be due to a reinfection in sensitized individuals, or in individuals with poor natural or acquired resistance.

W. J. Martin


The authors studied 33 cases of pregnancy among a total of 717 patients (including both male and female) with poliomyelitis treated in the South View Hospital, Milwaukee, from 1943 to the end of 1948. The following points were considered: (1) the incidence of polio-

myelitis in pregnancy; (2) the effect of the disease on the course of the pregnancy; (3) the effect of the disease on the child.

Of the 56 married women of child-bearing age (18 to 45) included in the total, 28 were pregnant, two were in the early puerperium, and one had had an abortion 4 days before admission; thus of these 56 patients, poliomyelitis was associated with pregnancy in 31 (57 per cent.), whereas according to Taylor and Simmons (*Amer. J. Obstet. Gynec.*, 1948, 56, 143), 11.7 per cent. of all married women between 17 and 40 are pregnant on any given day. In this age group 18 to 45, the number of female patients with poliomyelitis was considerably in excess of the male, the excess being equal to the number of pregnant patients. Hence it appears that a pregnant woman is more susceptible to poliomyelitis than the rest of the population. Whether this is due to a state of chronic fatigue or to endocrine changes is yet to be shown.

Although abortion occurred in seven cases (21.2 per cent.), this is no higher than the normal expected abortion rate for the whole population; however, in each case the abortion occurred during the early acute phase of poliomyelitis. Four patients died, two post partum and two in the early months. Difficulty in delivery was experienced in only two cases, both of which required Caesarean section owing to flaccid paralysis of the abdominal muscles. Normal babies were born in 22 cases and none had any congenital abnormality, even when the mother had developed poliomyelitis in the early months of pregnancy. Of the two infant deaths, one was due to erythroblastosis and the other to cord haemorrhage, which presumably occurred during labour.

Elaine M. Sunderland


During a 10-year period at the Karolinska Hospital, Stockholm, 47 cases of pregnancy with diabetes were recorded. In four cases the diabetes appeared during pregnancy; in most cases the diabetes had been previously stabilized. Only three patients did not require insulin. All the patients were allowed free diet; this means that they were not on a strict regimen, but were advised to keep to a steady food consumption, sugar and sweets being discouraged. In half the cases insulin requirement increased during pregnancy, but in no case was this increase permanent. Glucose tolerance rapidly improved after emptying of the uterus, whether spontaneously or by Caesarean section. In 47 per cent. of cases albuminuria was present; there were ten cases of eclampsia or pre-eclampsia. The foetal mortality was 42 per cent. This high mortality was not associated with the high incidence of toxemia, as seven infants survived out of the ten cases of eclampsia or pre-eclampsia. The severity and duration of the diabetes did not affect the prognosis for the foetus. The average weight of infants born to diabetic women was higher than normal. Caesarean section as a method of delivery is recommended, and indications are discussed. E. H. Johnson


The general pattern of a fall in the occurrence and mortality rates of puerperal fever seen in England and Scandinavia has been noticed in Denmark as well, the mortality rate between 1931 and 1940 being 0.82 per thousand births and in 1940, 0.05. [Unfortunately the statistics given are not in the same detail for the decade 1931-40 as for the years 1941-8.] Many factors have contributed to this fall. There is the possibility that the virulence of the organisms has altered, because the fall in mortality rate began before the general administration of sulphonamides. Increasing knowledge of the background of the patient, with the use of blood transfusions when necessary, has helped. Chemotherapy has completely altered the position. A general discussion on the prophylactic and curative uses of chemotherapy is given, together with the scheme in use at the Rigshospital. The importance of a massive initial dosage in established infections is stressed. Streptomycin has not been used sufficiently frequently for its value to be assessed.

Again, as in other countries, the type of case now found to be seriously infected is altering. In Denmark, judging from the last 28 fatal cases seen (1945-6), there is a tendency for severe infection to occur in patients delivered at home in unsatisfactory conditions and admitted to hospital late. Chemotherapy had been started too late and the drugs given in too small a dosage. Many patients were older primiparae.

The authors see no reason why the mortality rate should not further be reduced, provided that all possible prophylactic steps are taken and chemotherapy is adequate.

Kenneth Bowes


Analysis was made of 209,055 live births, 6,798 foetal deaths subsequent to 20 weeks of gestation, and 5,048 neonatal deaths, reported in New York City in 1939 and 1940. Comparison was made of foetal death rates per 1,000 unborn children in each weight group by means of a modified life table method and of neonatal death rates
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per 1,000 live births in each birth-weight group, for the two sexes and for the white and non-white races.

For all infants foetal death rates, so calculated, are relatively low and neonatal death rates very high in the lower weight groups. Both rates go up sharply in the higher weight groups, indicating that infants much over average weight are not good risks. Lower foetal death rates were observed for females in the weight groups below 3,000 g. and for males in the weight groups above 3,000 g. Neonatal death rates were lower for females throughout. The implication appears to be that relative maturity is more important than size in regard to variation in foetal death rate.

Comparison by race indicates consistently higher foetal death rates for non-white infants in all weight groups. Neonatal death rates were similar for white and non-white infants in the lower weight groups but higher for non-white infants in the upper weight groups. A study in 22 hospitals, giving presumably better care than the city-wide average, showed lower neonatal rates for the non-white infants in the lower weight groups. It is inferred that comparisons of observed mortality differences by race must consider differences between the races in regard to extrinsic factors such as economic status, nutrition and care.

For practical purposes a uniform criterion of birth weight, 2,500 g., should be maintained in the diagnosis of prematurity. Using a method of combining foetal and neonatal mortality experience to measure the total risk to unborn children of different weights, it was possible to calculate "best birth weights". These were found to be about 120 g. lower for female than for male, and about 160 g. lower for non-white than for white births. [Authors' summary.]


An attempt was made to determine whether the lives of any of the 192 babies born dead in a series of 5,116 hospital deliveries at Brighton, Mass., could have been saved. Of these babies ninety were stillborn and 102 died in the first week of life. Necropsy was performed in 44 cases [but it is not clear how many of these babies were stillborn]. Twelve causes of death were found [but again the distribution of stillbirths and live births for each cause of death is not given, and several class headings are ambiguous].

Erythroblastosis caused fourteen deaths. This is followed by intra-uterine asphyxia, which caused seven; the much disputed congenital alveolar dysplasia, five; macerated foetus, four; atelectasis, three; prematurity, anencephaly, heart disease, and pneumonia, two each; osteogenesis imperfecta, encephalocoele, and uric-acid infarcts in the kidney, one each. Calvin P. B. Wells


At the beginning of the 20th century the infant morta-lity in Spain amounted to 175 per 1,000 live births; this figure showed a considerable decrease to 64 per 1,000 by 1948. After the civil war the rate went up to 135 in 1939; in 1941, due to economic difficulties and to deterioration of nutritional standards, the figure became 143 per 1,000 live births. In 1949 there was again a slight rise in infant mortality, which reached 68 per 1,000. By comparing the different months in the years 1942 to 1949, the author found that most babies died in the summer months (June to August), with a maximum death rate in July, mainly as result of gastro-intestinal disturbances. In recent years the figure has decreased on account of improvement in sanitary conditions. The death rate from immaturity and congenital malformations has remained stationary during the last 50 years. [Those particularly interested in Spanish vital statistics, and comparison with those of other countries should read the entire paper; the figures and calculations do not lend themselves to abstracting.]

Franz Heilmann


An account is given of the results of pregnancy and labour in six hundred primigravidae aged 12 to 16 years, amongst 133,000 patients attending the Maternity Institute at Buenos Aires. In most of these girls the menarche had occurred early, at 11 to 13 years. Complications were rare and pregnancy was normal in 85 per cent., only 14 per cent. of the infants being born prematurely. The incidence of toxaemia was only 1.6 per cent. Pelvic contraction was noted in 10.45 per cent., with flat pelvis in 7.4 per cent. Most of the labours ended spontaneously, with few complications, uterine contractions being normal in the majority. Labour was generally short, the first stage lasting 10 hours and the second stage being very brief. The infants were, on the whole, of average size or even above the average. Puerperal morbidity was only 7.5 per cent. There were two maternal deaths. Lactation was established in 84.16 per cent. of cases.

It is concluded that pregnancy in young girls is not a cause for anxiety and that the young mother shows an excellent capacity for maternity, while the infants are of high vitality. Josephine Barnes


This study is based on an analysis of 634 deliveries of mothers between the ages of 12 and 16 (mean age 15.4) at the Gallinger Municipal Hospital, Washington, D.C.; during the 3 years 1945-7. Of this number, 93.7 per cent. were primigravidae and only 15 per cent. were married. Since the hospital serves a predominantly Negro population, only seven of the mothers were white. During the antepartum period the incidence of toxaemia was 19.7 per cent., a figure considerably higher than the average for the clinic, which was 7.54 per cent. Complications occurred in one-third of the cases, toxaemias constituting 60 per cent. and other complications including, in order of frequency, syphilis, gonorrhoea, premature separatio-n of the placenta, cardiac disease, condyloma acuminata, placenta praevia, tuberculosis, epilepsy, and rickets. Eclampsia accounted for seven cases of toxaemia. It
was considered that the "jitter-bug diet" of these girls, consisting of "co-co-cola", potato chips, salted peanuts, and hot dogs, must contrast somewhat drastically with the salt-free, high-protein diet ordered by the obstetrician in the treatment of toxæmia.

Approximately 12 per cent. of pregnancies ended prematurely, the figure for the whole clinic being 9 per cent. Of the deliveries, 68-7 per cent. were spontaneous and 28 per cent. were with forceps (of which 23:3 per cent. were low-forceps deliveries). In half of these cases the application of forceps was performed out of consideration for the patients, who were very apprehensive.

The Caesarean-section rate was 0.6 per cent. and that of breech delivery 2.5 per cent. The average length of labour was 13i hours. The mean birth weight of the babies was 6 lb. 15 oz. (3.1 kg.). The foetal mortality was 3-8 per cent., that for the whole service being 6-3 per cent. The maternal morbidity was in keeping with that of the average clinical patient. Only one maternal death took place as a result of tuberculosis 9 weeks after delivery.

For this survey, toxæmia appears to be the outstanding complication of pregnancy in adolescence; on the other hand, from a purely obstetrical standpoint, it was felt that 16 years or less would appear to be the optimum age for the birth of the first baby.

[This is an interesting discussion of a subject little mentioned in textbooks.] Jean R. C. Burton-Brown


The Watford Pregnancy Diagnostic Laboratory at Watford, England, was established in 1949, and during its first year 3,724 Hogben tests with the Xenopus laevis were carried out. The 200 animals used responded to 70 i.u. chorionic gonadotropin, this test being necessary as a preliminary. The preparation of the extract of chorionic gonadotropin is described.

The chorionic gonadotropin was extracted from the urine, and half—that is 2.5 ml.—was injected into one toad; the other half was injected into a second toad only if the first had failed to ovulate after 18 hours. The distribution of the toad population in the tanks is described. The findings were carefully correlated with information obtained from the patient's doctor, and 2 months later confirmation of the findings was sought. Among the reasons for submitting urine were abortion (12-6 per cent. of cases); menopause (9-5 per cent.); hormonal amenorrhoea (6-4 per cent.); and hydadiiform mole (5-7 per cent.). The author states that false positive reactions do not occur, but there may be false negative reactions: (1) when the chorionic gonadotropin in the urine is deficient because the urine has been sent too early; (2) when the urine is not a concentrated specimen; (3) if the patient is a poor secretor or excretor, or (4) if there has been destruction of the chorionic gonadotropin by an unknown factor.

Among the interesting cases recorded were one of testicular carcinoma, one of pregnancy with menstruation within 3 months of delivery, and one of hydadiiform mole in which five tests were taken before evacuation of the uterus and 21 tests after operation to determine the change from positive to negative which occurred on the fifth day.

D. W. Higson


In order to investigate the question of periodic fertility in women, the temperature of 65 fertile women was taken during 526 cycles at the University Clinic for Women, Münster. The women were all married and under 40 years of age. The measurements were made in most cases for birth-control purposes. In ten cases in which the couple (partly through negligence, partly knowingly) did not follow the instructions received, conception occurred after cohabitation in the 5 days before the temperature rise. All cohabitation on the day of the temperature rise was fruitless, as was all cohabitation taking place more than 5 days before the temperature rise.

From these observations the following conclusions are drawn: (1) Assuming that a spermatozoon remains fertile for 2 days nothing can be said against the assumption that ovulation occurs some time during the second or third day before the temperature rise. (2) There seems to be no need to allow for a greater deviation between ovulation and temperature rise than ± 1 to 2 days. (3) The day of the rise in temperature always falls within the sterile period. This is to be expected, because the period of fertility of the ovum is of such short duration.

Results obtained by analysis of the cycle by means of temperature measurements confirmed the theory of cyclical fertility in women. No conceptions occurred outside the limits of the typical period of ovulation. The association made by different authors that conception is possible on any day during the menstrual cycle can be explained by the temperature measurements. Many of these conceptions can be regarded as the results of early ovulation, late ovulation, or an irregular cycle. The question whether ovulation can be provoked before its due date could not be answered by using the temperature-charting method.

Albert Eichner


This monograph is a review of the facts concerning the sexual cycle, time of ovulation, and optimal fertility in women, based on over 500 observations between 1943 and 1949 at Malmö General Hospital, Sweden. It is a very thorough piece of work, supported by over 400 references, with a brief historical review of each subject. Much of the evidence presented is confirmatory of views already accepted in Britain, but some new material is introduced.

It begins with a description of the clinical manifestations of the changes in the ovarian cycle due to the phenomenon of ovulation, these changes being studied in relation to basal body temperature, histology of the endometrium, and state of the cervical mucus.

Analysis of 500 cycles confirmed the widely accepted
view that substitution therapy with oestrogens and progesterone will produce a normal temperature cycle where there was previously no evidence of cyclic ovarian function, that the graph of oral, rectal, or vaginal temperature reflects ovarian function, and that the temperature changes are maximal 3 days before the thermal shift, which occurs between the 12th and 13th days premenstrually. Ovulation occurs 3 to 1 days before the thermal shift.

The endometrial cycle was studied in over 900 biopsy specimens; the correlation of findings with the composite graph of the basal temperature charts confirmed the fact that the thermal shift is related to the transition of the endometrium from the proliferative to the secretory phase. The endometrial picture reflects the degree of development of the corpus luteum, the sub-nuclear accumulation of secretion corresponding to the stage of vascularization of the corpus luteum. The duration of the secretory phase is limited to a maximum of 16 days, but it may be as short as 2 days before the onset of menstruation.

The cervical cycle was studied by a new method of estimating the actual quantity of mucus secreted, its dry content, and the degree of crystallization. Analyses are in agreement with those previously described, and it is suggested that the changes may be used as an index of ovarian secretion. The author suggests that the water content may be used for this purpose, and describes that phase in which the dry content of mucus is lost and crystallization is most marked as the "water phase". He defines this as the period during which the dry content of cervical mucus is less than 7 per cent. This phase never lasts for more than 4 days within a period of 5 to 2 days before the normal shift. The method is probably suitable for determining the biological effect of different oestrogens.

Optimal fertility was studied by a slight modification of the invasion test of Barton and Wiesmer. Penetration is slow and incomplete where the mucus has a high dry content. Optimal spermatozoal penetration was recorded at the most on 5 days of the cycle, corresponding with favourable conditions of the mucus when the "water phase" was present. This is the ovulatory phase previously described. These observations can be used to determine whether ovulation occurs in a cycle, and the time of optimal fertility.

[This monograph appears to have been carefully worked out, and the whole article deserves to be consulted.] B. Sandler


To evaluate the success of treatment for sterility the author re-examined 500 women out of 1,000 who received treatment during the period 1940-46 (766 with primary, and 234 with secondary sterility). Findings obtained at the first examination were correlated with reports made by the women about the success or lack of success of the treatment.

Local examination had been directed especially towards the discovery of hypoplasia or retroflexion, patency of the Fallopian tubes, and the condition of the endometrium. Hypoplasia had been diagnosed in 157 women; of these 66 later conceived. Retroflexion was found in 108 cases; after correction of the displacement 54 patients conceived. In 426 tubal insufflation 365 tubes were found to be patent, 41 non-patent, and twenty doubtfully patent. In seven cases of a negative and in four cases of a doubtful result in the Rubin test, pregnancy later occurred. Histologically, eleven cases of tuberculosis of the mucosa were found and these women remained sterile. Most women were between 28 and 32 years of age. The remarkable increase in the number of births after the war is noted. This fact is explained as a positive psychological state of preparedness after the disappearance of much of the psychological trauma of the wartime period. Because of wartime conditions, examination of the husband was made only in 187 cases. Of these men 161 had healthy spermatozoa; in 26 cases deficiencies were apparent. It is noted that the wives of some men with malformations of spermatozoa later conceived. Albert Eichner


The author's object in presenting this paper is "to harmonize the various apparently anomalous rotational behaviours familiar to every practising obstetrician". He emphasizes that his study is primarily of the normal female pelvis.

The point is stressed that the primary impact of the foetal head is, in the author's opinion, on the anterior part of the pelvic floor, and not on the posterior part as has been suggested. He also believes that the effect of the ischial spines on rotation is negligible. He has analysed several thousand labours. In nearly 60 per cent. the mother was under 27, and approximately 55 per cent. were having second or third babies. It may be difficult to diagnose the occipito-posterior position just before labour, because the patient may have been seen a few hours beforehand, and may be well on in labour when she enters hospital. In private cases the author did not find one case of spontaneous rotation of a true occipito-posterior position to the front. The great majority of the babies weighed under 10 lb. In 62 per cent. of persistent posterior positions delivery was normal. The longest labour was 96 hours in a primigravida.

It is concluded from this study that long internal rotation in occipito-posterior positions is rare. If internal rotation up to less than three-eighths of a circle is common, and that under diverse conditions of size of the baby, pelvic floor, and uterine contractions, rotation up to three-eighths of a circle may fail to occur. There must be some common factor which has until now been overlooked. The present teaching about failed long rotation is inadequate.

Two types of occipito-posterior position are described, the true occipito-posterior position in which the head will undergo a short rotation so that the occiput finishes in the hollow of the sacrum, and the intermediate occipito-posterior in which the head most commonly undergoes long rotation. A new law for the pelvic floor is suggested as follows. "With the lie longitudinal, that portion of
the presenting part which is related to the pubo-coccygeal segment of the pelvic floor rotates to the symphysis.”

An understanding of the mechanism is vital to management. Patience and confidence are required when long rotation, and short sincipital rotation, with smooth descent, are occurring. Manual rotation is needed for the persistent occipito-posterior, when the head is doing neither, but this need not always be followed by forcible delivery. Episiotomy is a vital measure. Buist pads are considered to be of decided value.

B. G. Spiers


In this paper a series of 131 cases of transverse presentation occurring at the Johns Hopkins Hospital, Baltimore, between 1931 and 1948 is compared with a series of 147 similar cases occurring between 1896 and 1931, reported by Eastman in 1932. In the present series 91 patients had babies of 2,500 g. or more. In these cases the principal predisposing cause appears to have been multiparity. (Fifty of the mothers had had three or more, and twelve of them nine or more previous pregnancies.) Inlet contraction was less important in causation, and was less frequent in the group studied than in the whole of the population. Suspension operations had been carried out on the uterus in four cases, and placenta praevia, pelvic neoplasms, and uterine malpositions and malformations were other less frequent predisposing causes. In the remaining forty cases, in which the infants weighed less than 2,500 g., multiparity again played a leading role in causation, but placenta praevia was present in thirteen cases and was the second most important cause. In the total series four deaths occurred (3.05 per cent.). In one case profuse vaginal haemorrhage resulted from a placenta praevia and was treated by Caesarean hysterectomy and blood transfusion. The patient died suddenly on the 41st postoperative day, supposedly from pulmonary embolism. A second patient died from ruptured uterus following intrauterine manipulation, with version and breech extraction. The third patient died, after her third classical Caesarean section for contracted pelvis, from intestinal obstruction due to adhesion of a loop of ileum to the uterine scar. The fourth patient died from staphylococcal septicemia following infection of a Caesarean section wound. Foetal mortality in the present series was 21.9 per cent. as compared with 47.2 per cent. in the earlier series. The number of cases treated by Caesarean section has increased by 100 per cent. and the fall in foetal mortality has been primarily among cases of Caesarean delivery; the mortality of babies delivered vaginally showing no significant change. Prematurity was the most important cause of foetal death, others being prolapsed extremity, prolapsed cord, placenta praevia, and intracranial haemorrhage.

It is considered that Caesarean section is undoubtedly the best method of treatment for transverse presentation in primigravidae, and also in multiparae early in labour or where mechanical obstruction is present in the birth passages. The rapid rise in foetal mortality with prolongation of labour is a contra-indication to expectant treatment in these cases. Only a multiparous patient late in labour with a viable foetus should be treated by version and extraction at full dilatation.

J. A. Chalmers


The authors decided to carry Dick Read’s technique of education, relaxation, and suggestion in obstetrics a stage further by inducing a trance state in the patient during labour. A group of 100 patients were chosen from both private and hospital practice, their average age being 24-2, and 62 of them being primigravidae. On average, four training periods of about 30 minutes each were given to each patient. During these an attempt was made to obtain as deep a state of hypnosis as possible and to stress relaxation during this time. Any acceptable method of trance induction might be used. A control series of 88 patients of the same age group, 48 per cent. of whom were primigravidae, were taken at random from hospital files.

The mean length of the first stage in the hypnotized group was 1.99 hours less than in the controls. There was little difference in the duration of the second and third stages. The average total dose of demerol (pethidine) required in the experimental group was 103.5 mg., and in the control group 123.6 mg. Treatment was more effective in primigravidae than in multiparae, the average length of the first stage being reduced by 3-23 hours in the former and 1.79 hours in the latter as compared with controls. The authors feel that these results could be improved if nursing staff were properly trained in the handling of patients under hypnosis.

Mary Pollock


The author records the results of x-ray pelvimetry in 1,000 private patients (850 primigravidae and 150 multigravidae) delivered under ideal hospital conditions. Every one of the patients was subjected to examination either by the Johnson stereoscopic method (880 cases) or by the Snow technique (120 cases); cephalometry was carried out by the Ball method. Contraction was found in 32 cases at the inlet, in 197 at the midplane, and in seventeen at the outlet. As outlet contraction was never found alone and contraction of the inlet was found to present no great clinical problem, the cases of midplane contraction were studied in particular detail. The critical values observed were 9.4 cm. for the bi-ischial diameter, a Mengert index of less than 84, and a transverse-posterior-sagittal index of less than 13.3 cm., but there were exceptions to all these figures. A more consistently accurate index was obtained by carrying out pelvic volumetric analysis; vaginal delivery of patients with a normal pelvis is considered by the author to be feasible provided that the cephalo-pelvic disproportion does not exceed 200 ml., but with a contracted pelvis vaginal delivery should not be attempted if the disproportion exceeds 51 ml. It is suggested that a disproportion amounting to not more than 25 per cent. of the foetal skull volume can be safely compensated by moulding.

J. Rabinowitch
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From May, 1931, to June, 1949, at the Chicago Lying-in Hospital, 2,871 Cesarean sections were performed, with an uncorrected maternal mortality of twelve (0.42 per cent.); 500 operations, with ten maternal deaths, were performed from 1931 to 1942. From March, 1942, to June, 1949, 1,371 consecutive Cesarean sections were accompanied by two deaths, one from pulmonary embolism on the 29th post-operative day in 1942 and the other from pulmonary embolism on the 8th post-partum day in 1948. Both these operations had been performed for severe toxemia with non-dilatation of the cervix. Thus, during 64 years, 1,100 sections had been performed with no deaths.

The causes of death in the rest of the cases were: puerperal infection in three, intra-abdominal haemorrhage in one, placenta praevia in one, cardiac disease in one, eclampsia with cerebral haemorrhage in one, tuberculous meningitis in two, and pulmonary embolism in one other case.

The authors state that the incidence of Cesarean section has remained constant over the past 18 years. There has been a steady increase in the use of Cesarean hysterectomy in those cases in which previously ligation of the tubes would have followed the section. Laparotrachelotomy and Cesarean hysterectomy are the two chief types of abdominal delivery practised in this Chicago service. There were about twenty extraperitoneal and a few classical operations. The uterus is always packed for a period of eight hours. The indications tabulated conform to currently accepted ideas.

Maternal morbidity has shown a steady decrease. Only in 5.3 per cent. did the temperature rise to 39° C. (102.4° F.). There has been a constant decrease in the stillbirth and neonatal rate during the 12-year period. The foetal mortality ascribable to the operation itself is less than 1.0 per cent.

Spinal analgesia, especially of the continuous type, is better for the baby than any other type of anaesthesia except local analgesia. Generally speaking, it is not so safe for the mother as inhalation anaesthesia given by a trained anaesthetist after careful preparation.

Death from peritonitis or bacteriemia after Cesarean section as an elective operation must be charged to the obstetrician and the operating-room staff. All methods used for sterilizing solutions, instrument, gloves, drapes, and packs must be checked periodically by the use of living bacteria. The operating-room technique must also be watched for carelessness.

Lilian Raftery

**Intracranial Birth Injury to the Newborn in Relation to the Course and Management of Labour.** (Внутричерепная родовая травма новорожденных в связи с трудами в ведении родов.) Lebedev, A. A. (1950). *Akush. Ginek.*, No. 4, 14.

Statistical data show that intracranial trauma occurs in 1.81 per cent. of all deliveries, and in 1.04 per cent. of premature babies.

The causes and prophylaxis of intracranial trauma of the newborn are summarized. It is stressed that a great number of cases of intracranial trauma result from prematurity. During labour the foetal heart sounds are a good guide to the infant's condition, and vigilant conservatism combined with carefully chosen operative intervention should eliminate a great deal of intracranial trauma. It is particularly stressed that internal version and high forceps delivery should, wherever possible, be replaced by low forceps delivery or Cesarean section. This principle holds true in antepartum. When foetal heart sounds indicate distress, oxygen, glucose, and leptazol should be given to the mother to prevent impairment of the cranial circulation in the foetus.

E. W. Collis


In this investigation changes in both insensible and total weight were observed in patients during labour, delivery, and the puerperium, and during gynaecological operations. In the obstetrical group of thirty women, 24 had vaginal deliveries and six elective Cesarean sections. The weight was determined by means of a Sauter beam balance, set up like an analytical balance with a sensibility of 0.5 g. Nude patients could be weighed to within 1 g.

The total weight loss was estimated by weighing a patient before and after a given procedure. The insensible weight loss was the difference between total loss and that attributable to the weight of all ingesta, excreta, blood loss, baby, placenta, and amniotic fluid. The insensible loss therefore amounted to the water lost in respiration, perspiration, and evaporation from exposed cavities and tissues. Blood loss was determined by the acid haematin method of Dieckmann and Daily.

By weighing each patient at the onset of labour, immediately before the second stage, and after the third stage, it was possible to assign weight loss in the second and third stages to effects of anaesthesia and operative procedures, and not to labour. During labour the average fluid intake was 560 ml. and urinary output 288 ml. The average total weight loss per patient was 1.01 kg., with an average insensible weight loss of 0.608 kg. representing 0.90 per cent. of the total body weight. Average blood loss in Cesarean sections was 618 ml., and nearly twice as much as in vaginal deliveries by means of forceps and episiotomy.

The findings indicate that the insensible weight loss was twice as much in the patient receiving inhalation anaesthesia for vaginal delivery as in the patient given spinal analgesia. Insensible weight loss during labour and delivery lasting 12 hours was 1.062 kg.; this loss may be greatly increased in protracted labour and is an important factor in producing shock where a minimal blood loss has occurred.

In 31 cases gynaecological patients were weighed before and after operation, the fluid intake and output being recorded during the procedure. The average blood loss for abdominal hysterectomy was 167 ml. and for vaginal hysterectomy 743 ml., the blood loss in these latter cases being largely due to the vaginoplasty accompanied by the operation. The insensible weight loss was more than twice as great during laparotomy, owing to evaporation from the abdominal cavity, being about
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0·759 kg. in a gynaecological operation and 0·738 kg. in a Caesarean section.

In conclusion, the authors advocate haemacotocrit readings and weight estimations as a guide in assessing the patient's condition and degree of dehydration.

Jean R. C. Burton-Brown


This valuable and interesting paper gives the details of an extensive series of cases of abortion treated at two large non-teaching hospitals in London over a period of 15 years. Of the 2,665 patients, 86 per cent. of whom were married, in only 28 had abortion been induced for therapeutic reasons; of the remaining cases it was estimated that in about 90 per cent. the abortion was self-induced. The most common method of inducing abortion was by vaginal douching under pressure if the abortion was procured by the woman herself, or by intrauterine catheterization or douching if procured by an abortionist.

In 84·4 per cent. the abortion was incomplete, and for this reason most patients required some variety of active medical or surgical treatment, which was found to be superior to conservative methods. Chemotherapy was not effective until infected retained products had been removed. There was subsequent pyrexia in 84 per cent., but only 123 patients had severe infection (five cases of septicaemia). There were six deaths, three from Clostridium welchii infection, two from corrosive burns, and one from Staphylococcus aureus septicaemia. A further patient (not included in the series) died from soap-bubble embolus, which the author considers likely to be the cause of most sudden fatalities.

Kenneth Bowes


A survey of experience of legal abortion has long been planned by the author, who now describes the experience gained at the Rigshospital, Copenhagen. Other reviews by Danish and Swedish authors are referred to. [There has been a spate of these accounts in Scandinavian literature recently.]

During the years 1942-48, 566 patients were aborted; their ages ranged from 14 to 49 years. There appears to have been a rather larger number annually in the earlier years of the period than latterly. Of the abortions 62·4 per cent. were performed on married women, 27 per cent. on unmarried, 8·3 per cent. on divorcees, and 2·3 per cent. on widows. The indications included psychotic depression states 52·7 per cent., general medical indications (ranging from other psychoses, tuberculosis, and cardiac disease to various obstetrical conditions such as vesico-vaginal fistula and previous difficult labour) 20·3 per cent.; medico-social indications (usually a combination of poor health and circumstances, such as excessive multiplicity) 13·8 per cent., eugenic indications (hereditary diseases, rhesus-factor incompatibility, rubella in pregnancy) 10·8 per cent., and ethical indications (rape, incest, pregnancy under the age of 16) 2·4 per cent. The main indications are different in the various age groups and as between the married and unmarried categories.

It is surprising how relatively late in pregnancy abortion is sought and carried out. Only in 48 per cent. was pregnancy terminated before the end of the third month, and in 83 per cent. before the end of the fourth month. The duration of pregnancy was carefully assessed embryologically rather than by the patient's dates. In broken-up foetuses the author found the following formula useful: \[ f + 24 = \frac{m}{2} \] where \( m \) = the duration of pregnancy in months, and \( f \) = the foot length of the foetus in millimetres.

In only 2·5 per cent. of the patients was sterilization carried out simultaneously. The author holds that this additional operation demands very careful consideration before it is performed.

In 477 cases the cervix was dilated and the uterus emptied. In these cases 10 per cent. had some complication—fever, tearing of the cervix, haemorrhage, thrombosis, or perforation of the uterus. Previous medical treatment by "partergin" helps dilatation. In later cases a uterine bay was used; 32 per cent. had some post-abortion complication. Hysterectomy was performed in cases treated later in pregnancy, or in which sterilization was needed. There were no deaths in the series.


The authors discuss a series of 1,570 consecutive cases of threatened abortion treated by sedatives alone. No endocrine or specific vitamin treatment was given except "the usual multivitamins routinely administered during the antepartum care". Of these patients, in 1,098 the pregnancy continued to term, 440 aborted, and 32 were delivered prematurely. In those continuing to term there was no increased incidence of foetal or placental abnormality, except for the interesting finding of circumpallate placenta in 9·1 per cent. In 26·4 per cent. of cases occurring in primigravidae threatened abortion became complete, and in only 22·7 per cent. of those occurring in women who had had one to four previous abortions. The maximum incidence of abortion and premature labour was in a group of nineteen women all of whose past pregnancies had ended prematurely (31·6 per cent. and 15·7 per cent. respectively).

In 318 cases (72·2 per cent. of the cases of complete abortion) a "blighted ovum" (that is, no embryo, a small amorphous mass, or a stunted embryo with hypoplastic head and limbs) was present; 112 of these women returned in a subsequent pregnancy and, again without specific treatment, 86·6 per cent. of them carried the pregnancy to term. In sixty (13·6 per cent.) of the cases of complete abortion developmental defects of the foetus or pathology of the placenta was found. The remaining 62 cases (14·2 per cent.) of complete abortion are classified as "of unknown etiology". Additional maternal causes included fibroids (21), double uterus (5),
and retroversion (242). In this series threatened abortions in antevverted uteri became complete in 14·9 per cent. of cases; in antevverted uteri the corresponding figure was 21·9 per cent. The type of the initial bleeding appeared to be of prognostic value: where it was brown 55 per cent. of patients aborted, but where it was bright red only 10 per cent. aborted. All patients aborted when they had pain associated with continued bleeding or closely spaced episodes of bleeding. Bleeding began at an earlier stage (8 weeks) if the ovum was blighted than if it was recognizable (16 weeks).

From these pathological studies it is concluded that only 3·9 per cent. of the patients with threatened abortion could, theoretically, have been helped by specific hormone or vitamin treatment. The authors therefore recommend only simple explanation and mildly restricted activities while awaiting the outcome in any particular case. They believe that careful observation of the enlargement of the uterus and prenaegniol estimations are the best guide to prognosis. Treatment designed to lessen the irritability of the uterus is not justified as the irritability is usually caused by abnormal contents.

Alleen M. Dickins


The authors undertook an investigation into self-demand feeding in the newborn in 1946; there were then available only two records, concerning four infants, of practical observations. A "rooming-in" project was established at Yale University, provision being made for babies to remain in company with their mothers, in contrast to institution practice in which babies are fed according to a rigid time-table. Feeding was allowed according to demand, but with at least an hourly interval between feeds.

There were 100 breast-fed and seven bottle-fed infants; the former were given complementary or supplementary feeds of milk-mixture or glucose and the latter complementary feeds, if required. (A complementary feed is defined as administration of any fluid under 1 hour from the last feed and a supplementary feed as one given after an interval of more than 1 hour.) The period covered was 7 complete days from midnight on the day of birth. On the 7th day 59 babies were completely breast-fed, but 41 required additional nourishment. Tables and charts show that among the breast-fed there was an increase in the average number of single feeds per day from the 1st (6·2) to the 4th day (8·6) and then a decrease from the 6th day, to 7·9 on the 7th day; bottle-fed babies, however, reached the highest average on the 3rd day. The number of supplementary and complementary feeds decreased after the 2nd day in the breast-fed. The maximum number of feeds taken in any one day was seventeen. Average time at the breast increased from 15·9 minutes on the 1st day to 21·9 on the 4th.

Under this regimen both breast-fed and bottle-fed babies follow a fairly constant pattern as regards sustenance. The mother can therefore be told that early variations in demand are normal, and that eventually the number of feeds required will approximate to the orthodox.

[Records of test-feeding and of weight are not given: it would be of interest to know whether an initial decrease in birth weight was avoided, as is the case, on occasion, with breast-fed infants born at home.] V. Reade


The first part of this paper describes several factors which appeared to be associated with success or failure in breast-feeding among a national sample of 4,669 infants born in 1946. The information was collected by a survey carried out in 1948, when the infants were 2 years old. This survey was a second one made on a portion of the infants first investigated in 1946 in relation to the first 2 months after delivery, and amplified the material already presented in Maternity in Great Britain (Royal College of Obstetricians and Gynaecologists, London, 1948).

The average duration of breast-feeding was 4·2±0·6 months. At the end of the second month 53 per cent. of babies were still breast-fed, but only 31 per cent. in the 6th month. Success in establishing breast-feeding was highest in mothers confined in hospital, and was better maintained during the early months by the well-to-do. After the 7th month the working-class babies were more often kept at the breast. The risk of conception is significantly lower among those who are breast-feeding their babies, but rapidly increases to average when breast-feeding ceases. A surprising feature was that the monthly rate of weaning was higher among babies taken to welfare centres than among those who never attended. The duration of breast-feeding was approximately the same for each birth order. The survey did not cover genetically determined factors, developmental factors, or nutritional factors.

In the second part of the paper the survival, health, and growth of breast-fed and bottle-fed babies among the 4,669 infants are compared. Differences between the mortality of bottle-fed and breast-fed infants were not found to be statistically significant. As expected, gastro-intestinal infections were common among bottle-fed babies. Bottle-fed babies were found to be more liable to lower respiratory infections during the first 9 months. Breast-fed babies have a relative immunity to measles for the first 2 years of life, but not to whooping-cough, rubella, or chicken-pox. There was a slight relative backwardness of bottle-fed babies, but only of small degree. The main risk of artificial feeding is that of infection, and emphasis is placed on the importance of education of mothers in preparing feeds, sterilizing bottles, and avoiding contamination of milk.

[There is a wealth of detail in this paper, and a critical survey of much previous work which is well worth study in the original. A full bibliography is appended.]

Patrick Steptoe

ABSTRACTS


