Mr. C. Denley Clark's "rocker," as he described it in the *British Medical Journal* (1943, 2, 364).

Fusion of Tibia and Os Calcaneus.—Wing Cmdr. W. D. Coltart, in a short paper which he read at the 1943 annual meeting of the British Orthopaedic Association, mentioned a second-stage operation—fusion of the tibia and the os calcaneus. This is still on trial.

Arthrodesis.—Where expert operative technique is available this should be the treatment of choice. It is needless to prolong treatment by employing reduction first. Arthrodesis should be the only operation. It is the surest way to stabilize the foot and to prevent an ever-worsening disability. It also obviates noticeable shortening of the limb, and to a great degree the limp, which can become almost imperceptible if the patient shortens his walking pace.

A SURVEY OF THE HAEMOGLOBIN LEVELS OF THE POOR CLASSES IN ABERDEEN

BY

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It was shown by Davidson, Fullerton, and Campbell (1935) that iron-deficiency anaemia was common among the poor classes in Aberdeen and that the anaemia was to a large extent caused by the ingestion of diets low in iron. Several somewhat similar surveys have been made recently with the object of determining what effect war conditions have had on the haemoglobin levels of different sections of the population (Davidson *et al.*, 1942, 1943; Mackay *et al.*, 1942). It was felt that it would be particularly useful to carry out such a survey in Aberdeen, since the results obtained in this city could be compared more fairly with the 1935 survey than figures obtained in other areas. Accordingly, the work here briefly reported was started early in 1943 and was completed early in 1944. Throughout the investigation Haldane haemoglobinometers which had been tested by the National Physical Laboratory were used, and the appropriate correction factors have been applied to all the results. The Haldane haemoglobinometers used in the 1935 survey were carefully standardized with the oxygen capacity method.

It soon became apparent that the investigation could not have exactly the same scope as that reported in 1935. Apparently the results of the pre-war survey have been admirably appreciated by the medical officers in charge of mother and child welfare and other clinics, so that it is now impossible at many centres to find a representative cross-section of the population which has not at some time had iron therapy. For this reason we have excluded infants from the present survey. A similar difficulty was encountered at antenatal clinics, where iron is freely dispensed to all women who are judged clinically to be anaemic. Therefore haemoglobin estimations have been restricted to women attending such clinics for the first time. Within the limitations imposed by these circumstances the results of the 1943 survey can be fairly compared with those of 1935, as the subjects belonged to the same social groups, with one exception which will be dealt with separately.

Results

To facilitate comparison most of the results are presented graphically in the accompanying Chart, and only a short description of the results in each age group is necessary.

Children of Nursery-school and School Age (2 to 11 years).—The average haemoglobin levels both in 1935 and in 1943 show in general a gradual rise with increasing age. The results in 1943 are distinctly higher than those of 1935 until the age of 7 years onwards, when the curves converge. Table I shows the percentage of subjects in each decimal range of haemoglobin level. The incidence of anaemia in pre-school children was much less in 1943 than in 1935, but it is rather surprising to

find, among the school-children of the 1943 survey, several instances of mild anaemia, in contrast with its absence in 1935. It may be pointed out that the figures for 1935 are more significant than the small numbers of subjects indicate, since haemoglobin estimations were made at that time in an additional

Chart showing average Hb levels at different ages. The figures represent the numbers of subjects examined.

group of 100 school-children. In only 2 of them was the haemoglobin level less than 80%, and in both it was greater than 70%. This group is not included in the graph or table, as the ages were not noted.

TABLE I.—Incidence of Anaemia in Children

Age (Years)	No.		Haemoglobin Range (%)												Av. Hb			
			40-49		50-59		60-69		70-79		80-89		90-99				100-109	
	1935	1943	1935	1943	1935	1943	1935	1943	1935	1943	1935	1943	1935	1943	1935	1943		
2	19	16	5	—	11	—	11	—	32	—	42	63	—	37	—	—	73.0	87.9
3	16	35	—	—	—	—	12	—	19	6	56	63	12	31	—	—	79.4	84.5
4	9	51	—	—	—	—	—	—	8	44	72	12	20	12	—	—	83.1	86.3
5	14	50	—	—	—	—	2	7	8	64	46	29	44	—	—	—	86.0	89.4
6	8	42	—	—	—	—	—	—	5	75	45	25	41	—	10	87.4	90.8	
7	12	52	—	—	—	—	—	—	6	35	46	58	44	17	4	90.2	87.8	
8	7	75	—	—	—	—	—	—	5	71	37	29	55	—	1	88.0	89.0	
9	8	27	—	—	—	—	—	—	—	38	22	50	70	12	7	91.4	93.9	
10	4	55	—	—	—	—	—	—	2	25	29	50	69	25	—	92.0	92.2	
11	5	54	—	—	—	—	—	—	5	20	19	60	82	20	—	93.0	93.9	

Adolescent Girls (engaged in Industrial Work and attending a Social Club).—The Chart shows a curious discrepancy between the results of the two surveys. In 1935 the average haemoglobin level for the group aged 15 to 19 years was 94.4%, while in 1943 it was 81.3%. The numbers of subjects in these two groups are 133 and 157 respectively, so that the difference is a significant one. The incidence of mild anaemia (haemoglobin less than 80%) was considerably higher in 1943 than in 1935.

Adolescent and Adult Males (engaged in Industrial Work and attending a Social Club).—132 subjects in this group were examined in the 1943 survey; to avoid confusion they are omitted from the Chart. The results are similar to those found in 1935. The average haemoglobin level of the 15-19 years group was 94.1%, while in 1935 it was 98.8%. Significant degrees of anaemia were not found.

Pregnant Women (attending Antenatal Clinics).—The Chart shows that the average haemoglobin level for each age group was distinctly higher in 1943 than in 1935. Moreover, the decrease in the average levels with increase in age which was found in 1935 was absent in the present survey. The percentages of subjects in each decimal range of haemoglobin level are

TABLE II.—Incidence of Anaemia in Pregnant Women

	No.	Haemoglobin Range (%)								Average Hb
		30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	
1935	819	0.5	1	4	12	32	38	12	0.5	78.1
1943	301	0	0	0.3	3.6	31.5	50.5	13.3	0.6	82.6

shown in Table II. In 1935 17.5% of the women examined had moderate anaemia (haemoglobin less than 70%) as compared with only 3.9% in 1943. This discrepancy cannot be attributed to any difference in the duration of pregnancy

between the two groups, since the percentages of subjects examined in each month of pregnancy were approximately the same in 1943 as in 1935. The degree of parity of the subjects in the 1943 survey was slightly less than in 1935, but it has been clearly shown by one of us that this cannot be correlated with the incidence of anaemia in women of the same age groups (Fullerton, 1936).

Nurses.—205 members of the nursing staff of Aberdeen Royal Infirmary were examined. Since a similar group was not included in the 1935 survey the results are presented separately in Table III.

TABLE III.—Haemoglobin Levels of Nurses

Age	No.	Average Hb
18-19	48	86.0
20-24	122	88.8
25-29	15	88.8
30+	20	91.7

No haemoglobin level less than 70% was found, and only 2 were less than 80%.

Discussion

It is not proposed to discuss in detail the possible implications of the results. The striking finding is the improvement which has occurred in the haemoglobin levels of young children and of pregnant women, and it may be deduced that a similar improvement would be found in non-pregnant women. No attempt has been made in the present survey to estimate the iron content of the diets taken by the different groups, but it seems possible that the greater iron content of the national bread may explain, at least in part, the higher haemoglobin levels found in 1943. We are unable to offer satisfactory explanation of the increased incidence of anaemia in girls between the ages of 15 and 19. It is possible that a detailed knowledge of the conditions of their work and its effect on appetite and menstrual loss might throw some light on the problem.

Summary

Haemoglobin estimations in 1,177 subjects belonging to the poor classes in Aberdeen have been compared with the results of a similar survey carried out in 1935. The incidence of anaemia in young children and in pregnant women was less in 1943 than in 1935, but it was greater in girls between the ages of 15 and 19. No significant difference was found in adolescent and adult males.

We are indebted to the Public Health Department of the City of Aberdeen and to St. Katharine's (Y.W.C.A.) Club for facilities that have made this survey possible, and to the Public Health Committee of the Aberdeen Town Council for financial assistance. We wish also to thank Prof. R. S. Aitken for his interest and help.

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Medical Memoranda

"Silent" Mastoiditis or Mastoiditis due to *Str. mucosus capsulatus* of Schottmüller

The following case stresses the importance of bearing in mind the incidence of this type of mastoiditis (called also atypical, asymptomatic, or primary, etc.), and of operating on the patient before he has developed intracranial complications, with a consequent poor prognosis.

CASE HISTORY

On Dec. 5, 1943, a woman aged 38, rather stout but well nourished and in good health, felt that her left ear was "blocked." At the same time she had mild intermittent pain in the left ear, especially at night. There were no other constitutional symptoms. After a week she went to see her doctor, mainly for the deafness and sense of "blockage" of the ear, which he syringed. After three hours she became sick and giddy, and this lasted for half an hour. The pain got worse and spread towards the back of the head. She had had no cold or sore throat preceding this, and no past history of ear trouble. There were still no constitutional symptoms.

On Jan. 28, 1944, she was seen at the out-patient department, where the only abnormal clinical finding was that the left tympanic membrane was pink. Radiographs of mastoids showed them to be

of a very cellular type with definite blurring of the left cells, but no cavity or sequestrum could be observed. On Jan. 31 she was seen again, and was ordered inhalations and guttae acid. boric. c. spirit. On Feb. 7 there was hardly any pain, and she thought she was relieved. On examination there was sagging of the external meatal wall and the drumhead could not be seen. The patient was admitted for observation against her wish, as she thought she was well enough to go home. She was under observation for a week, during which time there was no rise of temperature, pain, discharge, or constitutional disturbance.

On the night of Feb. 13 she developed severe pain again, and had some oedema and tenderness over the mastoid antrum. On the 14th the swelling was more pronounced. The temperature was never above 99° F. Blood count: total W.B.C., 8,400—polys 70%, lymphs 28%, hyalines 2%. The mastoid was opened on Feb. 15, and was found to be of a cellular type, full of pus and granulation tissue, with necrotic bone, and at the same time there was an extradural abscess. Culture of the pus revealed the organism to be pneumococcus Type III. She made an uneventful recovery and was discharged on March 23. Since then she has been in perfect health and has had no recurrent ear trouble.

I wish to express my thanks to Mr. T. P. Gill, honorary surgeon to the hospital, for encouragement to report this case.

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Accidental Haemorrhage in Two Successive Pregnancies within 16 Months

The case of a patient suffering from accidental haemorrhage in two successive pregnancies seems rare enough to merit publication.

CASE HISTORY

Mrs. X, aged 33, was admitted as an emergency case on Jan. 17, 1943. She had had two previous pregnancies and two miscarriages. The first pregnancy, in 1928, was normal, but labour was premature at 8 months, the child weighing 3 lb. This child is alive and well. The second pregnancy, in 1931, went to full time, but the child died of fits at 3 months. Then followed two early miscarriages. The patient did not become pregnant again for 12 years, and was then admitted here.

She was collapsed and pulseless on admission, with jaundiced pallor, blanched mucous membranes, and air hunger. There was gross oedema of hands, face, and legs; the urine was solid with albumin; and the blood pressure was 92/50. The uterus was the size of a 26-weeks pregnancy but should have been 34 weeks by dates (date of expected delivery, early March). It was typically tender and woody, and with no F.H. and no foetal parts. There was a very slight vaginal loss. A blood transfusion was started, the membranes ruptured, and a pad and binder applied. An injection of morphine gr. 1/4 had been given on admission. Spontaneous breech delivery occurred 6 hours later. The placenta was completely infarcted and ploughed up by a large retroplacental clot. There was no post-partum haemorrhage. The child was stillborn and weighed 2 lb. 14 oz. The puerperium was very satisfactory; the anaemia improved with large doses of iron, the blood pressure remained steady at 128/88, and the urine was albumin-free. Birth control advice was given.

In Jan., 1944, the patient, having failed to carry out the birth control advice given, was 3½ months pregnant. Her general condition was good; blood pressure and urine normal. She was advised to attend the clinic regularly. The date of expected delivery was June 4. She was admitted to hospital on May 9 with anaemia and mild toxæmia. The blood pressure was 140/90; there was slight oedema of feet, but no albuminuria. The treatment was absolute rest and large doses of iron.

On May 12 she suddenly collapsed in the antenatal ward with severe abdominal pain. She was cold, clammy, and restless, and the pulse was very poor. There was no vaginal loss. The blood pressure fell to 86/64. The uterus was tender and obviously enlarging with concealed haemorrhage. A continuous drip transfusion was started, morphine was given, and a vaginal examination made. The membranes were not bulging and there was absolutely no vaginal loss. However, it was deemed wiser to try to stimulate the uterus, so the membranes were ruptured and a pad and binder applied. The case seemed hopeless during the next few hours, as there were no pains and the uterus was enlarging rapidly; but, fortunately, contractions did start, and 9 hours after the membranes were ruptured a spontaneous breech delivery occurred. The placenta followed immediately, grossly infarcted with a large retroplacental clot, roughly 6 by 6 by 4 in., and about half a pint of old fluid blood. There was also a clot the size of a hen's egg between the foetal surface of the placenta and the cotyledons. The child was stillborn and weighed 3 lb.

Progress was slow but steady in the puerperium. The anaemia rapidly improved, the blood pressure remained at 118/76, the oedema subsided, and the urine remained clear. The patient was discharged feeling better than she had done for some time. She was advised very strongly to avoid further pregnancies.

Two accidental haemorrhages within 16 months must be a rare occurrence. The toxæmia was never pre-eclamptic in severity, the onset was sudden in each pregnancy, and residual symptoms, except for slight secondary anaemia, were non-existent.

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