

## **SOME MEDICAL OBSERVATIONS ON KIBBUTZ CHILDREN**

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During my work as a general practitioner in the south of Israel during 6 years (1954-1959), I had occasion to observe, from close range, kibbutz children in health and disease within their "artificial" habitat.

Although they do not differ, in my opinion, from other children living in more "natural" conditions, collective education creates a number of problems which the physician is not likely to encounter elsewhere and which leave their imprint on the children in his care as well as on his own work. It is, furthermore, my belief that, as far as Israel is concerned, the kibbutz is the only place where true family medicine can be practised.

The basic idea of the kibbutz, that "Venture in Utopia" (Spiro), is that of an ideologically inspired agricultural collectivity. Private property does not exist, there are no salaries, and food, housing, clothing, as well as cultural amenities are supplied equally to all. Membership is voluntary, and these settlements, of which there are in the country over 200 with a total population of some 80,000 are collective islets within anything but collective surroundings.

Food for the adult members is prepared in the settlement kitchen and meals are served in the communal dining hall, which is also used for meetings, theatre and cinema performances, concerts, and so on.

Living conditions which formerly were substandard, are now quite adequate. The original settlers who founded the kibbutz in 1941, live in small, quite comfortable flats (2 or 4 flats per concrete house). The younger members still live in simpler buildings and have to use common shower-rooms and "public" toilets.

All able-bodied persons over 18 work 8 to 9 hours a day, the higher age groups somewhat less. They have one day's rest per week and 7 to 14 days—according to age—annual leave. The woman in the kibbutz, equal in all respects, has the additional burden of rudimentary housekeeping.

By the end of December, 1959, the population of the settlement was distributed as shown in table I.

TABLE I  
THE POPULATION OF THE SETTLEMENT DECEMBER 1959

	M	F	Total
<b>ADULTS (over 18)</b>			
Settlers' parents (born 1909 or earlier) ..	8	16	24
Original settlers (born 1909-1928) ..	66	72	138
Younger settlers (born 1929-1941) ..	53	42	95
	127	130	257
<b>CHILDREN (under 18)</b>			
Secondary school (born 1942-1947) ..	24	38	62
Elementary school (born 1947-1952) ..	39	27	66
Pre-school (born 1953-1959) ..	26	21	47
	89	86	175
Total ..	216	216	432

The countries of origin (which are not in all cases identical with the countries of birth) are:

Poland	88 settlers
Yugoslavia	42
S.E. Europe	25
Middle Europe	22
England	2
S. America	34
N. Africa	9
Israel	35 (mostly settlers' children over 18)
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Among the settlers, there are 217 Ashkenazi, 31 Sephardi and nine oriental Jews. All children with the exception of two were born in Israel. There are 103 family units in the kibbutz, including seven families of settlers' parents, five incomplete families (one parent only), and three childless couples. Most families have two or three children. There are two sets of twins.

The settlement, which is situated in the southern coastal plain, is a self-contained agricultural unit. The settlers work the fields, orchards and vegetable gardens, raise cattle and sheep and provide the various services from their own ranks (builders, electricians, drivers, mechanics, carpenters, cooks, cobblers, storemen, administrators, etc.). As mentioned before, the settlement has a central kitchen, and also maintains a central laundry.

The veteran settlers arrived in this country some 25 years ago from Galicia (Poland). They come from the typical small town *milieu* there and are the—emancipated—children of orthodox Jewish artisans or businessmen. The Yugoslav group, which is somewhat younger, consists of members of "assimilated", well-to-do, middle-class families.

### Collective Education

This is perhaps the most characteristic and, from a medical point of view, certainly the most interesting feature of kibbutz life. From the beginning, the settlers had rather unorthodox views on the education of their children, which they started to put into practice as soon as this was feasible. They make a tremendous effort to educate the children in accordance with their ideals, even to the point of, by any standard, excessive financial commitments. It will be sufficient to point out that 43 adult persons are fully employed in education services; that all teachers are recruited from kibbutz members; and that the settlement maintains, together with a neighbouring kibbutz of even smaller size, a fully staffed and equipped secondary school.

The children do not live with their parents, but are accommodated in separate quarters in the centre of the settlement. These children's quarters consist of houses of various types, which are adapted for the respective age groups. In general, each house contains three to five sleeping rooms (3 x 4 m.) of three to five beds each, a common dining room, class or play room, showers, and toilets.

A thoroughly trained nurse is in charge of each house. She is responsible for the education and material well-being of its occupants, and acts as a real mother-substitute in practically every respect. The children spend some 20 hours of the day together in or near their house and join their own family only during a few hours in the afternoon.

In accordance with their age, the children move at intervals to new locations:

1. The first year of life is spent in the baby nursery in the care of a specially trained nurse. Breastfeeding is encouraged, and the mother feeds her baby and changes diapers there. If necessary, she is called to her child at night by the night watch who visits all children's houses at frequent intervals.
2. Children aged 1 to 3 live together in groups of six, after their transfer to another type of house.
3. At the age of about 4 years, two or three groups of toddlers are joined together and become one distinct group, which is often given a collective nickname (usually the name of a tree, or a flower) until the age of 18. While the nurse continues to care for the material needs of her group, a part of her educational responsibilities is taken over, at the appropriate ages, by the kindergarten teacher and later the elementary school teacher. The latter takes his group through 4-5 grades and works single-handed as a teacher, friend, adviser, and instructor in kibbutz matters. There are no examina-

tions, no marks, and practically no punishment.

4. The children enter secondary school at the age of 12 or 13, when they also join the compulsory youth movement, whose activities add to the rather crowded timetable. The secondary school is situated well outside the kibbutz and forms a separate, semi-autonomous unit with its own kitchen and dining hall. On completion of the last grade—without matriculation examination—the youths leave for their military service after which they return to their kibbutz as fully-fledged members.

From the age of 8, the children are encouraged to work, at first in and around their own house and in the small children's farm, later wherever their services may be required (kitchen, garden, orchard, etc.). The time allotted for work varies from  $\frac{1}{2}$ –3 hours a day, according to age. At the same time, the children learn, from practice, the basic problems and organization of their kibbutz.

Another characteristic feature of kibbutz education is complete co-education. Boys and girls share the same sleeping quarters and use common shower rooms. By the age of 10, however, a miniature "war of the sexes" can be noticed; interests begin to differentiate, common activities stop, and the opposite sex is thoroughly disliked. Boys and girls start spontaneously to use the showers at different hours of the day; they continue, however, to sleep in the same rooms until the end of their secondary school studies.

Sleeping rooms are almost always overcrowded. The children are left without supervision after being put to bed. The only adult in touch with them during the night is the night watch, whose arrival is often eagerly awaited, particularly during thunderstorms or after some exciting event of the previous day. A strong ambivalence can be noticed in the behaviour of the children—they would like to spend the night with their parents, but would on no account miss the evening fun. They often talk until late in the night, sneak out of bed again and are up to all kinds of mischief—several accidents have happened during these hours.

Many children sleep with their heads covered by a blanket and a light has to be kept burning during the whole night in the corridor. Food is taken to the children's houses from the settlement kitchen by the nurses—on trays or trolleys. More often than not it is lukewarm before reaching its destination and many children develop a lasting dislike for hot food. Also, most of them seem always to be eating in a hurry. During their afternoon stay with their families, they consume considerable quantities of sweets and are often offered quite substantial snacks, particularly where there are grandparents in the family.

The older girls do not use cosmetics (neither do their mothers),

but lotions for acne are in great demand. They prefer shorts and slacks to skirts, and both sexes appear to dislike shoes. They use any opportunity to walk barefoot and, when dancing folk dances, are often seen to remove their footwear.

Smoking and drinking are forbidden by the youth movement until the age of 18, and this is strictly adhered to. There appears also to be a tacit agreement to refrain from sexual intercourse until the same age. As far as the relations between boys and girls of the same age group are concerned—as mentioned before, they share the same sleeping rooms—these do not seem to differ in any way from a normal sib relationship.

The settlement has a swimming pool which is very popular. The school offers light athletics, basketball, handball, and organized excursions; it frowns at soccer, which is nevertheless extremely popular with the boys. Every group above 10 shares two or three bicycles and a few pairs of roller skates.

### **Organization of Medical Work**

The kibbutz has a clinic which is equipped and maintained by the Workers' Sick Fund which provides full medical care for some 70 per cent of the country's population. Facilities exist for minor surgery and physiotherapy, and there is a small laboratory for routine examinations (blood, urine, faeces, and gastric juice).

The medical staff consists of a general practitioner who lives permanently in the settlement and whose practice includes another four villages within a radius of some 6 miles, and a full-time nurse with her part-time help. A health committee deals with all matters affecting the health of the settlement, particularly as far as the budget is involved. This committee maintains liaison with the educational staff, arranges for psychological tests, purchases occasionally required medical apparatus, and cares for convalescents. It provides a home-nurse for patients who are confined to bed; a cook-dietitian; a physiotherapist who is also proficient in orthopaedic gymnastics for children; and an assistant nurse for the dentist who visits the settlement every second week. With the exception of the general practitioner, all are members of the kibbutz.

The nearest general and maternity hospital is some 26 miles away and a Red Shield ambulance is stationed in the settlement. Persons requiring specialists' examinations or special laboratory investigations, including radiography, are sent to the nearest Sick Fund Centre which is located near the hospital.

Surgery hours are held four times a week—twice in the morning from 0800–1000 hrs, and twice in the evening from 1900–2100 hrs. Adults confined to bed are reported by the home-nurse by 1700 hrs

daily in writing, on a loose-leaf diary at the entrance to the surgery. The same procedure may be followed by the children's nurses who, as a rule, are the first persons to detect signs of illness in a child and have to decide whether to tend to the child themselves, send him to the clinic, or request a home visit. The daily round of home visits starts after 1700 hrs and lasts, on an average,  $\frac{1}{2}$ –1 hour. Emergency and night calls are rare.

In this particular kibbutz, no facilities for isolating sick children exist. The child suffering from a febrile disease remains in his children's house and his family visits him there in the afternoon. In special circumstances, the room-mates of the patient move to other rooms, or he himself is taken either to an unoccupied room or to his parents' flat.

During 3 years (1957–59) there were, on an average, 520 consultations per month, which were distributed as in table II.

TABLE II  
DISTRIBUTION OF CONSULTATIONS EXPRESSED IN PERCENTAGE

	Per- centages	Percentages			
		Men	Women	Boys	Girls
SURGERY .. ..	49.5				
New cases .. ..	11.7	26	32	26	16
Return cases .. ..	37.8	29	40	16	15
HOME VISITS .. ..	50.5				
New cases .. ..	11.7	13	13	39	35
Return cases .. ..	38.8	14	17	38	31

While there was no particular difference between the sexes as far as home visits are concerned, women attended the surgery more than men, and boys more than girls. On an average, every person had 13 consultations per year.

All children are given a thorough physical examination at least once a year, the youngest also by a paediatrician, who visits the kibbutz every month or two. Vaccinations against smallpox, TAB, triple and Salk vaccines are given at the appropriate ages with the required boosters. BCG is administered routinely to all babies after birth before they leave the maternity hospital.

The whole population aged over 6 has a chest minograph every 3 years and a radiograph of the pelvis is taken at the age of  $3\frac{1}{2}$ –4 months, in view of the high prevalence of congenital dislocation of the hip in a neighbouring kibbutz (eight cases among 24 children during 6 years).

The children's attitude towards health is positive. Fear is practic-

ally non-existent and they submit willingly to protective inoculations and other painful procedures. They readily comply with medical advice, even if this entails some personal discomfort, and take their pills and bottles conscientiously.

### **Morbidity during 6 years**

The fact that the kibbutz is practically a closed community, the layout of the settlement, the small distances involved, the well organized and centralized health services, and the "health-mindedness" of the population—are all very favourable factors for complete medical supervision and offer a unique opportunity for thorough medical recording.

During the 6 years in question I have recorded continuously all cases of disease in the settlement and there is hardly a case of overt sickness which has not come to my notice. This has, of course, disadvantages, as a criterion must be found for excluding trivial disorders, e.g. minor abrasions, bruises, mild gastro-intestinal upsets, transient muscle pains, afebrile rhinitis, and many other conditions which normally would not come to the notice of the physician at all and have, therefore, no place in morbidity statistics.

The material was obtained from examinations of healthy and sick children, interviews with children's nurses and parents, questionnaires to nurses, reports from my own office nurse, and old records. The usual methods of recording were used—the child's personal card on which all entries were made in a chronological order on the day of occurrence; index cards of diseases by diagnoses; and the official sick fund form. In addition, I have used a "family chart" and charts of the "population pyramid" type which are arranged by sex and age and where every child—or adult—has his or her own permanent place which can be found on a key chart. I have found the family chart very useful for summaries of diseases and groups of diseases, comparisons between groups and other data (height, weight, etc.).

The following pages show the incidence and prevalence of disease among children under 18. After excluding the trivial cases mentioned above, 5,400 morbid conditions were recorded for the whole population during the 6 years in question. Children accounted for 3,418 cases (63.2 per cent of the total: boys 1,744 (32.2 per cent), girls 1,674 (31 per cent). The respective figures are summarized in the following tables. The morbidity figures have been classified in 14 diagnostic groups, in accordance with the usage of the Workers' Sick Fund. Included are all diseases which either started during the 6 years' period (1954–59) or, if earlier, were still active; and some disorders or deviations which were revealed in the course of routine

examinations (functional heart murmurs, goitre, cryptorchism).

As the figures are small, no attempt has been made at statistical elaboration. However, as this summary is, as far as I know, the first attempt to describe the morbidity in a kibbutz during several consecutive years, the figures might be of some value to rural practitioners working in similar conditions.

#### *Vital statistics*

*Births:* 45 (27 boys, 18 girls). In accordance with the general policy in Israel, all deliveries were in hospital. There were no stillbirths, no peri- or neonatal deaths.

1 forceps delivery, 1 caesarean section, 2 podalic versions.  
17 spontaneous abortions.

*Deaths:* 1 girl, aged 9 years, died from acute glomerulonephritis in 1959.

*Hospital admissions 1954–1959:* 40 children were admitted to hospital on 54 occasions—nine children had more than one admission (23 times on account of 14 diseases). There were 23 surgical interventions (16 boys, 7 girls). The hospital admission rate for children was five per cent (for adults 13 per cent, including deliveries), see table III and IV.

TABLE III  
AGE OF ADMISSION TO HOSPITAL

<i>Years</i>	<i>Children</i>	<i>Boys</i>	<i>Girls</i>
0– .. .. .	2	1	1
1– .. .. .	7	3	4
5– .. .. .	21	14	7
10– .. .. .	12	10	2
15–18 .. .. .	12	4	8
	54	32	22

#### *Remarks on the morbidity by diagnostic groups*

As in most other statistics, the highest morbidity figures were found in the following groups: fever and infectious diseases, upper respiratory diseases, trauma, and gastro-intestinal. On the other hand, the incidence of cardiovascular disorders was rather low. Many common diseases showed a predilection for certain individuals and families, and one sex or the other, which appears to point to a “constitutional” factor, as the external conditions are identical for all children.

#### **Group 1. Fever**

Fever of undetermined, probably viral, origin is a frequent occurrence in the kibbutz. The accompanying signs are cervical lymphadenitis, with or without



TABLE IV  
HOSPITAL ADMISSIONS BY DIAGNOSTIC GROUPS

<i>Diagnostic groups</i>	<i>Boys</i>	<i>Girls</i>	<i>Total</i>	<i>Remarks—operations</i>
1. Infectious and parasitic	8	3	11	
5. Upper respiratory ..	4	3	7	4 adenoidectomies 2 antrotomies
6. Gastro-intestinal ..	4	7	11	3 herniotomies
7. Urogenital .. ..	3	3	6	1 hydrocele 1 plastic repair of cong. malformation
8. Locomotor .. ..	2	3	5	1 old osteomyelitis 1 giant cell tumour 2 cong. dislocation of hip (same girl)
9. Neuropsychiatric ..	2	2	4	
10. Eyes .. .. .	4	—	4	1 boy 3 operations for traumatic cataract 1 strabism
11. Skin .. .. .	1	—	1	Excision of naevus
12. Trauma .. ..	4	1	5	3 fractures—open reduction
Total ..	32	22	54	23 operations

mild upper respiratory involvement. Often, they are absent altogether. The incidence and rapidity of spread appear to be higher than elsewhere, probably because of the close contact of the children and the overcrowding in their quarters.

The males and females are equally affected, but children suffer four and half times more often from attacks of non-specific fever than adults. The younger the child, the more frequent are the spells of fever of which every child has, on an average, two per year—irrespective of its duration. Usually, the episode is over within three days.

**Group 2. Infectious and parasitic diseases**

No case of active tuberculosis was recorded during the six years. There were only three new cases of intestinal amoebiasis which were very mild. This small number is no doubt due to the much improved sanitary conditions. Pinworm (oxyuris) infestation is frequent among the toddlers. As is to be expected, the entire group is affected, and it is no easy task to get rid of the worms.

A few contagious diseases appeared sporadically: one roseola infantum (?), one encephalitis of unknown origin, three herpes zoster unconnected with chicken-pox, and four diphtheria-like infectious mononucleosis.

Epidemics of infectious diseases will be dealt with separately.

**Group 3. Upper respiratory diseases**

Commonest in this group are tonsillitis and otitis. The latter affects mainly the younger age groups, and both disorders have a predilection for certain individuals (or *vice versa*?). Thus:

17 boys had 27 episodes of otitis, 20 girls had 25 of these; 21 boys had tonsillitis 40 times, 37 girls 70 times.

Tonsillitis is commoner among girls.

TABLE V  
MORBIDITY OF CHILDREN BY GROUPS OF DISEASE AND COMPARISON WITH ADULTS

Group	Boys	Girls	Total	Per-centage	Adults	Total	Percentage of total morbidity
1. Fever, unspecified ..	882	858	1740	51.0	396	2136	39.5
2. Infectious and parasitic .. ..	419	396	815	23.8	217	1032	19.0
3. Upper respiratory ..	92	136	228	6.7	150	378	7.0
4. Trauma .. ..	112	68	180	5.2	169	349	6.5
5. Gastro-intestinal ..	74	62	136	4.0	179	315	6.0
6. Gynaecological ..	—	3	3	0.1	233	236	4.3
7. Skin .. ..	41	32	73	2.1	139	212	4.0
8. Locomotor .. ..	10	7	17	0.5	165	182	3.4
9. Bronchopulmonary ..	51	35	86	2.5	61	147	2.7
10. Cardiovascular ..	17	18	35	1.0	87	122	2.3
11. Constitutional, allergy	11	32	43	1.2	77	120	2.2
12. Neuropsychiatric ..	7	8	15	0.5	48	63	1.1
13. Urogenital .. ..	17	4	21	0.6	39	60	1.1
14. Eyes .. ..	11	15	26	0.8	22	48	0.9
	1744	1674	3418	100.0	1982	5400	100.0
Percentage of total morbidity ..	32.2	31.0	63.2				

13 children (nine boys, four girls) had, at one time or another, their tonsils and adenoids removed, four of them during the six years in question.

#### Group 4. Trauma

This group will be dealt with separately.

#### Group 5. Gastro-intestinal diseases

Acute gastro-enteritis, which appears mainly in the hot summer months, was generally mild and responded well to dietary measures with or without oral streptomycin. There were two cases of toxicosis. Three children had a herniotomy performed. Appendicitis was conspicuous by its absence. Eight children received orthodontic treatment.

#### Group 6. Skin diseases

Tinea pedis and cruris, which are frequent among the adult population, were rare in children. Possibly the use of common showers was responsible for the spread among adults. Acne is frequent among pubescent girls. Boys suffer more from non-allergic dermatoses and purulent affections of the skin.

#### Group 8. Diseases of the locomotor system

With the exception of torticollis, diseases of this group are rare in children. However, many minor "static" deviations of the skeleton were observed during routine examinations:

	Boys	Girls	Total
Deformities of the vertebral column	41	36	77
thorax	40	22	62
knees, tibiae	40	53	93
feet	62	65	127

Boys had more deformities of the chest, and genua or tibia vara; girls had more genua valga and pedes cavi. Signs of rickets in infants were found in only three children during 1954-59. There is a strong tendency towards spontaneous regression of these minor defects.

Congenital dislocation of the hip was diagnosed on three occasions.

#### Group 9. Bronchopulmonary diseases

Two boys suffer from bronchial asthma, ten had attacks of spastic bronchitis.

TABLE VI  
MORBIDITY OF CHILDREN, BY DISEASES

	<i>Boys</i>	<i>Girls</i>	<i>Total</i>	<i>Boys</i>	<i>Girls</i>	<i>Total</i>
1. Fever .. .. .	882	858	1740			
2. Infectious and paras. (q.v.)	419	396	815			
3. Upper respiratory .. .. .	92	136	228			
Tonsillitis .. .. .				40	70	110
Otitis .. .. .				27	25	52
Adenoids .. .. .				14	21	35
Affections of the larynx				8	12	20
Sinusitis .. .. .				2	5	7
Affections of the nose ..				1	3	4
4. Trauma .. .. .	112	68	180			
Wounds .. .. .				57	31	88
Contusions .. .. .				20	15	35
Fractures .. .. .				17	7	24
Dislocations .. .. .				7	7	14
Combustions .. .. .				3	4	7
Commotion .. .. .				1	1	2
Injuries to the eyes .. ..				2	2	4
Miscellaneous .. .. .				5	1	6
5. Gastrointestinal .. .. .	74	62	136			
Acute gastroenteritis .. ..				62	55	117
Diseases of the mouth .. ..				8	5	13
Hernia .. .. .				3	-	3
Others .. .. .				1	2	3
6. Gynaecological .. .. .		3	3			
7. Skin .. .. .	41	32	73			
Purulent conditions .. .. .				23	15	38
Non-allergic dermatoses ..				10	2	12
Other conditions .. .. .				8	15	23
8. Locomotor .. .. .	10	7	17			
Torticollis .. .. .				8	4	12
Others .. .. .				2	3	5
9. Bronchopulmonary .. .. .	51	35	86			
Hilar calcifications, etc. ..				23	21	44
Pneumonia .. .. .				15	9	24
Spastic bronchitis .. .. .				7	3	10
Bronchial asthma .. .. .				2		2
Others .. .. .				4	2	6
10. Cardiovascular .. .. .	17	18	35			
Functional murmurs .. .. .				16	17	33
Others .. .. .				1	1	2
11. Endocrine, blood, allergy ..	11	32	43			
Juvenile goitre .. .. .				1	24	25
Blood .. .. .					2	2
Non-respiratory allergy .. ..				10	6	16
12. Neuropsychiatric .. .. .	7	8	15			
Organic diseases of the CNS ..				2		2
Headache, all causes .. .. .				4	6	10
Vertigo, all causes .. .. .				1	2	3
13. Urogenital .. .. .	17	4	21			
Nephritis .. .. .					1	1
Pyuria .. .. .					3	3
Malformations .. .. .				1		1
Hydrocele .. .. .				2		2
Cryptorchism .. .. .				14		14

TABLE VI (cont.)

	Boys	Girls	Total	Boys	Girls	Total
14. Eyes .. .. .	11	15	26			
Errors in refraction .. .. .				2	10	12
Strabism .. .. .				6	2	8
Others .. .. .				3	3	6
	1744	1674	3418			
Percentage of total morbidity .. .. .	32.2	31.0	63.2			

Hilar calcifications and other roentgenological signs of a similar significance were found during routine examinations or check-ups of tuberculosis contacts in 44 children. Pneumonia, which was diagnosed 24 times, was mild and occurred with greater frequency in boys; five occurred after measles, three after ingestion of kerosene; two boys had pneumonia twice.

#### Group 10. Cardiovascular disease

Thirty three children had functional heart murmurs. One girl, aged 13, suffers from congenital valvular disease. One boy developed a bundle branch block when he had Asian influenza. There was no case of rheumatic fever during the six years of the survey.

#### Group 11. Constitutional, endocrine, allergic diseases

One boy and 24 girls were found to have juvenile goitre. Anaemia appeared in one girl after a severe post-tonsillectomy haemorrhage. One girl had foetal erythroblastosis due to ABO incompatibility.

Prior to 1954, 35 allergic manifestations in children had been recorded. During 1954-59, another 35 of these appeared; 16 concerned the respiratory organs and 19 the skin (urticaria, Quincke's oedema, etc.). The worst offenders were penicillin, salicylates, and tetanus antitoxin. One girl had a severe bronchospasm after being stung by a hornet. One boy developed a generalized vaccinia after his first smallpox vaccination.

#### Group 12. Neuropsychiatric diseases

One boy suffers from attacks of *grand mal* epilepsy (had "breath-holding spells" in his infancy). Two boys suffer from typical migraine and one boy is institutionalized on account of cerebral palsy.

#### Group 13. Diseases of the urogenital system

One girl, aged 9, died from acute glomerulonephritis—the only case of death among children during six years. One boy was operated for a congenital malformation of the renal pelvis, another boy for hydrocele. 14 boys born between 1949 and 1957 had cryptorchism. Another 14 older boys had adjusted themselves spontaneously before they reached the age of 10. All male infants are circumcised on the 8th day after birth.

#### Group 14. Diseases of the eyes

One girl has a congenital polar cataract. Errors in refraction are commoner among girls, strabism among boys. Injuries to the eyes are dealt with in group 4.

#### Family incidence of disease

Several common diseases showed a predilection for certain individuals whom they attacked several times. Moreover, a considerable proportion of these persons belonged to a relatively small number of families. This familial trend is shown in the list below which concerns only the complete families with two or more children,

as far as they were permanent residents of the settlement during the 6 years:

1. *Hilar calcifications*  
55 per cent of all cases appeared in 29 per cent of the families (42 out of 76 cases, in 18 out of 62 families).
2. *Fever (3 years—1957–59)*  
30 per cent of all cases in 20 per cent of the families (329 out of 1,079 cases in 11 of 62 families).
3. *Tonsillitis, otitis (3 years—1957–59)*  
62 per cent of all cases in 24 per cent of the families (52 out of 84 cases, in 15 out of 62 families).
4. *Acute gastroenteritis*  
70 per cent of all cases in 42 per cent of the families (78 out of 113 cases, in 26 of 62 families).
5. *Allergic manifestations*  
40 per cent of all cases in 30 per cent of all families (56 out of 141 cases, in 20 out of 66 families).
6. *Accidents*  
51 per cent of all accidents in 29 per cent of the families (103 out of 201 accidents, in 15 of 51 families).
7. *Spastic bronchitis, pseudocroup and nocturnal enuresis*  
63 per cent of the respiratory disorders and 52 per cent of the bedwetters in 20 per cent of the families (24 out of 38 respiratory cases, and 11 out of 21 enuretics, in 13 out of 65 families).

This accumulation can be readily explained in the case of hilar calcifications, which tend to occur in family contacts of tuberculous patients. In the other cases, however, this phenomenon cannot be easily explained, even in terms of allergic disposition, accident proneness, and the like. Again, the constitutional factor must be invoked—or else the influence of the family situation must be extremely strong to make itself felt so thoroughly, as all the children spend only comparatively little time within the circle of their natural family.

### Epidemics

Prior to 1954, most children born in 1944 or earlier had had measles (1942–3, 1948), chicken-pox (1943, 1951) and mumps (1953). Thirty-nine had had bacillary dysentery, and nine infectious hepatitis.

In 1952, scarlet fever, diphtheria, and whooping cough appeared simultaneously in the settlement. It is noteworthy that, although several children had scarlet fever and whooping cough, others scarlet fever and diphtheria, none had diphtheria together with pertussis. The respective figures, according to the records, were:

Scarlet fever	49 children
Diphtheria	17
Whooping cough	29
Scarlet fever and diphtheria	14
Scarlet fever and whooping cough	10
Diphtheria and whooping cough	—

During the period 1954–1959, there were several outbreaks of

infectious diseases which are summarized in table VII below. The first to appear was chickenpox which, owing to immediate quarantine of the affected group, remained confined to one house (kindergarten). The same group of children bore the brunt of an attack of the next disease—acute poliomyelitis, the clinical manifestations of which were:

Paresis of the facial nerve	2 children
Meningeal irritation	15
Fever only	19
Fever and diarrhoea	6
Diarrhoea only	8
Sore throat with fever	6

Poliovirus type I was recovered from the faeces of several children and a few adults. Some weeks later, the same age group were the exclusive victims of german measles (towards the end of 1954).

After an interval of 9 months, mumps followed, with 12 cases of meningo-encephalitis. After that, a few cases of bacillary dysentery (Sonne) and infectious hepatitis which could be localized by isolating the whole group. 1957 brought an epidemic of measles, with five cases of mild pneumonia; and a very small outbreak of bacillary dysentery (Flexner). Asian influenza visited the settlement in February 1958, considerably later than in most other parts of the country. In June of the same year, a grippe-like outbreak occurred, the probable causative agent of which was identified as Coxsackie virus type, B4. Apart from fever (100 per cent) and cervical lymphadenitis (60 per cent), the following signs were found:

Tonsillitis (yellow dots)	4 children
Vomiting	5
Gastro-enteritis	2

There were 20 relapses and three double relapses. Coxsackie B4 was isolated in 12 out of 13 throat swabs and stool specimens. In December 1958, chicken-pox appeared again; and an overlapping influenza-like outbreak, similar to that presumably caused by Coxsackie B4, concluded the epidemics in April 1959.

In general, the outbreaks were mild and offered no diagnostic or therapeutic difficulties. Only two children were hospitalized—a boy, aged 6, on account of mumps meningo-encephalitis, and another boy aged 16 who developed a bundle branch block after going down with influenza.

An outbreak of varicella in the kibbutz is described in detail to show the spread of the disease within the settlement. In December 1958, some two weeks after the school children had been to theatre performances in two different towns, the outbreak started almost simultaneously in three houses:

- A. On 14 December, two children aged 14 (both externists from a neighbouring kibbutz) went down with the disease. The

buildings of the secondary school are situated outside the kibbutz and the disease spread in due time to all susceptible secondary school pupils, ten in all, without infecting other children.

B. On 16 December, two children in grade 1 (6 years) developed the typical rash and so did, within a week, another ten children living in the same house.

C. On 19 December, a girl in grade 6 (aged 12) fell sick.

No attempt was made to isolate the sick children. The living quarters of the youngest age groups (born 1957-58), however, were sealed off and the occupants put in quarantine.

The further development proceeded in a, for the kibbutz, typical manner. The disease spread within the affected house, attacking

TABLE VII  
SUMMARY OF OUTBREAKS OF INFECTIOUS DISEASES—CHRONOLOGY, INCIDENCE,  
AND INFECTIOUSNESS

	<i>Date</i>	<i>Boys</i>	<i>Girls</i>	<i>Total cases</i>
1. Chicken-pox .. ..	5.54	10	5	15
2. Acute poliomyelitis .. ..	25.8-1.10.54	32	22	54
3. German measles .. ..	11.54	6	3	9
4. Mumps .. ..	16.8.55-16.1.56	40	35	75
5. Bacillary dysentery .. ..	6.56	1	1	2
6. Infectious hepatitis .. ..	12.56-1.57	2	3	5
7. Measles .. ..	6-8.57	58	58	116
8. Bacill. dysentery .. ..	11.57	1	2	3
9. Influenza (Asian) .. ..	9.2-21.3.58	69	75	144
10. Cocksackie B4 .. ..	26.6-5.8.58	52	46	98
11. Chicken-pox .. ..	14.12.58-19.4.59	60	51	111
12. "Influenza" .. ..	18.2-6.4.59	51	59	110
		382	360	742

In addition, 54 "externist" children and 180 adults were sick.

	<i>At risk</i>			<i>Infected</i>			<i>Percentage</i>		
	<i>B</i>	<i>G</i>	<i>=</i>	<i>B</i>	<i>G</i>	<i>=</i>	<i>B</i>	<i>G</i>	<i>=</i>
1. Chicken-pox (quarantine) ..	10	5	15	10	5	15	100	100	100
2. Acute poliomyelitis ..	48	48	96	32	22	54	66	46	56
3. German measles (quarantine) ..	10	6	16	6	3	9	60	50	55
4. Mumps .. ..	65	65	130	40	35	75	61	53	57
6. Infectious hepatitis (quarantine) ..	8	7	15	2	3	5	25	43	34
7. Measles .. ..	64	64	128	58	58	116	90	90	90
9. Influenza (Asian) ..	81	86	167	69	75	144	85	87	86
10. Cocksackie B4 .. ..	83	86	169	52	46	98	62	53	57½
11. Chicken-pox 1958-59 ..	60	52	112	60	51	111	100	98	99
12. "Influenza" .. ..	88	87	175	51	59	110	58	68	63

all susceptible inmates. From there, sibs and playmates carried the infection to their own quarters, where the whole process was repeated.

Altogether, there were 120 children at risk and 119 contracted the disease. The exception was, by the way, one of my daughters, who, acting on "inside information", deliberately avoided danger spots.

The epidemic lasted 18 weeks, but more than 90 per cent of the children had had the disease by the end of the ninth week. The remaining ten were the youngest ones who had been kept in quarantine—unsuccessfully, as it appeared.

In 66 children, the source of infection was known, in many others it could be surmized with much probability. In six instances, it was impossible to decide whether the infecting child was a roommate or a sib from another house, the time interval between exposure and the appearance of the rash being the same—13–14 days. There were 184 exposures and 119 transmissions—the exposure attack rate (Hope–Simpson) being 64 per cent.

### The Question of Quarantine

In general, the spread of infectious disease in the kibbutz follows a fairly uniform pattern. Primary infection is brought about by such contacts as a guest or a child returning from a visit to relatives. The infection can start simultaneously from several foci, as in the case of chicken-pox.

The spread within the affected children's house cannot, as a rule be prevented, as no real facilities for isolation within the house exist. As mentioned before, the sick child can be allotted a separate room, or taken to his parents' room (where, however, he may spread the disease to his sibs). This is resorted to only in exceptional circumstances. The only effective way is to seal off the house in question—no susceptible person is allowed to enter or leave it; the food is brought to the house in separate containers and linen is laundered separately. This must be done immediately upon the appearance of the first signs and rigorously enforced, which requires the constant vigilance of the nurse in charge and the full co-operation of the families and, above all, the children themselves.

This procedure was tried successfully on three occasions (chicken-pox, german measles, and infectious hepatitis). In no instance did the disease spread beyond the sealed-off house.

There are, however, some groups of contagious disease where quarantine is bound to be ineffective:

1. Diseases which spread very rapidly and attack many sections of the population simultaneously, e.g., Asian influenza.



2. Diseases the true nature of which is revealed only when presumably many persons have already been infected, e.g., poliomyelitis, which started as a gastroenteritis and appeared later in the guise of a mild upper respiratory infection, well before the appearance of meningeal or paralytic signs.

3. Diseases of comparatively low infectiousness, e.g., mumps. The progress of the epidemic is so slow that the vigilance of the nurses and the self-discipline of relatives and children tend to break down, and the previously enforced isolation has to be abandoned.

On the whole, even if the spread of some diseases can be prevented, a return visit cannot. It is, furthermore, certainly desirable to let the girls have their german measles and the boys their mumps at an early age. I have, therefore, during the last 4 years confined myself to isolate the houses of the youngest children only (up to 2 years). More than that I would undertake only in the case of a few diseases, like typhoid or infective hepatitis; or in the case of one infectious disease following too closely in the wake of another, to give the children time to recover.

### Accidents

During six years there were 349 accidents of sufficient severity to entail absence from work or school during at least 3 days. 51.6 per cent of these concerned children (32.2 per cent boys—19.4 per cent girls). One hundred children were involved in 180 accidents (tables VIII and IX).

TABLE VIII  
DISTRIBUTION OF ACCIDENTS

	<i>Cases</i>	<i>Percentage of all cases</i>	<i>Individuals</i>
<b>Boys</b>			
Secondary school .. ..	32	29	15
Elementary school .. ..	67	60	33
Pre-school .. ..	13	11	9
	112	100	57
<b>GIRLS</b>			
Secondary school .. ..	25	36	16
Elementary school .. ..	35	52	21
Pre-school .. ..	8	12	6
	68	100	43
	180		100

As is to be expected, boys have considerably more accidents than girls and the smaller children have less than the older ones. Also, accidents happen to certain individuals on repeated occasions—here again, boys are in the majority—and spare others altogether (see table X).

TABLE IX  
THE EFFECTS OF 180 ACCIDENTS

	<i>Cases</i>	<i>Boys</i>	<i>Girls</i>
Wounds .. .. .	88	57	31
Contusions .. .. .	35	20	15
Fractures .. .. .	24	17	7
Distorsions .. .. .	13	6	7
Combustions .. .. .	7	3	4
Injuries to eyes .. .. .	4	2	2
Others (poison, hornet stings, foreign bodies) .. .. .	9	7	2
	180	112	68

TABLE X  
SHOWING THE INCIDENCE OF ACCIDENTS PER CHILD

<i>Children</i>	<i>Boys</i>	<i>Girls</i>	<i>Number of injuries per child</i>
75	32	43	No traumatic injury at all
47	20	27	1 injury each
35	23	12	2
10	8	2	3
7	5	2	4
1	1	—	5
175	89	86	180

As mentioned earlier, certain families were more affected. 51 families with 2 or more children, consisting of 224 family members, had 201 accidents involving 113 persons. 15 of these families (29 per cent, had 5 or more accidents each, totalling 103 (51 per cent) which occurred to 50 (22 per cent) of their members.

*Accidents during 1959*

During 1959, the nurses were requested to record all accidents, including the most trivial ones. The criterion was any sign of injury; or accidents which, even if they did not produce objective signs could have had serious effects, e.g., falls from considerable heights, moving vehicles, and so on. In this manner, a total of 174 cases were recorded:

Boys	105 cases involving	55 children out of	84
Girls	69	40	87
	<u>174</u>	<u>95</u>	<u>171</u>

Distribution by calendar month:

January	11 cases	July	18 cases
February	7	August	14
March	11	September	12
April	14	October	23
May	22	November	14
June	16	December	12

## Age distribution:

	<i>Boys</i>	<i>Girls</i>	<i>Total</i>
Secondary school	9	9	18
Elementary school	67	45	112
Pre-school	29	15	44
	105	69	174

## Distribution by site:

Lower extremities	76
Upper extremities	46
Head and face	30
Neck, chest, abdomen (2 each)	6
Eyes, ears (2 each)	4
Back	1
Kerosene ingestion	2
No external sign	9
	174

## Distribution by mechanism:

Fall (excluding sport)	64
Injury by objects (knives, etc.)	51
Abrasions (walls, soil)	19
Burns	4
Chemicals	3
Animals (dogs, cats)	3
Sport injuries (ball, bicycle)	30
	174

### Habits and Character Traits

In September 1960, the nurses of all children's groups over 4 and the school teachers were requested to complete a questionnaire concerning the habits and some character traits of the children in their care. Nine nurses and five teachers complied. The answers varied a great deal, according to the personality of the educator, wherever two persons (nurse and teacher) assessed the same child independently.

Teachers produced more answers than nurses (317 and 288 for the elementary schoolchildren respectively). Only 192 answers (66 per cent of the nurses; 60 per cent of the teachers' answers) tallied (table XI).

TABLE XI  
NUMBER OF CHILDREN ASSESSED FOR BEHAVIOUR TRAITS

	<i>Number of children assessed</i>				<i>Number of entries</i>			<i>Number of entries per child</i>		
	<i>Age</i>	<i>Boys</i>	<i>Girls</i>	<i>Total</i>	<i>Boys</i>	<i>Girls</i>	<i>Total</i>	<i>Boys</i>	<i>Girls</i>	<i>Total</i>
Secondary school ..	13-18	24	37	61	34	43	77	1.4	1.2	1.3
School elementary ..	7-13	42	36	78	270	213	483	6.4	5.9	6.2
Kindergarten ..	4-5	6	4	10	44	31	75	7.3	7.7	7.5
		72	77	149	348	287	635	4.3	3.7	4.8

TABLE XII  
SUMMARY OF ANSWERS TO QUESTIONNAIRE ON BEHAVIOUR BY GROUPS

	<i>Boys</i>	<i>Girls</i>	<i>Total</i>
<b>Group A</b>			
1. Thumb sucking .. .. .	13	11	24
2. Nail biting.. .. .	10	10	20
3. Rhymical movements, tics	17	11	28
4. Enuresis .. .. .	5	5	10
5. Masturbation .. .. .	16	12	28
6. Stuttering .. .. .	2	—	2
7. Other disorders of speech	4	1	5
8. Learning difficulties .. ..	15	8	23
<b>Group B</b>			
1. Depression .. .. .	11	5	16
2. Anxiety, fear .. .. .	5	8	13
3. Night terror .. .. .	11	8	19
4. Somnambulism .. .. .	—	1	1
5. Sleeplessness .. .. .	6	6	12
6. Excessive sleeping .. .. .	4	5	9
7. Compulsion .. .. .	2	2	4
<b>Group C</b>			
1. Fatigue .. .. .	9	19	28
2. Nausea, habitual vomiting	1	4	5
3. Anorexia .. .. .	16	11	27
4. Overeating.. .. .	11	12	23
5. Food faddism .. .. .	1	2	3
6. Geophagia. . . . .	1	—	1
7. Lack of cleanliness .. .. .	20	8	28
8. Overcleanliness .. .. .	4	14	18
9. Clumsiness .. .. .	22	11	33
<b>Group D</b>			
1. Restlessness, lack of concentra- tion .. .. .	32	24	56
2. Temper tantrums .. .. .	22	20	42
3. Aggression .. .. .	26	15	41
4. Oversensitivity .. .. .	27	24	51
5. Excessive crying .. .. .	16	18	34
6. Timidity, reticence .. .. .	16	17	33
	348	287	635

The results are summarized in table XII above, by groups according to their reliability, the criterion for which was the number of identical answers produced by two educators, the absence of discrepancies after comparison with previous assessments of the same children and, in some cases, my own impression.

- A. Group A is reliable, dealing mostly with information which can be objectively verified, perhaps with the exception of masturbation the true incidence of which it is notoriously difficult to estimate.
- B. Group B is on the whole reliable, too, with the exception of depression and anxiety.

- C. Group C: although this deals mainly with "physiological" disturbances, the answers showed many more discrepancies than the two previous groups, as the ideas a person has about anorexia, fatigue, cleanliness, and so on, are bound to vary in accordance with the personal standards of the educator.
- D. Group D: here personal bias showed most.

In general, boys had more entries than girls. Among the former there were more rhythmical movements and tics, speech disorders, learning difficulties, lack of cleanliness, clumsiness, restlessness with lack of concentration, aggression, and depression. Among the girls, there was more anxiety and fear, fatigue, excessive crying, excessive cleanliness, timidity, and overeating.

Among the younger children there was more thumb sucking, night terrors, timidity, excessive crying, temper tantrums, and aggression.

### Conclusion

A person who has decided of his own free will to become a member of a kibbutz will have to give up a great deal of his privacy and personal comfort and to forego quite a few luxuries of everyday life. Occasional doubts and regrets probably occur but are quickly overcome—otherwise the individual would leave the settlement.

Yet, this kind of life has its compensation: its proponents know they are doing something worth while. This fact, together with the total absence of individual worries about money, work, social status, opportunities for the education of the children as well as the knowledge that all material provisions will continue without interruption also in case of sickness, invalidism and old age, modify deeply the contents of the medical practice.

There is no juvenile delinquency, no malingering, and no compensation neurosis. Welfare problems, which are distressingly common in most other types of practice, are absent. The importance of preventive medicine is appreciated, and red tape is cut down to a minimum.

A doctor practising in a kibbutz is on call 24 hours a day, the whole year long. But, if he is temperamentally suited for this kind of work, he can combine curative and preventive medicine as nowhere else. Routine examinations are easily organized, vaccination programmes can be fully implemented. He can advise on matters of sanitation and hygiene and, being a "participant observer", has first-hand knowledge of living conditions, food habits, working conditions and psychological problems of all patients under his care.

It is my belief that much valuable information could be gathered by the collection and pooling of data obtained from kibbutz practices.

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## APPENDIX

## AVERAGE HEIGHT AND WEIGHT IN 141 CHILDREN BORN 1942-1954 (JUNE 59)

Age	Boys				Girls			
	Number of children	Weight kg.	Height cm.	Chest mean cm.	Number of children	Weight kg.	Height cm.	Chest mean cm.
17-	1	63.5	174.5	88	2	61	165	86.7
16½-	1	58.5	169	87.5				
16-	2	57	167.2	86	6	53.8	161.4	83.8
15½-					1	45	154	77
15-	4	48.3	160.6	82.6	4	48.2	156.8	82.6
14½-	4	51	163	82.6	1	50	152.5	82
14-					5	51.9	158.4	82.1
13½-	3	43.3	156.3	74	6	50.7	158.2	80.4
13-	3	36.6	144.5	72.7	4	39.3	148.5	75
12½-	1	34.5	145	70.5	4	40.7	151.3	75.6
12-	2	39	152	73	3	42.3	149.3	75.3
11½-	3	32.2	139	69	2	43.7	153	74.8
11-	5	36.2	140.8	69	5	35.9	143.3	71
10½-	2	32.5	135	70.7				
10-	4	28	130	65.5	2	32.5	136	68
9½-	3	31.5	136.6	68	4	35.7	136.8	69.5
9-	4	26.3	134.6	63	4	21.5	130.5	61.3
8½-	2	26.3	128.3	65.8	4	28.6	132	63.7
8-	3	28.6	131.6	61.8	1	31	126	64
7½-	6	23.5	125	61.6	4	23.5	120	60.3
7-	3	22.1	123.8	62.1	1	25.5	127.5	58
6½-	4	21	116.5	57	5	22.2	115.4	59.4
6-	4	19.3	113	58	3	17	109	56
5½-					4	20.2	113.2	57.2
5-					2	16.6	103.5	53.7

  

Complexion:	Boys	Girls	Total	Cephalic index: (b. 1942-1951)	Boys	Girls	Total
	Fair	14	14		28	80-	17
Medium	23	24	47	75-79	24	20	44
Brunette	48	46	94	-75	15	11	26
Rufosity	1	3	4				
	86	87	173		56	56	112

Obesity: 3 girls  
 Growth retardation: 2 boys  
 Left-handedness: 22 children (10 boys, 12 girls)