

control should be attempted before the stage of walking. With no training, this is left to chance and to rebellion against the discomfort of being wet. Besides, the emptying of the bladder has a pleasurable element, and I have frequently found the pleasurable sensation of "pseudo or early masturbation" associated with emptying the bladder at the same time.

The treatment in each instance mentioned claims nothing specific, but vaguely refers to a mental element, e. g., suggestion and mental impression. Painful impressions, the suggestion of strange impressive procedures, the system of rewards for success, have all been tried and lauded, but there is a strange medical reluctance to more than hints at a possible medical factor. The sick individual is lost sight of, in comparison with his spinal cord centers, sphincter muscles, prostate glands, and foreskin. Certainly, any physical defect has a bearing on the well-being of the individual and his self-control and ability to form proper habits. But it is wise not to deceive ourselves as to the methods of securing results and what we are really striving for. This gives a different point of view and prevents our expecting or promising immediate and complete results. Nocturnal enuresis, after eight years, notoriously accompanies nocturnal epilepsy, in which the convulsive seizure is missed and the wet bed discovered.

The bed-wetting of our military camps was noted to occur in persons with other psychopathic traits. The larger percentage of bed-wetting in that period, as compared with my prior ten years' experience in the regular army, strongly suggested that the stress of war in susceptible individuals had led to a reversion to infantile defects. Besides, the treatment in these cases was less successful in my experience. Hence, I am heartily in sympathy with Dr. Gibbs' attitude as to the mental factors involved in enuresis, and feel that he has kept this often-beclouded issue much clearer.

Clara E. Finney, M. D. (Black Building, Modesto, Calif.)—Dr. Gibbs' paper reminds one of the impractical attitude of many investigators toward enuresis as seen in every-day practice. We should not forget that enuresis is a serious domestic and social problem, rather than a medical one, to a large number of families in a community. True, it is presented to a physician for solution rather than to a sociologist, but few mothers would co-operate, either personally or financially, in the application in most of the methods of cure reviewed by Dr. Gibbs. The excellent point he makes is that, even though there may be underlying causes with contributing factors to be removed, the habit of unconsciously emptying the bladder remains to be corrected; and it is toward the breaking of this habit that the cures for enuresis should be aimed primarily. One has the impression that, of those children brought to the pediatrician, the large majority is suffering from the habit alone; though it was doubtless formed, primarily, from one or more of the many causes enumerated. Dr. Gibbs' paper seems valuable in that, after touching on the many factors, he outlines a practical, efficient regime, and one applicable to the majority of cases.

Asthma Due to Grain Rusts—During recent years, in parts of the northwestern states and Western Canada, rust fungi have attacked a considerable portion of the growing grain. Wheat, barley, oats, and rye in the maturing stage are hosts for special rusts. Wheat rust (*Puccinia graminis*) is the most prevalent. F. T. Cadham, Winnipeg (Journal A. M. A., July 5, 1924), has seen three patients suffering from asthma, in whom the exciting cause of the attack was a proximity to these rusts. The history of each case is similar: There was a short period of exposure to the infected grain, during which the person was evidently sensitized; then each one left the country or district for a year or more. Asthmatic attacks developed when the patient was once more exposed to rust-infected grain. Each case gave a positive cutaneous reaction to these fungi.

GOITER SURVEY IN UTAH

By JAMES WALLACE, M. D., Salt Lake City,
Epidemiologist for the State Board of Health

PURPOSE OF THE SURVEY

A statewide goiter survey was begun during the present year by the State Board of Health, the survey having been made possible through financial aid from the International Health Board, federal authorities, and the State of Utah. From observations, army draft reports and a number of partial surveys made by the State Board of Health, it was believed that Utah was one of the goitrous areas of the United States. Moreover, it had become known that goiter was one of the easiest diseases to prevent, both as to cost and as to facility of application of preventive measures. As a scientific procedure it was necessary, in as systematic and accurate a manner as possible, to find out just how prevalent goiter was in the state. The survey was necessary, too, not merely that statistics might be collected, but that where prophylaxis was begun it might be known how we started, and later where we ended. In addition to all this, the State Board of Health was convinced that the goiter problem was a public health problem and a matter of serious concern to the state. Their view has recently been expressed by Dr. F. A. Collier of Ann Arbor, when he states "that all goiters are potentially dangerous and most of them do, in fact, eventually produce not only symptoms, but also definite pathologic lesions." They hold that the seriousness of goiter is not to be judged by the amount of disability it causes the child or adolescent (for usually it causes none), but the possible end-results. The survey was, therefore, preliminary to instituting prophylactic treatment which, it is hoped, will within a generation greatly reduce, if not completely remove the goiter blotch from the fair countenance of the State of Utah.

EXTENT OF SURVEY

At the time of the closing of the schools for summer vacation, 69,256 pupils in the schools of the state had been examined, exclusive of the 1945 students at the University of Utah, examined by Dean Porter and associates of the university. The 69,256 pupils represent a school population of 88,108 or 64 per cent of the total school population of the state. The school enrollment is never quite equal to the school population, and an examiner at one visit can practically never get 100 per cent of the enrollment. With all these allowances, there was obtained nearly 80 per cent of the total school population in the areas surveyed.

The area covered included ten counties in which were sixteen school districts. In five of the counties the school district is co-extensive with the county; the other counties are divided into two or more school districts. The counties covered are Cache, Weber (Ogden City), Salt Lake, Utah, Tooele, Emery, Sanpete, San Juan, Grand and Garfield (incomplete). The area of these counties is over 34,000 square miles, or about two-thirds the area of either the state of Illinois or the state of Michigan. So far as the writer knows, Utah has at the present time the most extensive survey for goiter yet made in any state; and on account of the great

area covered, a great variety of conditions are represented. In Michigan, four counties have recently been surveyed, 31,612 pupils being examined. Prior to this, 26,215 pupils were examined in Grand Rapids. So far as known, there is no eastern and certainly no western state that has as extensive a survey as the State of Utah, and the end is not yet.

METHOD OF EXAMINATION

The method was to inspect the pupil in a good light, but inspection was not relied upon; the thyroid glands were palpated, and again palpated as the pupil swallowed. The examiner stood behind the pupil, the taller students being asked to sit, and were often palpated, both while sitting and standing. Where there was any suspicion of the presence of goiter causing symptoms, inquiry was made into the condition. In these examinations the co-operation of the local doctors was sought, and in some of the larger centers the local doctors made the majority of the examinations, but an effort had been made to standardize the diagnosis as much as possible that the findings by different examiners might be on a uniform basis and, therefore, comparable.

CLASSIFICATION

The common classifications into colloid, diffuse hypertrophy, adenomatous, and exophthalmic were used, but no serious attempt was made to differentiate colloid and diffuse hypertrophy. They were grouped together. As to size, besides the negative class there were four different groups for positives: (1) The question-mark group or pregoitrous group where the neck could not be pronounced negative, and yet the degree of enlargement was so slight that one would hesitate to say the individual had a goiter; (2) slight—any enlargement up to one inch; (3) moderate—an enlargement from one to two inches; (4) great—any enlargement over two inches.

FINDINGS

All pupils from the kindergarten up to the highest grades were offered the opportunity of examination. Of the 69,256 examined in the high and grade schools, 31 per cent of the boys and 54.3 per cent of the girls were found to fall into one of the four positive groups mentioned above; or 42.7 per cent of all students were found positive. If there be included the 1945 students examined at the University of Utah by Dean Porter and his associates, the total number becomes 71,201, with practically no change in the percentages of positives, for either the sexes or the totals, as the percentages found positive in the University were 31.2 per cent for males, 56.6 per cent for females, and 42.9 per cent for all examined. The 71,201 do not include over 3000 adults (a majority of them teachers), who were examined during the survey, but of whom no record was kept.

Of those found positive so far as tabulation is completed, it would seem that about 16 per cent belonged to the pregoitrous group; about 81 per cent to the slight; 2 per cent to the moderate, and less than 1 per cent to the great. (See diagrams 3 and 4.) In the highest age groups, a greater percentage of moderates and great enlargements was found. The number of moderates and great enlargements found

in males, as compared with females, just about corresponded to the ratio of positives for the two sexes. The difference in incidence between boys and girls is not great in the lower age groups, being only about as 2:3, but in the higher age groups the difference is more marked, being usually about 1:3. In very intensive areas the prevalence among males is almost equal to that among females, but where the conditions which produce goiter are not well marked, there is a greater relative preponderance of females; the female seemingly being more susceptible to slight goiter producing conditions. Apparently, the tendency in the male is for the incidence to grow less after he passes the period of puberty. In the female, on the other hand, there is no such decrease after that period is passed.

Of the 69,256 high and grade pupils examined, the age grouping was as follows:

Age group	5-9	10-14	15-19	20 and over
	23,412	30,413	14,398	1003
	33.8%	43.9%	20.8%	1.5%

The percentage of positives for these different age groups was:

Males	25.9%	36.4%	28.3%	24%
Females	40.1%	59.9%	66%	65.5%

(See Diagram 1.)

These findings are high, but not as high as those of some other states. Four counties recently surveyed in Michigan show from 26 to 64.4 per cent positive, or an average of 47.2 for the four counties.

One might be inclined to ask whether the incidence in Utah is becoming greater or less. There are no definite statistics to indicate the prevalence of goiter in past years, but some old-timers are of the opinion that there is much more goiter now than formerly, and some attribute the increase to the decrease in the number of wells and the more general use of water from the hills, through the installation of public water systems.

Another question that naturally occurs to one is, in how many cases will these enlargements of the thyroid gland persist? This is another question for which we have no answer, based on an observation of a large number of cases through a period of years, but in a recent house-to-house survey of adults made for the State Board of Health by Dr. F. I. Jansen, in a portion of the town of Spanish Fork 17 per cent of the males and 42 per cent of the females were found to have goiters. If the sexes were equally distributed, that would mean that 29.5 per cent of the adult population have goiter. In a complete survey of all the school children in that town, only 31.5 per cent were found to be positive; so that if this small survey is any criterion, it would seem that the percentage of recessions is not great.

The state survey indicated that there is no racial immunity to goiter, as Indians, Japanese, Mexicans, and Chinese were found to have goiter as well as Europeans and Americans; but there is a certain type of person, usually inclined to be stout, stocky, and fat (what is sometimes called the herbivorous type as contrasted with the carnivorous), in whom goiter is less often found than in the thinner type.

According to school districts, the survey showed Emery County to have the greatest number of posi-

tives, the percentage being 83.5, while Granite District, in Salt Lake County, was the lowest, with a percentage of 26.5. (See Diagram 2.) Individual schools ran from nothing to 100 per cent. There was only one school (Bacchus, Granite District) that was entirely negative, but it could hardly be taken as an index, as there were only thirteen pupils in the school, and only one pupil had reached the age of 10 years. The next lowest were two schools in Nebo District—Benjamin and Lakeshore—schools of considerable size that went as low as 6 per cent for positives. These schools are in the center of a valley, a considerable distance from the hills, and get their water supply from deep wells. On the other hand, in other sections it was not uncommon to find 75 per cent of the girls in the high schools with an enlargement of the thyroid gland.

Several pupils in different districts were found to have definite toxic symptoms: for example, one pupil in Provo High School, one in the Alpine District, two in Tooele County, and one in Cache County, were definitely diagnosed as toxic, while many others, e. g., five in North Sanpete and four in Cache, were marked for observation as being possibly toxic. There were also a number of cretins or cretinoids found in the survey; for example, in Emery County four were discovered. In very few cases did any form of goiter appear to cause the pupil any disability either in study or sport, but we have learned to judge goiters, not by their handicapping effect in the adolescent, but by the possible serious later effects.

RURAL VS. URBAN COMMUNITIES

Approximately one-half of the pupils examined in the high and grade schools were in the cities of Salt Lake, Ogden, and Provo, the other half being in the country or smaller towns. The average percentage of positives for these cities was, roughly, 44 per cent, while for the rural portion the average was about 40 per cent. This does not correspond with the findings for Cadillac County, Michigan, as shown by a preliminary report from the Michigan State Board of Health. There the rates were higher in the country than in the town. In Utah, however, we find that generally the rural rates are lower where the water supply is local; that is, from shallow or deep wells, but where the supply comes from the hills the rural rate is higher than the city rate. There have been a few exceptions to this rule, but not many. In general, the nearer the district is to the hills the greater the incidence of goiter. Of course where the water is brought by pipe or stream from the hills, a community may be a long distance from the mountains and yet get the same supply as those who live on or hardby the foothills. The pupils in the school at Saltair (almost in the middle of Great Salt Lake) have their water hauled from Salt Lake City, which city gets its water from the hills. The average percentage of positives for Salt Lake City was 41.6, and for Saltair 42.3.

In the rural sections a much larger percentage of marked goiters (moderate or great enlargements) was found than in the urban.

If, as is now generally accepted, goiter is a deficiency disease due in the beginning to an insuffi-

ciency of iodine, this does not mean that additional agencies may not be factors in actually inducing goiter in individual cases. McCarrison says there is more goiter among the poor than among the rich. In intensive areas it seems that goiter is no respecter of persons, but well-to-do people are likely to travel more and have a greater variety in their water and food supply. Small rural communities are likely to be limited in both their water and food supply to purely local products. In remote parts of the country, too, medical service is usually not so readily available; also, in making comparisons between districts one has to consider the congenital aspect of goiter. All children are not born free and equal, as far as goiter is concerned. If they are the offspring of parents who have lived for some time in a goitrous area, they are likely to have started life with the handicap of a deficiency. In some schools over 50 per cent of the first grade pupils, only 6 or 7 years of age, were found to have enlarged thyroids. This could not be due to any physiological change such as takes place at puberty. It shows, too, the necessity for attending physicians to see that all pregnant women in a goitrous area have an adequate supply of iodine. In North Sanpete High School, 50 per cent of the positive cases were able to say definitely that their mothers, sisters or brothers were known to have goiters.

WATER ANALYSIS

Dr. J. F. McClendon, Professor of Physiological Chemistry at the State University of Minnesota, volunteered to analyze for iodine content samples of water from different parts of the state. Already several samples, evaporated according to directions, have been submitted to him, but as yet no report of his findings for Utah waters is available. In a recent number of the *A. M. A. Journal* (May 24, 1924), Dr. McClendon shows the relation that exists between iodine deficiency in food and drink and the incidence of goiter, and submits analyses of water samples from nearly thirty states, but Utah is not in the list. The work of McClendon parallels the work of Fellenberg in Switzerland, in 1923, who showed that in his country the percentage of iodine in the water in different localities was in inverse ratio to the prevalence of goiter.

INFORMATION

In connection with the survey an effort has been made, without unduly alarming anyone, to carry the facts regarding local conditions to the people, to give them information on goiter generally, to urge them to take suspected cases of goiter in adults to their physician for diagnosis and advice; and for children to provide prophylactic treatment for all negative or incipient cases, while they were urged to take to the family physician all toxic, adenomatous, and chronic marked cases of simple goiter.

PROPHYLAXIS

For prophylactic treatment in the schools, the State Board of Health has been urging the use of chocolate tablets containing 10 milligrams of iodine, one tablet to be taken once a week for the forty weeks of the school year. For school purposes, these forty tablets or a year's treatment can now be ob-

tained through the State Board of Health for the sum of 25 cents. Already prophylactic treatment has been begun in the schools of Tooele, Emery, Grand, Utah, and Sanpete counties, and a small beginning has been made in some other counties. The time for school-closing for summer vacation was so near when the survey was made in some of the school districts, that it was thought to be more practical to begin prophylactic treatment with the reopening of the schools.

On June 1 of this year, a state law in Michigan became effective whereby no salt is allowed to be sold in the state unless it contains a certain percentage of iodine. A similar law for the State of Utah has been urged for the past two years by Dr. T. B. Beatty, State Health Commissioner. In Sault Ste. Marie, Michigan, and in Rochester, New York, sodium iodide is being put into the public water supply. The method of administration is largely a local question. The main thing is to see that those who need iodine receive it, that it is available in a palatable and convenient form, and that it is either supplied at the public expense or at a very low cost to the individual.

The success of the survey has been very gratifying. The medical profession have given commendation and support to it, by participating in the examinations, by public address and by private conversation, the school authorities have welcomed it, the teachers have co-operated so as to make the survey easy, the press has given publicity to the progress of the work, and altogether the difficulties have been much less than we anticipated.

POINTS THAT MAY BE NOTED

1. The incidence of goiter varies greatly in dif-

ferent counties and in different localities in the county, though no place surveyed can be said to be goiter-free.

2. The average percentage of positives is 42.7 per cent.

3. The ratio of the sexes as to goiter is about two females to one male.

4. Recessions in the enlargement of the thyroid

STATE OF UTAH
Goiter Survey
Percentage of pupils, male and female, in the different age groups found to have enlarged thyroids; in an examination of 69,286 students in the schools of ten counties of the State. 1924

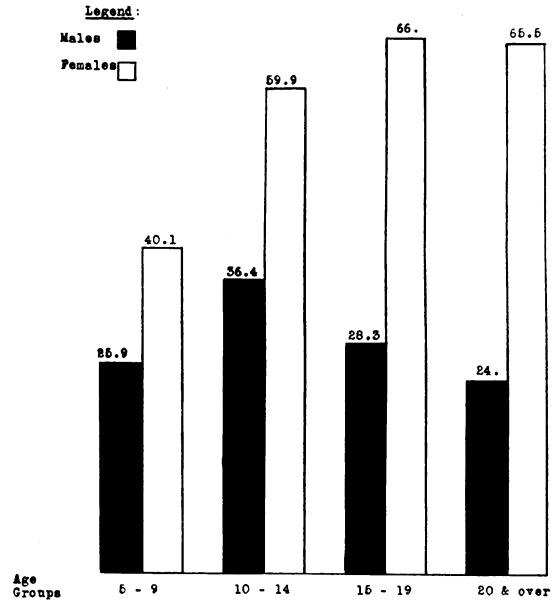


DIAGRAM 1

UTAH STATE BOARD OF HEALTH
GOITER SURVEY
A Comparison of 16 School Districts

School District	Males			Females			Aver. Per. Positive for District
	Positive	Negative	Per cent Positive	Positive	Negative	Per cent Positive	
Cache County	715	1,305	35.4	1,352	904	59.6	48.9
U. A. C., B. Y. U. and N. J. A.	80	261	23.4	285	181	61.1	45.2
Emery County	664	175	79.3	665	39	88.2	83.5
Grand County	80	52	60.6	95	48	66.4	63.6
Garfield County (incomplete)	106	160	39.8	171	57	75.0	56.0
Utah County							
Alpine	448	1,351	24.9	880	931	48.6	36.7
Nebo	498	1,769	21.9	978	1,243	44.0	32.9
Provo City	669	1,284	34.6	1,135	811	59.0	46.3
Salt Lake County							
Granite	439	2,175	16.7	926	1,600	36.6	26.5
Jordan	478	1,484	24.2	845	995	45.1	34.8
Murray Town	123	453	21.3	275	304	48.1	34.4
Salt Lake City	3,665	8,533	30.0	6,489	5,675	53.3	41.6
L. D. S. and Other Schools	126	593	17.5	631	556	53.1	39.7
San Juan County	134	130	50.8	177	57	75.6	62.4
Sanpete County							
North Sanpete	458	683	40.1	668	394	62.9	51.1
South Sanpete	334	782	29.4	660	487	57.5	43.9
Tooele County	285	540	34.5	450	352	56.1	45.2
Weber County							
Ogden Schools	1,315	1,827	41.8	2,126	1,221	63.5	53.0
Other Schools	40	112	26.3	142	124	53.4	43.5
Total	10,657	23,670	31.0	18,950	15,979	54.3	42.7
University of Utah	327	720	31.2	508	390	56.6	42.9
Grand Total	10,984	24,390	31.0	19,458	16,369	54.4	42.7
Total males examined	35,374						
Total females examined	35,827						
Total for both sexes	71,201						

UTAH STATE BOARD OF HEALTH
Goiter Survey

A comparison of 16 school districts, in 10 counties of the State as to the incidence of goiter in the pupils of the High and Public Schools. (Per cent Positive)

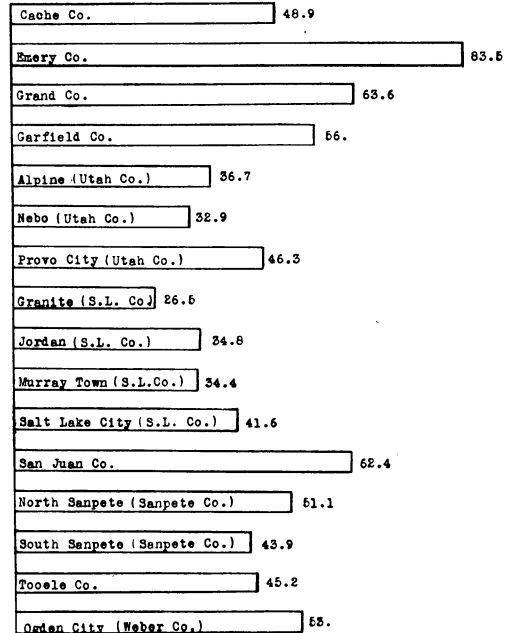


DIAGRAM 2

seem to occur more frequently in males than in females.

5. The percentage of goiters that naturally recede without treatment of any kind would seem to be small.

6. There is no racial immunity to goiter.

7. Communities getting their water supply from the hills generally show a higher incidence than those using well water.

8. Rural sections have a higher incidence than urban only when their water supply comes from the hills.

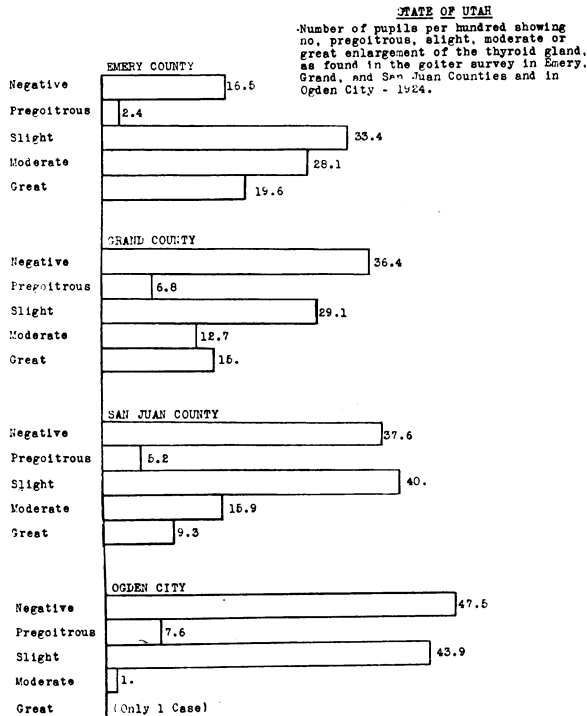


DIAGRAM 3

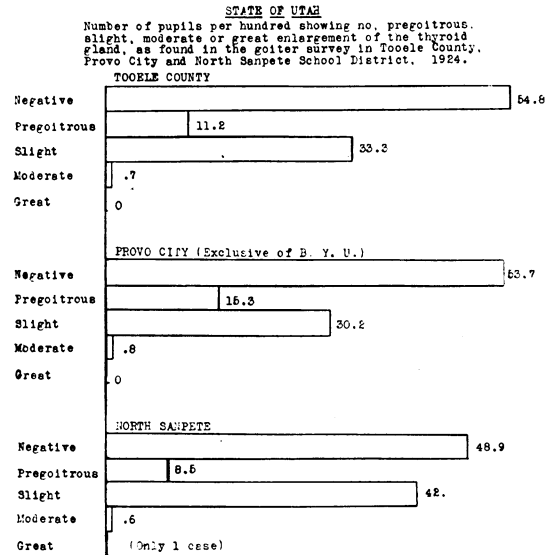


DIAGRAM 4

A CASE OF CONGENITAL SYNOSTOSIS OF RADIUS AND ULNA

By C. B. BENNETT, M. D., Berkeley
(From the University of California Infirmary)

The following case of congenital synostosis of the radius and ulna is presented because of its comparative rarity. Only about twelve cases have as yet been reported from the United States, although the condition is far commoner than this statement would imply. Doubtless one reason for this dearth of reports is that the deformity causes so little discomfort that many suffering from it never consult a physician. The deformity usually presents the following picture, which seems to be as definite a clinical entity as club-foot or any other well-known condition.

The synostosis usually occurs at the proximal ends of the forearm bones, which are united for a distance of three to six centimeters. The affected forearm is apt to be shorter than normal, and the hand is held in more or less pronation, which is often extreme. The distal end of the radius is usually heavier than normal, while that of the ulna is frequently the reverse. Obviously there is no movement between the two bones, although the joint with the humerus is usually unaffected. The condition is frequently bilateral. Occasionally synostoses of the distal ends of these bones have been reported from Europe, but are decidedly less common. As to the etiology, Bardeen and Lewis found that in an embryo of four and a half weeks, the radius and ulna were distinct below but fused above, and that only after

several more weeks did the two bones become quite distinct and free. It would appear, therefore, that in this deformity we have the result of an arrest at a very early age of the normal process of separation of these bones. Just what causes this arrest is not known. Some have stated the condition to be hereditary, but in the majority of cases this does not seem to be true. In only one of the families reported in America was the hereditary tendency shown. In this case, reported by Feidt, the grandfather, mother and daughter, all had this deformity. On the other hand, Painter reported that his case was "the youngest of twelve children, all the others being well in every respect, and neither they nor the parents have, or have known of, any skeletal defect in their respective ancestors." Similar negative family histories were noted in most of the other cases.

Operative attempts to separate the bones and obtain normal movement have practically always failed, and a critical review of the very few cases in which success has been claimed makes one agree with Gibson that they do "not provoke enthusiastic encomiums." One reason for expecting an unsatisfactory result is that the supinator (brevis) is usually poorly developed, or absent altogether in these cases, while the pronator quadratus is abnormally short. This makes the probability of useful function very doubtful. A more serious obstacle is that the union between the two bones is usually so long that it has been practically impossible to prevent subsequent development of synostosis again after the bones have been