TABLE 4.—Eastern and Good Samaritan Dispensary, 1887-95, inclusive.

New patients, adults, viz., all over 10 years 471,712
 Children under 10 years 254,086

Total 725,748

Professor Van Arsdale's Division of Surgical Department.

New patients, over 10 years 51,322
 Under 10 years 18,042

Total 69,364

Fractures at all ages 825
 Under 10 years 343

Femur under 10 years 26

Frequency of Fracture of Femur Shaft.

1 in 13 of all fractures under 10 years—7.5 per cent.

1 in 694 of all surgical cases under 10 years.

1 in 6,250 in all departments under 10 years.

Total Fractures of Femur, under 6 Years, Treated.

Van Arsdale's department, splints or bandage 11

Triangle 15

Swinburne's department, triangle 14

Total during 1887 to 1895 40

Swinburne's department, triangle, 1896 4

Total treated by triangular splints 33

TABLE 5.—Van Arsdale's cases, fracture of femur.

Number.	Year.	Record number.	Sex.	Nationality.		Age		Treatment.	Remarks.
				Child.	Parents.	Years.	Months.		
1	1888							Omitted.	
2	1888							Omitted.	
3	1889	4,057	M.	U. S.	Rus.	1	6		
4	1890							Omitted.	
5	1890	3,727	M.	Rus.	Rus.		9		
6	1890	7,740	M.	U. S.	Rus.	1		Splints.	
7	1891	4,385	M.	U. S.	Rus.		6	Bandage.	
8	1892	5,037	F.	U. S.	Rus.	1	4		
9	1892	6,932						Omitted.	
10	1892	6,969	M.	Rus.	Rus.				
11	1892	7,964	F.	Ire.	Ire.			Splints.	
12	1893	1,548	M.	U. S.	Rus.	1		Triangle.	
13	1893	2,249	M.	U. S.	Rus.	1	1	Triangle.	
14	1893	4,761	M.	U. S.	Rus.	1	9	Triangle.	
15	1894	1,328	M.	U. S.	Rus.	4		Triangle.	
16	1894	2,387	M.	U. S.	U. S.	2		Triangle.	
17	1894	2,970	M.	U. S.	U. S.	5	6	Triangle.	
18	1895	1,135	M.	U. S.	Rus.		7	Triangle.	Mal. sanat.
19	1895	1,139	F.	U. S.	Rus.	3		Triangle.	
20	1895	1,874	F.	U. S.	Rus.	2	6	Triangle.	Door fell on her 3 days ago.
21	1895	1,923	M.	U. S.	U. S.	1	10	Triangle.	
22	1895	2,338	M.	U. S.	U. S.	1	8	Triangle.	Two weeks old.
23	1895							Omitted.	
24	1895							Omitted.	
25	1895	5,138	M.	U. S.	U. S.	5		Triangle.	
26	1895	5,770	F.	U. S.	U. S.	1	1/2	Triangle.	

TABLE 6.—Fractures in children.

Van Arsdale.					K. Beck.	
Under 12 months.	Region.				Total.	Per cent.
	1 to 5 years.	6 to 10 years.	Total.	Per cent.	Total.	Per cent.
12	112	48	172	50.0	18	7.3
19	11	33	9.6		52	21.1
25	35	62	28.3		44	17.8
10	8	13				
5	2	3	3.2			
1	1	3				
3	23	2	7.5		25	10.1
3	2	5			90	36.4
3	1	4	1.13		2	0.8
1	1	3	1.13			
1	1	3			3	1.2
1	1	1			7	2.8
1	1	1				
1	1	1			3	1.2
1	1	1			2	0.8
1	1	1			1	0.4
23	204	116	343		247	

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DISCUSSION.

Dr. J. A. LARRABEE of Louisville—Those of us who were out to the Children's Hospital and saw the display of this method were impressed by its utility. I know I was particularly impressed with it because I have had great difficulty, as all of us no doubt have had, in maintaining position in children under 5 years of age. The last case was the worst I have had; it was a child in an Irish family and a wild sort of a boy. I think I applied four dressings inside of four weeks. The plaster-of-paris lasted just about two days, and then I used the creolin plaster, which lasted about four days. Whoever treats fracture at any age will always find he is in hot water until the case is discharged, for we can not be certain what the result will be. The very points met by this splint are the ones I wanted to meet if I had had a device to maintain the limb in position so the child could sit up in bed. These children are bound to get up and any splint apparatus renders them very filthy and they frequently become excoriated. I think the method just presented is one of the happiest thoughts that can be. It is so simple in construction. With a simple piece of cardboard and adhesive plaster you are ready to treat these cases.

THE APPLICATION OF THE AMBULANT METHOD IN FRACTURE OF THE LEG IN CHILDREN.

Presented in the Section on Diseases of Children, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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I wish to call attention to the possibility of applying the ambulant method to leg fractures in children, and to discuss the method used and results obtained in fractures occurring in children from the age when they first begin to walk up to the age of puberty, say 14 years. This was discussed, in a measure, by the writer at the New York Academy of Medicine, Jan. 11, 1897, and reported in the *Medical News* Feb. 13, 1897.

When we consider how trying a long confinement is to the young and growing child, how rapidly a general muscular atrophy develops, how easily the onset of anemia presents itself, how insidiously a latent cachexia may develop, the possibility of auto-infection occurring at the site of trauma, we realize to some extent the risks of keeping our fracture cases in bed. A method which admits of a child with a broken leg to be up and about during the first week, and by so doing not only tends to preserve the general condition of the patient, but "promotes a healthy and rapid union of the fragments" (Hartley), should commend itself to all.

Simplicity as regards the form of apparatus used, the weight or clumsiness of such apparatus, the use or non-use of crutches and the dependence of the surgeon on the instrument maker, all have to be considered in determining what is the best method of treating fractures of the leg, and after a considerable

experience and trials, as regards various methods, I am in favor of the general use of the ambulant plaster-of-paris cast, requiring as it does only a few ordinary roller bandages and a few plaster bandages properly applied. As to the ultimate result in regard to the position and union of the fragments, this method has no advantage over any other method which maintains a perfect reduction of the deformity and affords the necessary protection to the injured limb.

That this ambulant method was practicable to children of all ages was first brought to the mind of the writer by the after-treatment in a case of double bow-legs corrected by osteoclasis. In the summer of 1893 I performed an osteoclasis in a three year old child for double bow-legs, and after correction both legs were put up in plaster of paris extending well up on the thigh. At the end of a week I called to see my little patient, whom I was surprised to find walking about. From that time I have always encouraged this class of patients to walk early, and found as a rule that they were able to walk nicely from the seventh to tenth day after operation. We were already applying this method to simple fractures in older children, and later the ambulant method was carried out most successfully in several osteotomy cases.

How soon should the ambulant cast be applied? is a question often put to us. I believe the earlier the better unless there exists some contraindication. If we can apply an ambulant cast before the occurrence of edema or effusion it is a decided advantage. The value of the early application of the plaster cast has frequently been demonstrated both by the writer and Dr. John McG. Woodbury in the Roosevelt fracture service, and I need but refer you to our statistics of these cases published in the *Medical News*, Feb. 13, 1897.

The same general principles apply in the treatment of leg fractures as in fractures in any other part of the body, and our first duty is to reduce any existing deformity, our second to maintain such reduction by the immediate application of some retaining apparatus, and our third to elevate the limb. This can all be accomplished in most cases by the immediate application of the plaster cast, and at the same time we are adding more effectively to our patient's comfort than by any other means, the comfort of the patient being in direct proportion to the amount of fixation and protection afforded the injured member. We at times meet cases where the reduction of the deformity is difficult, due usually to muscular spasm or obliquity of the fragments, and in these cases we administer an anesthetic and then accomplish complete reduction of the deformity.

The ambulant plaster-of-paris cast is applied as follows: After reduction of any deformity the limb is held by an assistant, the foot being flexed to a right angle, and the foot and leg are bandaged with a muslin roller from the toe-tips to and surrounding the tuberosity of the tibia. This bandage, as well as the cast, may extend in children well up on the thigh, but the effectiveness of the cast as a walking splint depends largely on how firmly it grasps and supports the enlarged upper end of the tibia. Over the muslin roller we apply our plaster bandages in the same manner, building it stronger about the ankle and also at its superior circumference, where in walking it largely supports the weight of the body. No padding is used, the splint exerting equal pressure at all points. A considerable experience in the use of plaster dress-

ings is requisite to have the cast applied in an efficient manner. It has been thought that as the tuberosity of the tibia is not developed to the extent of adult life, the ambulant cast is not applicable to children. This view is entirely erroneous, as I have successfully applied the ambulant cast to all ages and in various conditions, not only fractures of the leg, but in tubercular disease of the ankle joint, after clubfoot operations and after operations about the ankle joint, including resection of the ankle joint, and also in osteotomy cases involving both tibia and fibula.

This then is the truly ambulant method, the patient walking on the injured limb without the aid of crutches, the weight of the body being transmitted from the tuberosity of the tibia to the upper circumference of the plaster cast. As I have stated elsewhere, the advantages of this method of treatment are that the patient is kept up and about, less muscular atrophy occurs, there is less stiffness of adjacent joints, the period of after-treatment is considerably shortened and the general health of the patient is maintained.

Though at some time during convalescence the ambulant splint should be called into play in every fracture of the leg, there are certain fractures and conditions complicating fractures which may prevent the early use of a walking cast. The existence of edema, abrasions, marked effusion or considerable obliquity of the fragments all call for some delay. In compound fractures or where we have any abrasion, we must wait sufficiently long to determine the absence of any infection. Where there is obliquity of the fragments the ambulant cast should not be employed until the fragments are thoroughly glued together in their proper position and ossification has commenced, *i. e.*, about the tenth day. All simple fractures seen early where there is no tendency toward displacement, with absence of edema, call for the immediate application of the ambulant plaster-of-paris cast.

Without presenting any extensive statistics, I will report two representative cases showing in a measure the wide range of cases which can be treated by this method.

Case 1.—Simple fracture middle third of tibia.—F. B., age 6 years. This case was reported to the New York Academy of Medicine, January, 1897. Dec. 11, 1896, while coasting on the snow, he ran into a cart and fractured the tibia just below the middle third. He was taken to Roosevelt Hospital and the leg put up in plaster. He was referred to me one week later, when the dressing was removed and, as the leg was in good condition, the ambulant cast was applied. He reported to me the next day, and as everything was in order, he was instructed to walk. In a few days he not only walked with ease, but rode his velocipede daily.

Case 2.—Osteotomy, Trendelenburg operation combined with orthodesis.—Louisa Neuman, age 14 years. When very young she had an attack of poliomyelitis anterior, and since then the muscles of the right leg have been paralyzed. For years she has had a flail foot and at present, when she walks, with each step her foot is thrown out and the internal malleolus touches the ground. No apparatus could correct this deformity of years' standing, and fixation of the ankle joint by orthodesis was advised. This was consented to and the patient was operated on August, 1896. The ankle joint was opened by an external incision and the entire articular cartilage removed. Upon replacing the foot the vicious position of extreme valgus could not be corrected, so the superior third of the inner portion of the astragalus was chiseled away, but this did not correct the deformity sufficiently. Wishing to preserve as much of the tarsus as possible, I determined to fully correct the deformity by the Trendelenburg method, removing a wedge from the lower third of the tibia, performing a linear osteotomy on the fibula and then turning the foot inward until it was in the proper line. This procedure was entirely successful and the foot, leg and thigh encased in plaster. Convalescence was uneventful and on the eleventh day dressings were removed, stitches taken

out and the ambulant plaster cast applied up to the tuberosity of the tibia. This patient commenced to walk on the fourteenth day, and was discharged six weeks after the operation.

I need only add that after operation and complete correction in clubfoot in children who are old enough to walk, as well as in many cases of tubercular disease of the ankle joint, we have used the ambulant cast with the greatest success.

THE EARLY RECOGNITION AND MANAGEMENT OF DEFECTIVE DEVELOPMENT IN CHILDREN.

Presented in the Section on Diseases of Children, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

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Too long has the treatment of the defectively developed mind been postponed beyond the age of infancy, and often are individuals thus affected relegated to the hopelessly idiotic group, without a careful study of the possibilities of each. The very poverty of our knowledge of the subject challenges study and investigation. The great variations in degree make it difficult to recognize in early childhood the mildest forms, and the worst cases are so bad that they offer no encouragement to treatment. The cases that require the greatest attention are those in which we can hope to rescue the individual from the class of useless idiots, and by intelligent education place him as an humble member of the productive classes.

The etiology of idiocy has always been a source of speculation. Most lay people and many medical men fall into the habit of concentrating their attention too much on the size and shape of the brain. We have chosen the term defective development rather than idiocy to emphasize the fact that the trouble is quite general throughout the whole economy. The cause of this deep-seated vice of development lies further back than the premature ossification of the bones of the cranium, further back than an unusual smallness of the heart, further back than any noted change in the size and shape of the brain cells, or the number of tangential fibers. The cause to be sought is some force that has influenced that factor, which in our ignorance we term life. Heredity is a strong factor of insanity or imbecility, existing, according to the statistics of Martin W. Parr of Pennsylvania, in 38 per cent. The cases of idiocy due to infantile cerebral disease, such as hemorrhage, are examples of arrested development due to a definite gross lesion. We prefer to consider the more uncomplicated cases in which the defective development can not be traced to accident, infantile cerebral palsy, or the cerebral complications of the exanthemata. The early recognition of defective development is not at all easy. Children differ much as individuals in different families, and also are very strongly influenced by their surroundings. The keenness of their special senses also plays a strong part in rapidity of the mental development. A slight defect of hearing or eyesight in a young child will influence and retard development in a marked degree. I have a number of times had occasion to point out that an apparently idiotic child was only defective in sight or hearing. Curiously enough, however, some of the children who on careful exam-

ation prove to be markedly defective, have every appearance of being the brightest children. Probably the most troublesome cases and those that are the most difficult to improve are the active, restless and physically strong. It is impossible to fix the attention of these children and they are absolutely lacking in that power of plodding work that often does so much for some dull cases.

One of the saddest things that can happen to a defective child is that he should be placed under the educational influences of a large school in competition with children of normal abilities. Under such circumstances, as time goes on, a defective child gradually drops farther and farther behind until finally he is associated with children much younger than himself. This breeds discouragement, recklessness as to behavior, and mortification of spirit, or what is just as bad, callousness. The defective child should be trained with a definite view of accomplishing the possible. If the child is almost imbecile the training should commence in a purely physical direction, and the child should be taught to perform at first a few definite acts, as a trade, or certain household duties. The capacity of the child must always be borne in mind. The defective child must be taught many things that in others come from observation and example. The defective child is taught with great difficulty the care of its clothing and the minor civilities of life that to a bright child come almost without teaching. More difficult and more serious even than the development of mind is the development of character. Stubbornness and perversity of disposition are more often a manifestation of defective development than they are of an inheritance of strong characteristics from the parents. The defective child is unable to subdue its own personality and unable to recognize the authority of others. The question of how to meet this difficulty is of very serious import, and will tax to the greatest degree the tact and intelligence of those who have the responsibility of its training. But the principles applicable to the defective child are not different from those of education in general. Indeed, the study of the defective has often thrown light upon the whole field of education. Severity is certainly wrong. The principle so strongly advocated by Spencer, that the child should be allowed to suffer the consequences of its previous acts are applicable to a degree, but a defective intelligence renders extreme application impossible. Undoubtedly the most rational treatment of such children is to disregard as much as possible all previous acts and perversities of temper, and by constructive efforts in the directions of those abilities and faculties that the child has to counteract as much as possible the evil tendencies. The question of responsibility is not easy to decide, but certainly the defective child is not to be held accountable for those acts that are evidently the outcome of its condition. The symptoms of the defective do not always differ in quality from the ordinary defects of most children. It is more a difference of degree. A child subject to occasional outbreaks of ungovernable temper, or even frequent perversity of will, should not be decided to be defective; but when this is accompanied by the extreme restlessness of manner, the inability to fix the attention, and perhaps physical signs, the diagnosis is easy to one of any experience. With the history of a cause or the presence of recurrent convulsions, the diagnosis of defective development may be certain. The close study