densed milk as infant's food, I have been at some trouble to go carefully into the whole question, and as I am not aware that any comparative statements have ever hitherto been attempted, save on the most superficial bases, I am not unwilling to put my results into a somewhat permanent form.

In the first place I was naturally anxious to secure the best milk, and for that purpose I—with the assistance of Mr. Dechan, without whose constant presence in the laboratory it would have been quite impossible for me to have overtaken the work—undertook the analysis of a number of the best brands in the market, both sweetened and unsweetened, representing Swiss, English, Irish, Canadian and Norwegian manufacture. As the results of our work in this direction may be of some interest, I here insert them in tabular form, omitting, for obvious reasons, the name of each brand. They are classified in what seems to me the order of excellence, that order depending on the combined weight of the casein and fat. The milk sugar is calculated from the quantity of casein present. These—the milk sugar and casein—usually occur in the proportion of about 4·0 to 4·5, but, as it is probable that some of the latter is lost in the process of condensation, I allow 5 parts of milk sugar for every 4 parts of casein. A mean has been taken in each case, of two or three, and in some instances six analyses.

Composition of Various Brands of Condensed Milk.

Sweetened.

	Casein.	Fat.	Milk sugar.	Cane sugar.	Salts.	Water.	Sp. gr. of 20 p.c. solution.
A	11·5	10·5	14·4	34·5	1·6	27·5	1048·7
B	12·3	9·6	14·7	33·3	1·8	28·3	1044·4
C	12·12	9·0	15·2	34·4	2·03	27·25	1048·4
D	12·0	8·0	15·0	32·0	1·9	30·2	1048·4
E	11·3	8·6	14·0	36·0	1·6	28·5	1049·2
F	11·5	8·2	14·4	35·0	1·4	29·5	1048·5
G	12·0	6·7	15·0	36·0	1·5	28·8	1050·0

Unsweetened.

	Casein.	Fat.	Milk sugar.	Salts.	Water.	Specific gravity.
H	11·0	10·5	12·5	2·0	64·0	1093·0
I	9·0	8·25	15·75	2·0	65·0	1097·4
K	8·2	8·3	13·0	1·6	68·9	1081.9

From the first we had been using milk E, but we subsequently adopted one of the other milks, and have had no reason to regret having made the change.

Of the unsweetened milks, the only one that I can regard as really containing no added sugar is that marked H.

The process adopted in the analysis was substantially that given in a paper on "Milk Analysis," by Mr. Dechan and myself, which was published in the *Analyst* for last October. The only difficulty exists in the drying in order to ascertain the percentage of moisture; the large proportion of sugar renders it very difficult to drive off the water, and as a consequence the process from first to last is exceedingly tedious.

There has always been considerable difference of opinion regarding the use of condensed milk as a food for infants, and many medical men are strongly opposed to its employment, especially in the sweetened condition. The question has frequently been discussed, and some months ago an interchange of medical opinion again took place in the columns of the *British Medical Journal*. To one of the letters that therein appeared (June 28, 1884, p. 1285), viz., that of Dr. O. Davies, I shall presently refer in some detail. Acting on the suggestions contained in these communications, I was induced to consider the advisability of giving up sweetened condensed milk altogether in favor of the unsweetened; but on going into the question I found that unless milk sugar were used to bring up the carbohydrates to the normal of mother's milk there would be no advantage, while in any case a great amount of unnecessary labour would be entailed. Moreover the question of expense, though probably in the circumstances not of so much consequence to me, would weigh very considerably with many heads of families, who would probably think twice before spending 1*s.* per day on unsweetened milk and milk sugar, or 9*d.* if cane sugar were used, when at the utmost 4½*d.* per day would amply suffice for the cost of the sweetened milk.

Before a proper comparison can be instituted between the different substitutes for mother's milk and that milk itself, it is absolutely necessary to have some idea of the relative quantities of solid nourishment contained in each of these, and I propose, therefore, to give the results of my calculations in the direction of at least an approximately correct series of figures.

In the letter to which reference has already been made, Mr. Davies states that "it is estimated that a healthy woman gives three pints of milk in twenty-four hours." He does not say, and I have no means of knowing, whether this is simply the estimated average, but we may assume that it is so. It is extremely difficult to fix the composition of woman's milk, since not only the quantity but the quality of the milk depends on such a variety of circumstances that no two women will give milk of the same composition. Very variable results have been obtained by different analysts, and, in order to be as fair as possible, I have taken the mean of four analyses, from which I find that woman's milk may be represented as containing milk solids in the following percentage:—Casein, 2·63; fat, 3·0; milk-sugar, 5·7; and saline matter, ·2. From these figures we can readily calculate the amount of solids in three pints of milk.

There is no difficulty in finding the percentage of solids in diluted condensed milk, but there is considerable difficulty in knowing to what extent condensed milk ought to be diluted. The Anglo-Swiss label recommends that for infants the milk should be diluted with from 7 to 14 parts of water; the Aventicum says 7 to 19, the Scandinavian 10 to 15 and so on, the idea being that the milk should be used weaker at first and gradually increased in strength. According to Dr. Davies there is no evidence to show that a woman's milk is stronger at six months than it is at one month after parturition, and consequently he prefers to use milk of a uniform strength all through. After some tentative experiments, we decided to dilute the sweetened condensed milk in the proportion of 1 to 11 of water, and that strength has been adhered to from first to last, with excellent results. I have noted the quantity of milk used each day, the average being as nearly as possible, eight tins in thirteen days for each child, and from this we calculate the solid nourishment taken every twenty-four hours. As a general rule nurses give the milk very much stronger than 1 to 11. I know of no instance in the circle of my personal acquaintance where so weak a milk is given, but I do know of several where children of six months were allowed as much as a tin a day. At this rate we need hardly wonder if medical men sometimes had cause to find fault with its use.

The main purpose of Dr. Davies's letter was to condemn sweetened, or at least to recommend unsweetened condensed milk. His words are:—"With regard to condensed milk, the 'First Swiss Brand,' that is the unsweetened milk (the only kind that should be used), is four times as strong as the ordinary milk from the cow, therefore a tin would be equivalent to a quart of milk. A tin a day is about what should be given, diluted with five times its bulk of water." As each tin contains about 11 ounces we can readily find the proportion of solids for each twenty-four hours, where this quantity of milk is used. (The notion that condensed milk equals four times its bulk of cow's milk is very common, but also very erroneous. Neither the First Swiss Brand nor any other brand that I have met with contains anything like this strength. It is nearer the mark to say "three times as strong" and some brands are not even so strong as that,)