

## ON "PREPARED" COCOA.

By JOHN MUTER, Ph.D., F.C.S.

So much has been said and written on the qualities of cocoa as a beverage, that it would be useless to go over the well-trodden ground; suffice it simply to say, that it is one of the most grateful of our non-alcoholic drinks. The only objection which can and does exist to its use in a state of purity is the excessive proportion of fat which renders it too rich for most digestions, and gives unfortunately a colourable excuse for its admixture with starch. There are two classes of prepared cocoa:—(1) That in which the reduction of the fat is secured by adding starch and sugar; and, (2) That where the fat is partially removed and the remainder of the bean is served to the public unmixed. It is to show the fallacy of the former method that I pen these few lines.

In the first place it forms a question, what is the fair average composition of cocoa. Having had occasion to analyse a large number of samples, I am convinced that the following may be taken as representing a fair average of the constituent parts of ordinary cocoa, as at present found in the markets:—

## No. 1.—GENUINE COCOA.

Fat	...	...	...	...	...	...	42·94	} 100·00
Sugar and gum	...	...	...	...	...	...	6·40	
Starch	...	...	...	...	...	...	19·03	
Cocoa red, &c.	...	...	...	...	...	...	3·69	
Cellulose	...	...	...	...	...	...	5·95	
Theobromine	...	...	...	...	...	...	·90	
Gluten	...	...	...	...	...	...	12·21	
Ash	...	...	...	...	...	...	2·90	
Moisture	...	...	...	...	...	...	5·98	

On looking at the composition of cocoa, as thus shown forth, the great fallacy of countenancing the addition of starch and sugar is at once apparent. The only possible excuse is the dilution of the fat, but then at the same time, the nutritious gluten and stimulating theobromine are equally reduced in value. On the other hand, given the removal of a portion of the fat, the other constituents are not only kept intact, but positively concentrated in a high degree. A glance at the following analyses of packet cocoas will prove the force of my remarks:—

	No. 2. Fat partially removed (Cocoa Essence).	No. 3. Mixed with starch and sugar (most of the latter).	No. 4. Also mixed with starch and sugar (most of the former).
Fat ... ..	19·22	20·15	22·10
Sugar and gum ... ..	12·15	33·50	27·42
Starch ... ..	22·37	27·21	29·22
Cocoa red, &c....	4·60	1·60	1·80
Cellulose ... ..	8·70	3·46	4·30
Theobromine ... ..	1·20	·43	·50
Gluten ... ..	18·30	6·45	7·36
Ash ... ..	4·70	1·70	1·80
Moisture ... ..	8·76	5·50	5·50

100·00

For the sake of comparison I will put down the important constituents by themselves:—

	No. 1. Genuine.	No. 2. Fat removed.	No. 3. Mixture.	No. 4. Mixture.
Theobromine ... ..	0·90	1·20	·43	·50
Gluten ... ..	12·21	18·30	6·45	7·36

Thus we clearly see the nonsense talked by those who, for reasons best known to themselves, are found to palliate, and even support in writing, the “preparation” of cocoa by mixing it with starch and sugar.

In conclusion, I have only to urge those interested in the purity of food to expose and put down the mixture of cocoa with starch and sugar as useless, and founded altogether on a wrong basis. Unfortunately we, as public analysts, are prevented by a decision from reporting such mixtures as adulterated, but we none the less ought to teach the public by every means in our power to desert their use and stick entirely to the unmixed article, which, although dearer at first sight, is by far the cheaper in the end.

## NOTE ON WATER ANALYSIS.

By FRANK P. PERKINS, Public Analyst for Exeter.

It is probable that what I now write may have come within the experience of every analyst.

In the determination of ammonia good results are obtained by the following method of manipulation:—Into a half litre retort place 25 c.c. of a solution of potassic permanganate, prepared according to the usual formula, add 100 c.c. of pure water, and distil until no reaction is obtained with Nessler's test; now add 250 c.c. of the water to be examined, and distil again until free from ammonia. The distillate contains albuminoid and free ammonia. The free ammonia alone is determined in another 250 c.c. of the water. By operating thus all traces of ammonia are expelled from the reagents and apparatus, and results as near perfection as the process will allow attained.