

The constituents, as determined by analysis, from an average taken from numerous experiments made by different persons, are as follows :—

Water	81
Sugar	18.20
Organic matter, precipitated by diacetate of lead	0.45
Saline matter.....	0.35
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	100.00

In the second part of the work we come to the *practical* portion—that which treats of the means resorted to to extract the juice from the cane, the different species of mills and motive powers, and the waste of megass as fuel (a point which we have often urged); and here it is that the Doctor brings his observation and experience to bear very fully. There is one point, in passing, which we may call attention to, and that is the want of an intercommunication of ideas between the different Colonies. However much their soils and situations may differ, they must have many subjects in common which it would be desirable to advise on; and what better medium of communication exists than the numerous existing agricultural societies, many of which profess to publish papers and transactions which they, however, seldom or ever exchange.

Dr. Evans, on this point, says—"Unfortunately, there is no organised system as yet established among the Colonies, by which the knowledge and experience of one may be diffused among the many. From the want of the means of reciprocal communication, repeated and well ascertained failures of a scheme, which have caused its rejection in one Colony, do not prevent frequent and renewed trials of it in others. Or, if it has proved successful, ignorance of its success, aided most probably by a scepticism which has been rendered obstinate from witnessing repeated failures, causes a long period to elapse before its reception becomes general."

The inefficiency of the present mills in use is specially alluded to, and the observations of Dr. Mitchell, in our present number, fully borne out.

"To render a mill as efficient as possible, the following rules should be attended to :—

"1. The rollers should be made to approximate as closely as the work which they have to perform will admit of. In mills, in which the rollers observe a vertical direction, the space between the first and second should scarcely, if at all, exceed one-fourth of an inch, whilst a distance of one-sixth of an inch is the most that should be allowed between the second and third. When they are placed horizontally, the upper one ought to observe a space of one-fifth to one-fourth of an inch from the two lower. These distances can never, perhaps, be accurately given in every case, but the requisite degree of bracing should always be strictly attended to. 2. The velocity of the rollers should be rendered as uniform as possible, not by diminishing the amount of the motive power, but by a carefully regulated supply of canes. 3. The canes, when thrown upon the feeding board, should be upon the same plane, and never suffered to cross each other, otherwise the motion of the rollers will be checked, and the canes will be submitted to unequal pressure. 4. The megass should invariably be repassed between the rollers, so as to extract, as much as possible, the juice which still remains in it.

"When the canes are rich, and their juice of considerable density, the megass should be sprinkled with a little water, or, where it is practicable, exposed to the action of steam before it is submitted to the pressure; but when the canes are large, green, and watery, this may be dispensed with.

"By following the foregoing rules, the quantity of cane-juice may be increased, at least, 20 per cent., that is, a mill which ordinarily gives 50 lbs. of juice for every 100 lbs. of canes which are crushed by it, may, by a little attention, be made to increase the quantity to 60 lbs. at least, and the one which now produces 60 lbs. may be made to yield 70 lbs. from a like quantity.

"This amelioration may be obtained without any additional outlay of money; a little watchfulness on the part of the planter, to see that his orders are carried out, being all that is required for its accomplishment."

That, by any mechanical means, the whole of the juice will ever be extracted from the cane cannot be expected; indeed, from obvious physical causes, this result would be impossible; but it is certain that the quantity at present obtained, 50 lbs., may very readily be increased to 70 or 75 lbs. from 100 lbs. of canes.

Dr. Evans is an advocate for increased pressure of the megass, the substitution