NOTES ON VARIETIES OF SUGAR CANE IN THE COLLECTION AT THE EXPERIMENT STATION OF THE SOUTH AFRICAN SUGAR ASSOCIATION.

PART II.

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Part II. gives the laboratory analysis figures obtained since April, 1930, and a little additional information concerning the newer varieties at the Experiment Station.

AGAUL.—This variety was imported from India by the Department of Agriculture some years ago, but has not fulfilled the early claims for it. It is indistinguishable from Uba in the fields, but is susceptible to mosaic disease and consequently has created difficulty in the mosaic eradication campaign.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	19	Plant	20.3	90.4	15.41	—	3rd in 13 kinds
July, 1931	21	,,	21.0	91.5	15.34	14.89	3rd in 7 kinds
January, 1932 ..	17	Ratoon	21.9	93.3	15.96	15.99	3rd in 13 kinds
January, 1932 ..	14	Plant	22.8	89.6	16.26	14.35	12th in 45 kinds

BLACK TANNA.—This variety has been growing in this country for many years, the circumstances of its introduction being unknown. It grows to enormous size in favourable conditions, but is not high in sucrose and is susceptible to mosaic and to streak disease.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
March/April, 1931..	18	Plant	15.2	71.2	9.52	—	—
May/June, 1931 ..	21	,,	16.6	75.2	10.61	9.55	14th in 16 kinds
July, 1931	22	,,	18.6	86.9	13.59	9.90	16th in 21 kinds
August, 1931.. ..	23	,,	18.6	89.5	14.82	10.12	4th in 18 kinds
November, 1931 ..	14	,,	20.7	87.1	14.45	13.87	29th in 45 kinds

BLACK INNES.—A Queensland variety, introduced by Natal Estates, Ltd. Vigorous grower, but not high in sucrose.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17–19	Plant	18.3	91.5	13.30	—	10th in 11 kinds
September, 1930 ..	23	,,	19.3	91.5	14.41	—	5th in 9 kinds
July, 1931	21	,,	18.8	92.2	14.03	14.44	13th in 21 kinds
August, 1931.. ..	10–12	Ratoon	19.0	93.4	14.59	12.13	1st in 6 kinds
November, 1931 ..	14	Plant	21.4	92.9	15.33	13.84	27th in 43 kinds

BOOTH'S SELECTION.—A striped variety of unknown origin, found by G. Booth in a native garden on the Lower Umfolozi.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May/June, 1931 ..	21	Plant	17.0	88.8	12.52	10.76	7th in 16 kinds
July, 1931	22	,,	18.2	94.1	13.95	11.45	14th in 21 kinds
August, 1931	21–22	,,	20.6	94.0	13.88	11.71	12th in 18 kinds
November, 1931 ..	14	,,	20.6	94.2	16.11	11.95	14th in 45 kinds

BH. 10/12.—This cane has gained an excellent reputation in Barbados, the country of origin, and elsewhere, but does not seem to establish itself vigorously under our conditions.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17–19	Plant	19.6	90.6	14.09	—	5th in 11 kinds
March/April, 1931..	18	,,	20.7	91.1	13.38	—	1st in 11 kinds
May/June, 1931 ..	21	,,	20.2	91.2	15.04	12.27	1st in 11 kinds
July, 1931	21	,,	21.1	94.3	16.28	11.79	1 stin 11 kinds
August, 1931.. ..	22	,,	20.4	94.6	16.00	11.88	2nd in 10 kinds
November, 1931 ..	14	,,	22.0	93.7	16.31	13.53	10th in 45 kinds

CO. 205.—This is one of the thinnest and hardiest of the Coimbatore seedlings and is known in India as the " poor man's cane." With us it grows very vigorously, but the rating in sucrose and purity is nearly always very low. This variety and P.O.J. 2725 are the only ones that have flowered at the Experiment Station and it is also one of the very few varieties that have shown any cases of mosaic disease.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	19	Plant	19.9	86.1	13.23	—	8th in 10 kinds
May, 1930	19	,,	20.8	86.7	13.04	—	13th in 13 kinds
September, 1930 ..	21	,,	20.0	87.6	13.17	—	—
March/April, 1931..	16	,,	16.8	71.8	9.76	—	7th in 9 kinds
May/June, 1931 ..	20	,,	16.6	84.3	10.91	—	7th in 9 kinds
May/June, 1931 ..	10	Ratoon	18.5	81.5	11.83	14.81	7th in 9 kinds
July, 1931 ..	20	Plant	20.1	84.8	13.49	14.30	9th in 10 kinds
July, 1931	11	Ratoon	16.8	87.9	10.12	—	9th in 9 kinds
November, 1931 ..	14	Plant	20.1	87.8	13.93	18.57	42nd in 45 kinds
December, 1931 ..	18	Ratoon	21.1	90.2	13.06	18.45	11th in 11 kinds
January, 1932 ..	17	,,	20.7	89.3	12.68	18.21	13th in 13 kinds

CO. 210.—This is also a very vigorous grower and rather thicker than Co. 205, but is also usually low in sucrose.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17	Plant	17.8	75.6	10.85	—	7th in 7 kinds
May, 1930	19	,,	18.2	85.2	12.04	—	10th in 10 kinds
May, 1930	19	,,	20.1	89.9	13.94	—	9th in 13 kinds
September, 1930 ..	21	,,	18.2	87.0	12.55	—	7th in 7 kinds
March/April, 1931..	16	,,	15.8	77.5	9.39	—	8th in 9 kinds
May/June, 1931 ..	20	,,	17.1	88.5	11.48	—	8th in 10 kinds
July, 1931	20	,,	20.0	90.4	14.56	14.83	6th in 10 kinds
July, 1931	11	Ratoon	18.6	90.0	13.17	15.52	8th in 9 kinds
November, 1931 ..	14	Plant	21.7	87.5	14.90	15.03	34th in 45 kinds
December, 1931 ..	18	Ratoon	20.7	90.7	14.59	15.86	8th in 11 kinds
January, 1932 ..	17	,,	19.6	89.8	13.06	17.02	12th in 13 kinds
February, 1932 ..	16	Plant	17.3	86.8	11.08	16.30	12th in 12 kinds
February, 1932 ..	10	Ratoon	18.0	83.0	11.79	14.61	8th in 9 kinds

CO. 213.—This is a rather less vigorous grower than the two foregoing, and only slightly superior in sucrose content.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17	Plant	17.8	78.6	11.38	—	6th in 7 kinds
May, 1930	19	,,	20.8	90.3	14.44	—	2nd in 10 kinds
September, 1930 ..	21	,,	19.6	90.7	13.82	—	4th in 7 kinds
March/April, 1931..	17	,,	16.7	76.5	10.52	—	3rd in 4 kinds
May/June, 1931 ..	20	,,	16.9	86.2	12.08	15.65	3rd in 4 kinds
July, 1931	20	,,	18.9	83.2	12.93	12.04	4th in 4 kinds
July, 1931	21	,,	20.0	93.0	14.86	13.58	8th in 11 kinds
November, 1931 ..	14	,,	21.2	88.2	14.81	15.06	36th in 45 kinds
December, 1931 ..	18	Ratoon	20.2	91.0	15.10	13.02	6th in 11 kinds
January, 1932 ..	16	Plant	18.6	89.8	12.99	15.94	8th in 12 kinds
February, 1932 ..	16	,,	19.3	89.1	13.09	15.08	6th in 12 kinds

CO. 214.—This is the best sucrose yielder of this series, or, in fact, of any of our varieties, but is unfortunately a poor grower under our conditions.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17–19	Plant	21.7	90.6	14.60	—	2nd in 11 kinds
March/April, 1931..	17	,,	20.6	85.6	13.58	—	1st in 4 kinds
May/June, 1931 ..	20	,,	17.0	90.4	13.95	16.04	1st in 4 kinds
July, 1931	20	,,	21.7	89.5	15.28	14.80	1st in 4 kinds
November, 1931 ..	14	,,	23.5	90.2	16.89	14.50	2nd in 45 kinds
December, 1931 ..	18	Ratoon	22.8	91.0	16.24	15.04	4th in 11 kinds

CO. 281.—This is a very vigorous grower and will probably do even better on lighter soils under favourable conditions than it has done at the Experiment Station. It is a good sucrose producer.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
March/April, 1931..	17	Plant	18.6	85.5	13.03	—	2nd in 4 kinds
March/April, 1931..	16	,,	18.7	86.3	13.18	—	1st in 9 kinds
March/April, 1931..	18	,,	19.9	88.1	13.95	—	5th in 11 kinds
May/June, 1931 ..	20	,,	18.9	90.6	13.25	—	2nd in 4 kinds
May/June, 1931 ..	20	,,	19.2	91.0	12.79	15.70	4th in 4 kinds
July, 1931	20	,,	20.8	89.3	14.67	13.52	2nd in 4 kinds
July, 1931	20	,,	21.7	92.6	16.09	—	3rd in 10 kinds
July, 1931	21	,,	20.9	92.4	15.53	14.92	6th in 11 kinds
August, 1931.. ..	22	,,	20.3	92.5	14.85	14.36	4th in 10 kinds
November, 1931 ..	14	,,	21.8	89.7	15.82	14.79	19th in 45 kinds
December, 1931 ..	18	Ratoon	23.4	92.3	17.43	12.05	1st in 11 kinds
January, 1932 ..	16	Plant	20.8	92.7	14.76	14.94	1st in 12 kinds
February, 1932 ..	16	,,	19.9	91.8	13.96	14.74	3rd in 12 kinds
February, 1932 ..	21	,,	19.2	90.9	13.75	15.13	6th in 11 kinds

CO. 290.—This is the most promising of the Coimbatore seedlings to date. It is a very rapid and vigorous grower when once established and develops satisfactory sucrose. This cane has now been released for general planting.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	15	Plant	19.1	85.2	13.40	—	—
September, 1930 ..	18	,,	21.2	94.6	16.33	11.94	1st in 4 kinds
March/April, 1931..	17	,,	19.5	86.4	13.60	—	2nd in 4 kinds
March/April, 1931..	16	,,	17.1	72.0	10.38	—	5th in 9 kinds
March/April, 1931..	18	,,	18.4	85.0	13.07	—	8th in 11 kinds
May/June, 1931 ..	20	,,	19.7	90.4	14.61	—	2nd in 4 kinds
May/June, 1931 ..	20	,,	17.3	84.7	12.00	12.81	7th in 10 kinds
May/June, 1931 ..	21	,,	18.1	87.8	13.07	11.89	9th in 11 kinds
May/June, 1931 ..	17	,,	20.3	90.0	14.62	12.90	1st in 3 kinds
July, 1931	20	,,	21.2	92.3	16.20	12.62	2nd in 4 kinds
July, 1931	20	,,	20.1	90.1	14.40	—	7th in 10 kinds
July, 1931	21	,,	20.2	89.8	14.51	12.18	9th in 11 kinds
August, 1931.. ..	21	,,	20.5	91.2	15.52	12.46	2nd in 3 kinds
August, 1931.. ..	22	,,	19.7	90.3	14.44	13.04	6th in 10 kinds
August, 1931.. ..	21	,,	21.0	92.5	16.15	13.29	3rd in 4 kinds
August, 1931.. ..	20–22	,,	20.8	91.9	15.95	12.56	1st in 3 kinds
November, 1931 ..	14	,,	21.6	89.5	15.55	12.90	23rd in 45 kinds
January, 1932 ..	16	,,	18.8	90.3	13.86	12.01	5th in 12 kinds
February, 1932 ..	16	,,	20.7	91.5	14.90	12.40	1st in 12 kinds

CO. 223.—This variety, received at the same time, has done better than Co. 237, but is not very rich in sucrose, nor is it outstanding in growth.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May/June, 1931 ..	21	Plant	15.6	82.3	10.71	11.34	13th in 16 kinds
July, 1931	21	,,	16.5	90.5	12.86	11.73	19th in 21 kinds
August, 1931.. ..	21–22	,,	16.6	90.3	12.48	12.69	15th in 18 kinds
November, 1931 ..	14	,,	20.8	89.3	15.65	13.79	22nd in 45 kinds

CO. 237.—This variety was first planted at the Experiment Station two years ago. It has suffered severely from drought and does not appear likely to succeed in Natal.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
March/April, 1931..	18	Plant	16.4	83.2	10.75	—	4th in 10 kinds
March/April, 1931..	21	,,	17.7	86.6	12.29	14.11	9th in 16 kinds
July, 1931	21	,,	19.6	91.8	14.50	14.10	10th in 21 kinds
August, 1931.. ..	21–22	,,	19.1	93.7	14.68	13.27	6th in 18 kinds
November, 1931 ..	14	,,	20.6	87.4	14.22	15.02	41st in 45 kinds

CO. 243.—The same remarks apply to this variety as to Co. 223.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May/June, 1931 ..	21	Plant	17.9	89.0	—	13.69	8th in 16 kinds
July, 1931	21	,,	18.4	92.1	13.15	14.43	18th in 21 kinds
August, 1931.. ..	21–22	,,	17.8	91.9	12.57	15.24	14th in 18 kinds
November, 1931 ..	14	,,	20.1	87.2	13.74	15.87	43rd in 45 kinds

CO. 244.—This variety, received at the same time as Co. 237, Co. 223 and Co. 243, appears to be the best of the four, both in sucrose and growth, but it is doubtful whether it will be good enough to become a commercial variety in South Africa.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May/June, 1931 ..	21	Plant	18.6	86.8	13.12	13.41	5th in 16 kinds
July, 1931	21	,,	20.4	93.3	14.93	13.02	4th in 21 kinds
August, 1931.. ..	21–22	,,	19.9	94.4	14.44	—	11th in 18 kinds
November, 1931 ..	14	,,	22.2	92.0	16.01	14.18	16th in 45 kinds

CH. 64/21.—This is a cross between Uba and D. 74, originated at the Cuban Government Experiment Station near Havana. It closely resembles the Uba parent in appearance, and is at least equal to it as a grower and has developed good sucrose, but it is a late maturer. This cane has now been released for general planting.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	19	Plant	20.0	87.8	13.99	—	8th in 13 kinds
July, 1931	11	Ratoon	18.9	87.3	13.55	13.36	7th in 9 kinds
November, 1931 ..	14	Plant	21.9	88.5	15.79	14.50	20th in 45 kinds
January, 1932 ..	16	,,	18.4	88.4	12.88	13.15	9th in 12 kinds
January, 1932 ..	17	Ratoon	21.9	93.8	15.25	—	7th in 13 kinds
February, 1932 ..	16	Plant	18.1	87.0	11.76	15.30	11th in 12 kinds

CLARKE'S SEEDLING.—Another of the Queensland varieties introduced by Natal Estates, Ltd. It will grow very well under irrigation.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17–19	Plant	19.3	93.6	14.34	—	3rd in 11 kinds
September, 1930 ..	23	,,	19.9	92.6	15.06	—	2nd in 9 kinds
July, 1931	21	,,	19.1	94.0	14.89	10.76	6th in 21 kinds

CUBAN SELECTION.—This is a variety of unknown identity, introudced by Mr. R. C. Wade, of Ifafa, from Cuba. In appearance and properties it closely resembles CH. 64/21.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17	Plant	19.4	82.6	12.77	—	3rd in 7 kinds
May, 1930	19	,,	20.3	89.8	14.47	—	3rd in 13 kinds
September, 1930 ..	21	,,	20.3	86.2	13.59	—	5th in 7 kinds
May/June, 1931 ..	10	Ratoon	18.8	81.7	11.88	14.82	6th in 9 kinds
July, 1931	11	,,	19.8	90.4	14.45	13.76	5th in 9 kinds
November, 1931 ..	14	Plant	22.2	87.7	15.43	13.77	25th in 45 kinds
January, 1932 ..	17	Ratoon	21.7	92.6	15.64	—	4th in 13 kinds

HORNE.—A variety said to be Horne cane was sent to the Experiment Station by Mr. P. Addison, of Nkwaleni.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May/June, 1931 ..	21	Plant	17.5	88.8	12.77	11.07	6th in 16 kinds
July, 1931	21	,,	18.4	95.7	14.80	10.25	7th in 21 kinds
August, 1931.. ..	21–22	,,	18.7	94.6	14.50	12.35	10th in 18 kinds
November, 1931 ..	14	,,	20.9	92.1	16.12	11.92	13th in 45 kinds

H.Q. 694.—One of the Queensland varieties which usually runs high in sucrose. Its growth at the Experiment Station has been rather poor.

ANALYSIS:— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17–19	Plant	19.6	88.0	13.69	—	8th in 11 kinds
September, 1930 ..	23	,,	20.6	89.1	14.79	—	3rd in 9 kinds
July, 1931	21	,,	20.8	92.1	15.69	11.25	2nd in 21 kinds

HIND'S SPECIAL.—A very vigorous cane from the Philippine Islands. Has a high degree of immunity to mosaic disease. It appears to be a late ripener, as tests of immature cane have always given very low sucrose contents and purities. Six tests made during the months July to November, 1931, on cane upwards of twenty months old averaged 14.06 per cent. sucrose and 83.7 purity. Further tests with this cane are awaited with interest as it appears capable of giving a very high tonnage.

ANALYSIS:— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	7	Plant	18.8	77.2	11.61	—	—
September, 1930 ..	18	,,	19.7	82.9	13.58	10.87	3rd in 3 kinds
March/April, 1931..	16	,,	16.0	62.1	8.19	—	9th in 9 kinds
March/April, 1931..	18	,,	15.8	60.6	8.55	—	11th in 11 kinds
May/June, 1931 ..	20	,,	18.1	79.6	11.27	—	9th in 9 kinds
May/June, 1931 ..	21	,,	17.4	73.3	10.70	13.32	11th in 11 kinds
July, 1931	20	,,	20.0	80.7	13.25	12.41	10th in 10 kinds
July, 1931	21	,,	19.6	83.5	13.24	13.32	11th in 11 kinds
August, 1931.. ..	22	,,	18.8	81.4	12.86	13.97	10th in 10 kinds
November, 1931 ..	14	,,	21.3	86.6	14.58	16.33	38th in 45 kinds
January, 1932 ..	16	,,	18.0	80.8	11.22	14.81	12th in 12 kinds

KAVANGIRE.—This is a "poor relation" of Uba, which it closely resembles in the field, but usually makes lesser growth. It is relatively high, however, in sucrose when tested late in the season.

ANALYSIS:— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	19	Plant	20.0	90.8	14.41	—	4th in 13 kinds
March/April, 1931..	18	,,	17.9	79.6	11.26	—	3rd in 10 kinds
May/June, 1931 ..	21	,,	20.8	90.3	14.89	13.48	1st in 16 kinds
July, 1931	21	,,	21.6	92.0	16.22	13.03	1st in 21 kinds
August, 1931.. ..	21–22	,,	21.2	90.9	15.50	13.42	1st in 18 kinds
November, 1931 ..	14	,,	22.3	88.3	15.86	14.00	17th in 45 kinds

KASSOER.—This is an accidental cross that occurred in Java of Blakc Cheribon with a wild cane and has been used intensively in cane-breeding work to confer resistance and general hardiness on the Javan cane seedlings. It is, however, of no value as a sugar producer, being uniformly low in sucrose.

ANALYSIS:— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
March/April, 1931..	18	Plant	14.0	71.6	7.34	—	9th in 10 kinds
May/June, 1931 ..	21	,,	16.3	78.0	9.67	—	15th in 16 kinds
July, 1931	21	,,	17.0	87.2	12.11	16.88	20th in 21 kinds
August, 1931.. ..	21–22	,,	16.7	86.7	10.97	16.25	16th in 18 kinds
August, 1931.. ..	20	,,	16.7	86.7	10.97	16.25	19th in 21 kinds
November, 1931 ..	20	,,	18.8	88.0	12.74	16.87	6th in 6 kinds
November, 1931 ..	14	,,	18.3	82.5	11.53	17.61	45h in 45 kinds

LA MERCY YELLOW.—This is a variety of unknown origin found on the estate of D. de Chazal, La Mercy; it may possibly be identical with R.P. 8 of Mauritius. It is a very vigorous growing cane and is generally well up in the sucrose ranking.

ANALYSIS:— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17	Plant	18.3	87.3	12.19	—	4th in 7 kinds
May, 1930	19	,,	19.3	90.2	13.34	—	7th in 10 kinds
September, 1930 ..	21	,,	20.4	87.9	14.46	—	2nd in 7 kinds
March/April, 1931..	16	,,	16.2	80.2	10.90	—	3rd in 9 kinds
May/June, 1931 ..	20	,,	18.0	90.2	13.06	13.79	3rd in 10 kinds
May/June, 1931 ..	17	Ratoon	18.7	90.7	13.15	13.57	2nd in 4 kinds

LA MERCY YELLOW.—*continued.*

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
July, 1931	20	Plant	20.2	92.1	15.29	12.79	5th in 10 kinds
November, 1931 ..	14	,,	21.3	88.5	15.13	13.63	31st in 45 kinds
January, 1932 ..	16	,,	18.1	89.8	12.88	14.98	11th in 12 kinds
February, 1932 ..	16	,,	18.7	90.4	12.77	14.80	9th in 12 kinds

LA MERCY RED.—This comes from the same plantation at La Mercy and is also a promising variety ; it may be identical with R.P. 6.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
March/April, 1931..	16	Plant	16.2	80.6	10.60 ×	—	4th in 9 kinds
May/June, 1931 ..	20	,,	17.8	89.2	12.30	—	5th in 10 kinds
May/June, 1931 ..	17	Ratoon	17.4	89.7	12.09	—	4th in 4 kinds
July, 1931	20	Plant	19.9	93.4	14.34	14.80	8th in 10 kinds
November, 1931 ..	14	,,	21.9	89.8	15.09	14.73	32nd in 45 kinds
January, 1932 ..	16	,,	18.6	88.8	13.14 ×	—	7th in 12kinds
February, 1932 ..	16	,,	19.3	89.9	13.08 ×	14.97	7th in 12 kinds

LIGHT CHERIBON.—This is the variety which still produces by far the greater proportion of the Cuban crop, and was formerly grown in this country under the name of Green Natal. It is a good sucrose producer, but is not very resistant to drought and is susceptible to mosaic disease.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
March/April, 1931..	18	Plant	16.8	85.9	11.97	—	2nd in 10 kinds
May/June, 1931 ..	21	,,	19.7	92.4	14.88	12.13	2nd in 16 kinds
July, 1931	21	,,	18.6	94.9	14.67	13.08	8th in 21 kinds
August, 1931.. ..	21–22	,,	19.0	93.7	14.61	12.43	8th in 18 kinds
November, 1931 ..	20	,,	19.3	93.2	14.94	12.95	3rd in 6 kinds
November, 1931 ..	14	,,	21.1	93.7	16.53	12.94	7th in 45 kinds

MERTHI.—This is a variety from India that closely resembles Uba, and is considered by some authorities to be identical with it.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	19	Plant	18.3	88.7	13.02	—	9th in 10 kinds
May, 1930	19	,,	19.3	90.9	13.93	—	10th in 13 kinds
August, 1931.. ..	18	Ratoon	19.7	90.3	14.25	14.28	10th in 11 kinds
August, 1931.. ..	17	,,	18.8	90.3	13.56	14.85	11th in 13 kinds

M.P. 55.—This is a Mauritius seedling. It is apparently only a moderate yielder, though the sucrose content is high.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
July, 1931	20	Ratoon	20.2	93.2	15.80	10.65	1st in 2 kinds
November, 1931 ..	20	Plant	21.7	93.3	16.46	11.36	1st in 6 kinds
November, 1931 ..	14	,,	21.0	92.3	16.30	11.65	11th in 45 kinds

OTAHEITE.—This variety, under various names such as Louzier, Lahaina, etc., has proved an excellent sugar producer in the past in many parts of the world under favourable conditions. It is now hardly grown commercially, being replaced by hardier and more disease-resistant varieties of equally good productive qualities.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
March/April, 1931..	18	Plant	16.9	79.2	10.73	—	5th in 10 kinds
May/June, 1931 ..	21	,,	17.2	83.7	11.59	13.24	11th in 16 kinds
July, 1931	21	,,	19.7	91.3	14.92	11.83	5th in 21 kinds
August, 1932.. ..	20–22	,,	19.8	91.5	14.80	12.48	5th in 18 kinds
November, 1931 ..	20	,,	19.9	92.4	15.39	11.96	2nd in 6 kinds
November, 1931 ..	14	,,	21.4	90.6	15.71	13.11	21st in 45 kinds

OGLE'S SELECTION.—A thin, reed-like cane found on the Reunion plantation of the Illovo Sugar Estates, Ltd.; of no apparent value.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
March/April, 1931..	18	Plant	14.1	58.4	6.95	—	10th in 10 kinds
July, 1931	21	,,	17.3	77.2	11.21	15.10	21st in 21 kinds
August, 1931.. ..	21–22	,,	16.6	73.4	9.85	16.50	17th in 18 kinds
November, 1931 ..	14	,,	21.3	85.4	14.34	15.65	40th in 45 kinds

OSHIMA.—This is one of the small number of commercial canes immune to mosaic disease. It germinates rapidly and grows well in the early stages, but is eventually surpassed by Uba and other varieties.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	19	Plant	18.7	93.0	13.95	—	5th in 10 kinds
May, 1930	19	,,	19.2	90.1	13.74	—	11th in 13 kinds
May/June, 1931 ..	10	Ratoon	19.2	88.5	13.13	—	2nd in 9 kinds
July, 1931	11	,,	20.4	91.4	15.03	13.44	2nd in 9 kinds
December, 1931 ..	18	,,	20.2	91.0	15.10	13.02	6th in 11 kinds
January, 1932 ..	17	,,	19.8	91.7	14.64	13.93	9th in 13 kinds

P.O.J. 213.—This was grown commercially at a few plantations some years ago under the name of Argentine cane imported from that country. It was, however, wholly infected with mosaic disease except for two stools which Dr. Storey found had for some reason escaped the prevailing infection. All our present stocks of this variety are derived from the cane of these two stools, which still maintains a high degree of resistance to mosaic disease, although there have been one or two cases in the quarantine collection at Umbogintwini. Grown in competition with Uba and three other varieties at the Experiment Station in a poor heavy soil during two years of severe drought, it proved superior both in yield of cane and of sucrose. It also gave a satisfactory crop when cut as twelve months' plant cane, yielding twenty-five tons cane to the acre in a medium soil without irrigation and a sucrose content of 11.79%. In a poor soil sandy at Umbogintwini, however, it has proved inferior to Uba.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17–19	Plant	20.1	91.9	14.78	—	1st in 11 kinds
May, 1930	21	Ratoon	18.4	92.2	13.26	—	4th in 5 kinds
September, 1930 ..	23	Plant	19.2	91.6	13.80	—	7th in 9 kinds
March/April, 1931..	16	,,	16.8	83.2	11.16	—	2nd in 9 kinds
March/April, 1931..	18	,,	19.5	90.0	13.87	—	6th in 11 kinds
May/June, 1931 ..	20	,,	18.6	92.1	13.66	—	1st in 10 kinds
May/June, 1931 ..	21	,,	19.0	91.2	14.02	14.38	5th in 11 kinds
May/June, 1931 ..	17	Ratoon	19.0	91.8	13.47	14.71	1st in 4 kinds
May/June, 1931 ..	10	,,	20.0	92.3	14.06	13.74	1st in 9 kinds
July, 1931	20	Plant	21.0	94.2	16.19	13.17	2nd in 10 kinds
July, 1931	21	,,	20.0	93.0	14.86	13.58	8th in 11 kinds
July, 1931	17	Ratoon	19.0	91.8	13.47	14.71	1st in 4 kinds
July, 1931	11	,,	20.0	93.8	15.21	13.06	1st in 9 kinds
August, 1931.. ..	22	Plant	19.7	93.0	15.02	14.53	3rd in 10 kinds
November, 1931 ..	14	,,	21.2	90.7	15.84	13.46	18th in 45 kinds
January, 1932 ..	17	Ratoon	21.7	94.2	16.00	13.96	2nd in 13 kinds

P.O.J. 2714.—This variety, together with P.O.J. 2725, has been tried in a large variety of soils, and where conditions are favourable—that is, the soil is not too heavy and not too dry—it grows extremely well, but is rather difficult to establish if condiltons are not of the best. This cane has now been released for general planting.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	19	Plant	21.6	92.3	15.41	—	1st in 13 kinds
March/April, 1931..	17	,,	19.0	85.1	12.95	—	3rd in 4 kinds
March/April, 1931..	16	,,	16.1	76.0	10.08	—	6th in 9 kinds
March/April, 1931..	18	,,	19.5	87.6	14.09	—	4th in 11 kinds
May/June, 1931 ..	20	,,	19.6	91.6	14.23	13.88	3rd in 4 kinds
May/June, 1931 ..	20	,,	17.2	82.6	12.03	11.67	6th in 10 kinds
May/June, 1931 ..	21	,,	20.0	88.0	14.15	13.65	4th in 11 kinds
July, 1931	20	,,	21.1	94.0	16.15	12.67	3rd in 4 kinds
July, 1931	20	,,	20.9	90.4	15.85	—	4th in 10 kinds

P.O.J. 2714.—*continued.*

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
July, 1931	21	Plant	21.4	92.4	16.10	12.12	3rd in 11 kinds
August, 1931.. ..	21	,,	19.6	93.5	14.75	13.49	3rd in 3 kinds
August, 1931.. ..	22	,,	20.2	92.7	14.01	14.47	7th in 10 kinds
August, 1931.. ..	21	,,	21.7	94.2	16.46	12.95	2nd in 4 kinds
November, 1931 ..	14	,,	21.9	91.4	16.82	11.42	3rd in 45 kinds
January, 1932 ..	16	,,	20.3	91.6	14.58	—	2nd in 12 kinds
January, 1932 ..	17	Ratoon	21.6	92.6	16.06	13.22	1st in 13 kinds
February, 1932 ..	16	Plant	18.3	89.5	12.87	13.73	8th in 12 kinds

P.O.J. 2725.—This variety is doing remarkably well in preliminary trials, being adaptable to a wide range of soils and develops high sucrose early in the season. It has remained free from mosaic, and together with P.O.J. 2714 has proved very resistant, in fact, hitherto immune to streak; this is one of the most promising of our importations up to the present. The disadvantage that it exhibits in tropical countries of premature flowering and ripening has not been found here, where only a few stools have flowered. The only disadvantage has been a slight tendency towards tangle top. This cane has now been released for general planting.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
September, 1930 ..	18	Plant	22.0	91.5	16.14	11.91	2nd in 4 kinds
March/April, 1931..	17	,,	21.0	89.5	15.70	—	1st in 4 kinds
March/April, 1931..	18	,,	19.9	90.8	15.00	—	2nd in 11 kinds
May/June, 1931 ..	20	,,	20.5	92.9	15.30	13.34	1st in 4 kinds
May/June, 1931 ..	20	,,	18.6	88.6	13.40	12.23	2nd in 10 kinds
May/June, 1931 ..	21	,,	20.1	90.0	14.72	13.26	3rd in 11 kinds
May/June, 1931 ..	18	,,	20.8	91.0	15.82	11.19	1st in 3 kinds
July, 1931	20	,,	22.4	94.9	17.22	12.06	1st in 4 kinds
July, 1931	20	,,	22.1	93.5	16.86	12.39	1st in 10 kinds
July, 1931	21	,,	21.4	92.1	16.23	12.14	2nd in 11 kinds
July, 1931	18	,,	22.4	94.1	17.40	11.23	1st in 3 kinds
August, 1931.. ..	21	,,	20.8	93.8	15.89	12.95	1st in 3 kinds
August, 1931.. ..	22	,,	21.0	93.0	16.55	12.20	1st in 10 kinds
August, 1931.. ..	21	,,	22.2	94.8	17.36	11.72	1st in 4 kinds
August, 1931.. ..	12	Ratoon	22.1	93.7	17.00	10.97	1st in 3 kinds
August, 1931.. ..	16	Plant	20.5	90.2	14.47	12.54	3rd in 12 kinds
November, 1931 ..	14	,,	22.5	90.7	17.65	11.06	1st in 45 kinds
February, 1932 ..	16	,,	19.2	89.0	13.40	13.25	4th in 12 kinds

P.O.J. 2722.—This variety gives good sucrose but has proved a disappointing yielder. It is also susceptible to mosaic disease ,so it is not expected to have any commercial value in South Africa.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
March/April, 1931..	18	Plant	18.9	87.4	12.86	—	1st in 10 kinds
May/June, 1931 ..	21	,,	19.0	89.8	13.68	13.71	3rd in 16 kinds
July, 1931	21	,,	20.5	91.4	15.39	12.69	3rd in 21 kinds
August, 1931.. ..	20-22	,,	18.7	92.8	14.38	13.04	3rd in 3 kinds
November, 1931 ..	20	,,	20.1	90.5	14.41	13.34	5th in 6 kinds
November, 1931 ..	14	,,	21.8	91.3	16.72	11.35	4th in 45 kinds

P.O.J. 2727.—This variety is proving a very good grower, stands drought very well for a thick cane and also ratoons well, and has a high immunity to mosaic. This cane has now been released for general planting.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
March/April, 1931..	18	Plant	18.6	85.6	12.90	—	9th in 11 kinds
March/April, 1931..	18	,,	16.4	77.7	10.36	—	6th in 10 kinds
May/June, 1931 ..	21	,,	18.3	92.1	13.39	15.49	8th in 11 kinds
May/June, 1931 ..	21	,,	18.4	88.1	13.19	13.08	4th in 16 kinds
May/June, 1931 ..	17	,,	19.2	87.6	13.61	12.31	2nd in 3 kinds
July, 1931	21	,,	19.8	92.2	14.93	12.95	7th in 11 kinds
July, 1931	21	,,	19.9	92.6	14.64	—	9th in 21 kinds
July, 1931	17	,,	18.7	88.5	14.00	14.31	3rd in 3 kinds

P.O.J. 2727.—*continued.*

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
August, 1931.. ..	22	Plant	19.8	90.1	14.73	14.15	5th in 10 kinds
August, 1931.. ..	20–22	,,	19.4	91.8	15.13	12.56	2nd in 3 kinds
August, 1931.. ..	21–22	,,	20.2	92.0	14.86	14.68	3rd in 18 kinds
August, 1931.. ..	16	,,	19.4	89.7	13.92	—	4th in 12 kinds
November, 1931 ..	14	,,	21.7	90.0	16.53	12.20	7th in 45 kinds
February, 1932 ..	16	,,	18.9	88.7	13.16	14.08	5th in 12 kinds

P.O.J. 2878.—The "Wonder Cane" of Java. This does not develop as rapidly in the early stages as some of the other P.O.J. varieties, but once thoroughly established it grows with extraordinary vigour if growing conditions are suitable. Will probably be one of our best for irrigation conditions. Has now been released for general planting.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
March/April, 1931..	18	Plant	18.3	84.3	13.10	—	7th in 11 kinds
May/June, 1931 ..	21	,,	18.5	86.9	13.54	12.56	7th in 11 kinds
May/June, 1931 ..	18	,,	17.3	82.1	11.91	10.38	3rd in 3 kinds
July, 1931	21	,,	20.8	93.3	15.82	12.14	4th in 11 kinds
July, 1931	18	,,	19.5	91.6	15.30	11.01	2nd in 3 kinds
August, 1931.. ..	12	Ratoon	20.7	94.2	15.86	12.33	2nd in 2 kinds
November, 1931 ..	14	Plant	21.8	88.3	16.34	11.14	9th in 45 kinds
January, 1932 ..	16	,,	20.1	87.5	13.23	—	6th in 12 kinds
February, 1932 ..	16	,,	19.7	91.0	14.59	11.70	2nd in 12 kinds

Q. 813.—One of the most vigorous of the Queensland canes, develops moderate sucrose.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17–19	Plant	19.6	91.3	14.22	—	4th in 11 kinds
September, 1930 ..	23	,,	20.0	91.8	14.79	—	3rd in 9 kinds
November, 1931 ..	14	,,	21.3	92.0	15.18	15.29	30th in 45 kinds

RAPSON'S SELECTION.—This is a variety of unknown origin, from the estate of C. J. Rapson, Chaka's Kraal. It is being maintained at the Experiment Station for further trial.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	19	Plant	19.4	90.6	14.10	—	3rd in 10 kinds
December, 1931 ..	18	Ratoon	20.9	92.2	15.38	15.62	5th in 11 kinds

ROUILLARD'S SELECTION.—A variety very similar to the foregoing and possibly identical with it ; from the plantation of Dr. A. A. Rouillard, of Darnall.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May/June, 1931 ..	17	Ratoon	18.6	92.5	12.83	12.47	3rd in 4 kinds
November, 1931 ..	14	Plant	22.2	90.7	16.07	14.32	15th in 45 kinds

S.C. 12/4.—This is a cane which has given excellent results in the West Indies, but contrary to its chief competitor there, BH. 10/12, has established itself remarkably well in this country. It has made excellent growth without irrigation when planted in favourable conditions, and is one of the best sucrose producers in the collection. It is, however, difficult to germinate unless the soil conditions are favourable and is susceptible to mosaic disease, being one of the very few varieties to have acquired this dieases at the Experiment Station.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17	Plant	19.3	90.7	13.55	—	1st in 7 kinds
May, 1930	19	,,	20.0	93.0	14.29	—	6th in 13 kinds
March/April, 1931..	18	,,	20.1	91.2	14.61	—	3rd in 11 kinds
May/June, 1931 ..	21	,,	20.0	93.2	14.93	13.25	2nd in 11 kinds
July, 1931	21	,,	20.1	93.8	15.80	11.71	5th in 11 kinds
August, 1931.. ..	22	,,	19.0	92.9	14.00	13.68	8th in 10 kinds
November, 1931 ..	14	,,	22.2	93.4	16.64	13.47	5th in 45 kinds
January, 1932 ..	17	Ratoon	20.7	94.1	15.16	—	8th in 13 kinds

S.W. 499.—This is a Java cane which was grown fairly extensively in that country at one time. It seems a fairly vigorous grower, but we have little data concerning it so far.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May/June, 1931 ..	21	Plant	17.3	81.9	11.86	10.82	10th in 16 kinds
July, 1931	21	,,	18.8	88.9	14.25	11.90	11th in 21 kinds
August, 1931.. ..	21–22	,,	20.0	91.8	15.27	11.62	2nd in 18 kinds

TOLEDO.—This variety from the Philippine Islands has never adapted itself well to our conditions.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
July, 1931	21	Plant	21.2	83.5	14.43	14.75	12th in 21 kinds
July, 1931	21–22	,,	21.3	81.9	14.64	14.15	7th in 18 kinds
November, 1931 ..	20	,,	22.2	84.3	14.84	15.18	4th in 6 kinds

TOWNSEND'S SELECTION.—This cane has long been grown in this country on the estate of A. Townsend, Umhlali, under the name of " China " cane, its origin being unknown. It is an erect and rapid growing variety, but has proved inferior to Uba.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	19	Plant	20.4	85.7	14.02	—	4th in 10 kinds
May, 1930	19	,,	20.2	85.3	13.22	—	12th in 13 kinds
May/June, 1931 ..	10	Ratoon	19.5	81.1	12.15	14.02	4th in 9 kinds
July, 1931	11	,,	19.9	87.7	13.59	14.74	6th in 9 kinds
December, 1931 ..	18	,,	21.3	86.3	14.40	—	9th in 11 kinds
January, 1932 ..	17	,,	20.4	88.5	13.68	15.75	10th in 13 kinds

UBA MAROT.—This variety, obtained from Mauritius, is one of the most rapid growers we have, but unfortunately has never developed more than a trifling proportion of sucrose.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
August, 1931.. ..	21–22	Plant	14.4	50.7	6.47	13.43	18th in 18 kinds
November, 1931 ..	14	,,	19.2	78.4	12.19	16.69	44th in 45 kinds

U.D. 1.—This is a cross between Hawaiian Uba (Zwinga) and D. 1135, produced at the Hawaiian Sugar Experiment Station. It is proving very unsatisfactory under our conditions, being susceptible to mosaic, sensitive to drought and slow growing and maturing.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17	Plant	18.1	85.8	13.08	—	2nd in 7 kinds
May, 1930	19	,,	19.7	93.0	14.70	—	1st in 10 kinds
September, 1930 ..	21	,,	18.9	91.6	14.37	—	3rd in 7 kinds
December, 1930 ..	18	Ratoon	22.0	94.5	16.68	12.27	3rd in 11 kinds
December, 1930 ..	14	Plant	22.2	94.5	16.56	14.20	6th in 45 kinds

U.S, 663.—One of the Canal Point seedlings ; a plant of slender habit, deficient in sucrose.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17–19	Plant	20.4	86.6	13.99	—	6th in 11 kinds
September, 1930 ..	23	,,	20.9	88.5	13.95	—	6th in 9 kinds
July, 1931	21	,,	20.5	88.0	13.51	16.88	17th in 21 kinds
November, 1931 ..	14	,,	21.8	87.4	15.37	17.94	26th in 45 kinds

ZWINGA.—Is known as Uba in certain countries, such as Hawaii, and has been used in cane breeding work there (see U.D. 1), but is manifestly inferior to Natal Uba.

ANALYSIS :— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17–19	Plant	19.5	86.9	13.42	—	9th in 11 kinds
September, 1930 ..	23	,,	19.4	89.5	13.55	—	8th in 9 kinds
July, 1931	21	,,	19.4	89.4	13.60	14.19	15th in 21 kinds
December, 1931 ..	14	,,	21.2	90.9	14.77	17.14	37th in 45 kinds

UBA.—A number of check tests of ordinary Natal Uba are given for purposes of comparison. Uba is still the only variety in general cultivation in Natal, though six other varieties have now been released for commercial planting. It will take some years before they become serious competitors of this old established variety. Compared with many of the other varieties under trial it is slow in maturing, but develops very favourable sucrose in the middle of the usual harvesting season. It is susceptible to streak disease though fairly tolerant, and may be considered immune to mosaic disease; it is also resistant to drought and cold and general severe conditions.

ANALYSIS:— Date of Test.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
May, 1930	17–19	Plant	19.9	88.5	13.96	—	7th in 11 kinds
May, 1930	19	,,	20.1	89.6	14.25	—	7th in 13 kinds
May, 1930	21	Ratoon	19.6	90.2	13.78	—	3rd in 5 kinds
September, 1930 ..	23	Plant	19.9	87.9	13.47	—	9th in 9 kinds
March/April, 1931..	17	,,	16.9	76.4	10.49	—	4th in 4 kinds
March/April, 1931..	17	,,	17.2	74.8	9.67	—	4th in 4 kinds
March/April, 1931..	18	,,	16.8	72.8	9.99	—	10th in 11 kinds
May/June, 1931 ..	20	,,	19.6	89.9	13.74	15.22	4th in 4 kinds
May/June, 1931 ..	20	,,	18.0	84.9	12.06	14.96	4th in 4 kinds
May/June, 1931 ..	21	,,	17.2	84.2	11.58	14.13	10th in 11 kinds
May/June, 1931 ..	10	Ratoon	19.6	80.9	12.03	15.06	5th in 9 kinds
July, 1931	20	Plant	21.0	91.8	15.36	13.48	4th in 4 kinds
July, 1931	20	,,	20.1	82.9	13.84	12.30	3rd in 4 kinds
July, 1931	21	,,	20.0	88.6	13.97	14.55	10th in 11 kinds
July, 1931	11	Ratoon	20.4	90.9	14.66	13.65	4th in 9 kinds
August, 1931.. ..	22	Plant	19.6	90.3	13.90	14.84	9th in 10 kinds
August, 1931.. ..	21	,,	20.9	92.0	14.79	15.36	4th in 4 kinds
November, 1931 ..	14	,,	21.6	88.4	15.29	13.99	29th in 45 kinds
January, 1932 ..	17	Ratoon	21.3	93.3	15.26	15.62	6th in 13 kinds
January, 1932 ..	16	Plant	18.0	86.3	12.87	13.18	10th in 12 kinds

The above quoted analyses are all based on small (10 kilo) hand mill samples, so that each one is subject to very large experimental error. Nevertheless each series, taken as a whole, is of value, as indicating qualitatively the general trend of each variety of cane and seasons of harvesting.

The sucrose content of the cane has been arrived at by separate analyses of the juice and the bagasse of each sample.

Appended is a schedule showing the results separately of a series of tests covering 45 varieties made during November, 1931, showing the ranking.

Besides those mentioned above, there are a number of other varieties at the Experiment Station. Some of these, including the following, have not yet made sufficient growth for material being taken for laboratory analyses.

B. 247 (Java).
R.P. 8 (Mauritius).
Yon tan san (Formosa).
P.O.J. 2803 (Java).
P.O.J. 2822 (Java).
P.O.J. 2946 (Java).
P.O.J. 2947 (Java).
P.O.J. 2952 (Java).
Tucuman 454 (Argentine).
Tucuman 472 (Argentine).
Tucuman 544 (Argentine).
Co. 270 (India).
Co. 284 (India).
Co. 313 (India).

The Tucuman varieties are more or less of the Uba type and appear strong growers.

Of the Coimbatore numbers, 270 seems much the most vigorous of these three. It is making a very good appearance as young plant cane. Little can be said about the behaviour of the other varieties so far.

The following varieties are in the Quarantine Greenhouse:—

S.J. 4, S.J. 7, Pompey } Imported direct from Queensland.

Co. 285, Co. 301, Co. 303, Co. 312, Co. 317 } Imported direct from Coimbatore, India.

C.P. 177, C.P. 807, B. 726 } Imported direct from Washington, U.S.A.

Sin Nombre—Obtained from Kenya Colony.
Tucuman 451—Imported direct from Tucuman, Argentine.

A recent development is the introduction of cane seed as distinct from setts. Cane seldom flowers in Natal, so that seed of selected parentage is extremely difficult if not impossible to obtain. In 1930 we received, however, several parcels of promising seed by the favour of the U.S. Bureau of Plant Industry from the Government cane breeding station at Canal Point.

This was germinated by Mr. McClean, the Mycologist in charge of the Laboratories and Quarantine Greenhouse at the Botanic Gardens, Durban, early in the

Spring of 1930. 47 seedlings were reared and these were transferred to the Experiment Station on 24th December, 1930. One died after transplanting, the others all grew. Some of them appear vigorous and have stooled out well. A short line of each of 40 of them was planted out on 27th October, 1931. When these lines have grown it will be possible to test the canes for sucrose as well as to note their growth. These seedlings are all thinnish canes, they are interesting because they are the first cane seedlings ever known to be grown in Natal, and there is a rather remote chance that one of them might turn out a good cane, but up to the present none of them have shown any outstanding qualities.

The South African Sugar Industry is much indebted to the following sources of new cane varieties :—

Bureau of Plant Industry, Washington, D.C., U.S.A.
Incomati Estates, Portuguese East Africa.
Sugar Bureau, Pusa, Bihar, India.
Experiment Station, Tucuman, Argentine Republic.
Experiment Station, Chaparra, Cuba.
Natal Estates, Mount Edgecombe, Natal.
Hawaiian Sugar Planters' Association, Honolulu, Hawaiian Islands.
Department of Agriculture, Mauritius.
Philippine Sugar Association, Manila, Philippine Islands.
Ramisi Sugar Estate, Kenya.

The two first named in particular have gone to much trouble to supply us with most valuable varieties.

Experiment Station,
South African Sugar Association,
Mount Edgecombe.
March, 1932.

APPENDIX.—ANALYSES OF SUGAR CANE VARIETIES.

DATE OF TESTS—NOVEMBER, 1931.

ANALYSIS :— Variety.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
P.O.J. 2725	14	Plant	22.5	90.7	17.65	11.06	**1**
Co. 214	14	,,	23.5	90.2	16.89	14.50	**2**
P.O.J. 2714	14	,,	21.9	91.4	16.82	11.42	**3**
P.O.J. 2727	14	,,	21.8	91.3	16.72	11.35	**4**
SC. 12/4	14	,,	22.2	93.4	16.64	13.47	**5**
U.D. 1	14	,,	22.2	94.5	16.56	14.20	**6**
P.O.J. 2727	14	,,	21.7	90.0	16.53	12.20	**7**
Light Cheribon	14	,,	21.1	93.7	16.53	12.94	**7**
P.O.J. 2878	14	,,	21.8	88.3	16.34	11.14	**9**
BH. 10/12	14	,,	22.0	93.7	16.31	13.53	**10**
M.P. 55	14	,,	21.0	92.3	16.30	11.65	**11**
Agaul	14	,,	22.8	89.6	16.26	14.35	**12**
Horne	14	,,	20.9	92.1	16.12	11.92	**13**
Booth's Selection	14	,,	20.6	94.2	16.11	11.95	**14**
Rouillard's Selection	14	,,	22.2	90.7	16.07	14.32	**15**
Co. 244	14	,,	22.2	92.0	16.01	14.18	**16**
Kavangire	14	,,	22.3	88.3	15.86	14.00	**17**
P.O.J. 213	14	,,	21.2	90.7	15.84	13.46	**18**
Co. 281	14	,,	21.8	89.7	15.82	14.79	**19**
CH. 64/21	14	,,	21.9	88.5	15.79	14.50	**20**
Otaheite	14	,,	21.4	90.6	15.71	13.11	**21**
Co. 223	14	,,	20.8	89.3	15.65	13.79	**22**
Co. 290	14	,,	21.6	89.5	15.55	12.90	**23**
M. 1900	14	,,	20.6	93.1	15.53	11.82	**24**
Cuban Selection	14	,,	22.2	87.7	15.43	13.77	**25**
U.S. 663	14	,,	21.8	87.4	15.37	17.94	**26**
Black Innes	14	,,	21.4	92.9	15.33	13.84	**27**
P.O.J. 36	14	,,	21.0	87.4	15.33	12.93	**28**
Uba	14	,,	21.6	88.4	15.29	13.99	**29**
Q. 813	14	,,	21.3	92.0	15.18	15.29	**30**
La Mercy Yellow	14	,,	21.3	88.5	15.13	13.63	**31**
La Mercy Red	14	,,	21.9	89.8	15.09	14.73	**32**
Transkei Selection	14	,,	22.1	88.6	14.93	16.15	**33**

ANALYSES OF SUGAR CANE VARIETIES.—*continued.*

ANALYSIS :— Variety.	Age in months.	Plant or Ratoon.	Brix.	Purity.	Sucrose per cent. Cane.	Fibre.	Ranking.
Co. 210	14	,,	21.7	87.5	14.90	15.03	**34**
D. 1135	14	,,	19.8	91.0	14.89	11.68	**35**
Co. 213	14	,,	21.2	88.2	14.81	15.06	**36**
Zwinga	14	,,	21.2	90.9	14.77	17.14	**37**
Hind's Special	14	,,	21.3	86.6	14.58	16.33	**38**
Red Tanna	14	,,	20.7	87.1	14.45	13.87	**39**
Ogle's Selection	14	,,	21.3	85.4	14.34	15.65	**40**
Co. 237	14	,,	20.6	87.4	14.22	15.02	**41**
Co. 205	14	,,	20.1	87.8	13.93	18.57	**42**
Co. 243	14	,,	20.1	87.2	13.74	15.87	**43**
Uba Marot	14	,,	19.2	78.4	12.19	16.69	**44**
Kassoer	14	,,	18.3	82.5	11.53	17.61	**45**

Mr. FOWLIE : I thought it might be interesting to draw your attention to the latter part of this paper, giving a little bit of what we are doing with the newer varieties which have not reached the stage of the others referred to in the main portion of the paper. On page 11 of the paper you will notice a paragraph beginning : "Besides those mentioned above, there are a number of other varieties at the Experiment Station. Some of these, including the following, have not yet made sufficient growth for material being taken for laboratory analyses." And then there follows a list of the new varieties which we got at the Experiment Station last year. The Tucuman varieties, from the Argentine, are more or less of the Uba type. I may say that these Tucuman varieties might possibly turn out to be competitors of Uba practically under Uba conditions. Supposing, for instance, we are not able to do better with Co.290 than we are with these. Of the new Coimbatore numbers, Co.270 seems to be the most vigorous. It is making a very good appearance as young plant cane. Then there are varieties which are in the Greenhouse still. I was looking at them the other day, and there are one or two Coimbatore varieties which are making very good growth. The main interest in these is that you will realise that we are not resting on our laurels, so to speak, in this matter of cane varieties. We are still importing new ones and trying them out, and although we may not get one good one out of twenty, we are still carrying on and trying to get good ones. Then you will see at the end of the paper reference is made to seedlings. Since I wrote that some of them are making quite wonderful growth after the nice rains we have been having, and one or two are looking quite promising so far as growth is concerned. What they will do as far as sucrose is concerned is another matter—one can only wait and see. The chances are that the ones that make the best growth will be the ones with the poorest sucrose, and it is rather a big gamble to expect to get one which will give both good growth and good sucrose. Judging from the experience of other cane breeding stations, I think one good seedling in a thousand is about the order. So our chances out of 45 or so are pretty small. Still, they are interesting for us.

Mr. ASKEW : I see from the appendix to this paper that P.O.J.2725 takes first rank, and that our old friend Uba is 29th. Apparently P.O.J.2725 is going to be a tremendous asset from that standpoint.

CHAIRMAN : In referring to that comparison between P.O.J.2725 and Uba, it must be pointed out that that the fibre of Uba is given as 13.99 and P.O.J.2725 is 11.06, which is a very significant difference in milling. There is probably a bigger difference than that, as our average fibre in the mills is somewhere in the neighbourhood of 16. If we can get 11 we are going to have a very different milling problem. Mr. Watson wishes to suggest to Mr. Fowlie that these tables of analyses might be improved if a column is brought in showing the extraction obtained by the handmill. That very much affects the value of the result you obtain.

Mr. FOWLIE : I will bring that to the notice of the Chemists in future and see if they can do that.

CHAIRMAN : There is no extra work involved in that, it is already obtained in getting the figures.

At 4.45 p.m. Congress adjourned until 10 a.m. next day.