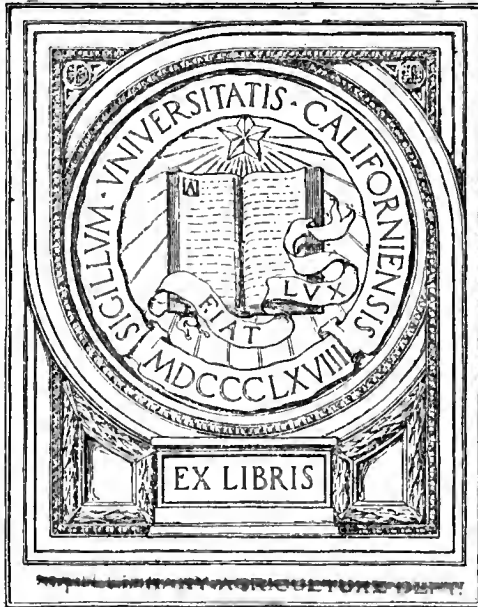


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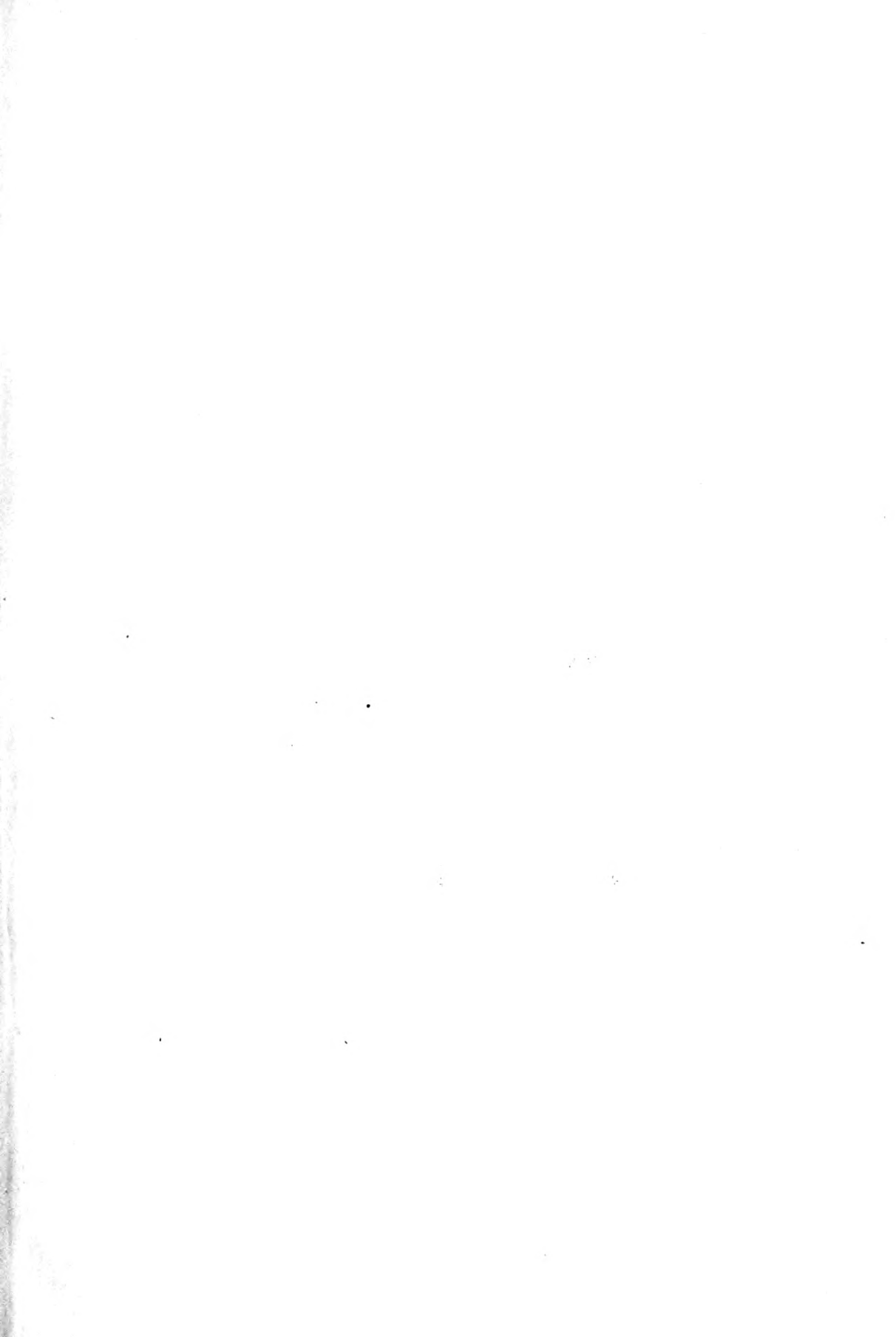
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MINISTRY OF AGRICULTURE, EGYPT.

TECHNICAL AND SCIENTIFIC SERVICE.

Bulletin No. 9.

(BOTANICAL SECTION.)

WORK IN CONNECTION WITH  
EGYPTIAN MAIZE,  
(*ZEA MAYS*, L.)

BY

GERALD C. DUDGEON, F.E.S.,

CONSULTING AGRICULTURIST, ETC.

AND

B. G. C. BOLLAND, B.A.,

TRANSLATOR TO THE MINISTRY OF AGRICULTURE

(Submitted for printing on April 12, 1910.)

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MINISTRY OF AGRICULTURE, EGYPT.

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# MINISTRY OF AGRICULTURE, EGYPT.

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## Bulletin No. 9.

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(BOTANICAL SECTION.)

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### WORK IN CONNECTION WITH EGYPTIAN MAIZE,

By G. C. DUDGEON,  
*Consulting-Agriculturist, etc.*

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Although maize has only been established as a cultivated crop in Egypt for about a century and a half, soon after the introduction of the plant it became evident that the local conditions were particularly favourable to it, especially in those areas where water was able to be given at frequent intervals during the period of its growth. The rapid establishment of maize as an important crop in the rotation employed in Lower Egypt was coincident with the development of the perennial canal irrigation system, which only became possible by means of the erection of barrages on the Nile. In accordance with the extension of the perennially irrigated areas, maize has rapidly taken the place of millet (*Sorghum vulgare*), with which only a few feddâns are still planted in Sharqîa in Lower Egypt, and practically only the non-canalised areas of Upper Egypt bear the crop. Originally short-period maizes emanating from Syria and India only were employed; these were of the "flint" type, and were grown as summer as well as *Nîli* crops. American maizes were introduced later, and proved to be much heavier croppers than those which came from the East. These latter have now very largely replaced the former. Although several kinds have been tested, a white dent maize with from eight to twelve rows is the prevailing type grown. In modern classification this would probably be included in the same category as "Hickory King." The local name applied to it is *Neb el Gamal* (Camel's tooth), under which market quotations are always made; the name *Mabrûna* being that applied to the flint maize of the older introduction. Until the present year, maize has not been largely exported from Egypt, but a good external

demand was created during the first year of the war, and this has steadily continued. The estimated production of maize in 1914 was 12,132,334 ardebs\* grown on 1,698,606 feddâns, and that of 1915 13,650,432 ardebs grown on 1,837,516 feddâns.

The export figures for the past three years will serve to show the steps which have been taken in the direction of supplying other markets :—

	1913	1914	1915
	Ardebs.	Ardebs.	Ardebs.
English Possessions in the Mediterranean ... ..	14	16	11,163
Tripoli... ..	8	9	—
Turkey ... ..	1,641	1,129	574
England ... ..	—	1,076	67,063
France ... ..	—	2,974	93,348
Greece ... ..	—	2,295	46,565
Italy ... ..	—	37	74,387
Massawa ... ..	—	30	31
Montenegro ... ..	—	—	5,559
Rhodes ... ..	—	—	40
Servia... ..	—	—	249
Other countries... ..	—	—	8,931
Total Ardebs ...	1,663	7,566	307,910
Total in English Tons ...	229·15	1,042·56	42,428·54

\* 1 ardeb of maize = 140 kilos ; 7·46 ardebs = 1 English ton.

## FIELD TRIALS WITH EGYPTIAN MAIZE IN 1915,

By B. G. C. BOLLAND.

*Botanist to the Ministry of Agriculture.*

With a view of studying the various types of maize grown in the country and of arriving at a proper definition of the different kinds, samples of twelve varieties were sown at Giza in the summer of 1915.

According to Sickenberger\* there were eighteen varieties in the country in 1900 and, as will be seen by the result of one year's work, there are now just as many or more varieties grown, not by themselves, but all mixed together.

Selection and breeding work has therefore been started in order to improve the quality and yield of the crop and obtain pure varieties.

The following are the names of the varieties which were sown between July 20 and 31.

Variety.	Area.			Locality from where Seed was obtained.
	F.	Q.	S.	
<i>Americâni</i> ... ..	0	6	10	Menufia.
<i>Baladi</i> ... ..	0	7	9	"
<i>Gritly</i> ... ..	0	8	6	"
<i>Morâli</i> ... ..	0	9	15	"
<i>Neb el Gamal</i> ... ..	0	9	15	"
<i>Belnâgi</i> or <i>Beltâgi</i> ... ..	2	18	0	Matâi, Minia Mudiria.
<i>Biltâni</i> ... ..	0	12	2½	Qena.
<i>Safra</i> ... ..	1	9	5	"
<i>Sûwi</i> ... ..	1	15	19	"
Variety with red ears ... ..	A small plot			Upper Egypt.
" " dark-red ears ... ..	"	"	"	"
A yellow dent variety ... ..	"	"	"	Sudan.

The following descriptions are given by Sickenberger:—

*Americâni*.—Cob white. Grain white, concave and convex mixed, dented.

*Baladi*.—Cob white. Grain white and convex, not dented.

\* SICKENBERGER, *Mem. Inst. Egypt.*, IV, pp. 303-306 (1901).

*Moráli.*—Cob pale red. Grain white and yellow mixed, dented.

*Neb el Gamal.*—Cob white. Grain white, dented.

*Safra.*—Cob white. Grain bright yellow, compressed not dented.

The red varieties are given under the names of:—

(1) *Balady Berbery ahmar.*

(2) *Balady Fayûmy hamra.*

The grain of the former is orange-red in colour and the latter brick-red and rather white in the middle.

The cultivation was normal and each variety was treated in exactly the same way.

Nitrate of soda was applied just before the second watering at the rate of about 120 kilogrammes per feddân.

Harvesting was started on October 23 with the *Siwi* variety and finished on November 16 with the *Gritly*.

The following table shows the approximate number of days each variety took to mature:—

Variety.	Number of Days.
<i>Siwi</i> ... ..	83
<i>Safra</i> ... ..	90
<i>Biltâni</i> ... ..	92
<i>Americâni</i> ... ..	95
<i>Morâli</i> ... ..	96
<i>Neb el Gamal</i> ... ..	97
<i>Baladi</i> ... ..	100
<i>Belnâgi</i> or <i>Beltâg</i> ... ..	101
<i>Gritly</i> ... ..	106

When the ears had been threshed the grain was weighed, with the following results in ardebs per feddân:—

Variety.	Weight of Grain.
<i>Belnâgi</i> or <i>Beltâg i</i> ... ..	9·85
<i>Neb el Gamal</i> ... ..	9·18
<i>Morâli</i> ... ..	8·85
<i>Biltâni</i> ... ..	8·48
<i>Gritly</i> ... ..	8·40
<i>Safra</i> ... ..	7·92
<i>Americâni</i> ... ..	6·09
<i>Baladi</i> ... ..	5·58
<i>Siwi</i> ... ..	5·36

With a view of writing accurate descriptions and forming a key for the identification of the different varieties, detailed observations were taken on the various parts of the plant, namely the stalk, leaves, ears, shank husks, tassel, and grain, but all the white varieties were found to be so mixed that it was impossible to write down anything accurate or definite at the present time. The work has therefore been postponed until further experiments have been carried out.

The *Safra* and *Siwi* are orange in colour, but there seemed to be no difference between them.

The grains are small and undented.

The ears are also small, with twelve close-fitting rows of grain, the average weight being 100 to 115 grammes.

When the ears of the various white varieties were put in heaps, it was impossible to see any marked difference between them.

The average *Neb el Gamal* ear is larger and has more rows of grain than the other varieties and the average *Baladi* ear is made up of undented grain, but beyond that it is impossible to say what the differences are, especially as each variety contains ears of all sizes and descriptions.

With a view of breeding one or more distinct and pure types of maize, as many different ears as possible were picked out from the various varieties.

Each different ear has been numbered, and has had an accurate description written of it. The seed will be sown separately this year to ascertain if it breeds true to its various characters. When several pure strains have been established, the yielding capacity and quality of the grain will be determined, so that only the best strains shall be cultivated.

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