

THE BIOLOGY OF THE ISOPODA
OF THE REGION OF
DOUGLAS LAKE, MICHIGAN
(CONTINUATION)

Submitted by;

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Introduction

This summer as during the previous summer of 1940, there were three primary phases of this investigation: size distributional studies of *Cylisticus convexus* taken weekly along the west shore of South Fishtail Bay, Douglas Lake; continuation of the rearing of *Armadillidium vulgare*, *Cylisticus convexus*, *Porcellio scaber*, and *Tracheoniscus rathkei* under laboratory conditions; and intensive collecting of terrestrial forms. Some aquatic species were also collected. This report does not deal with the rearing observations.

Distribution of Local Species

Collections were made in the "Thumb" area and along highway US. 23 on the trip from Ann Arbor to the Station. Intensive collecting was done in Cheboygan County, with some collecting in adjoining Emmet and Presque Isle Counties, as well as on some of the islands in Lake Michigan.

Many of the situations investigated were void of Isopods, either because of the extreme dryness or the lack of food and protection. The following charts list the localities from which terrestrial species were collected during the summer of 1941.

DISTRIBUTION OF PORCELLIO SCABER

Based on collections of the summer of 1941

<u>COUNTY</u>	<u>LOCALITY</u>	<u>LOCUS KEY</u>
Sanilac	Shore of Lake Huron	T10N-R16E-S13(?)
Emmet	Shore of Lake Michigan	T38N-R6W-S34
Charlevoix	Hog Is, Lake Michigan	
"	Pismyre Is. Lake Mich.	
Cheboygan	Shore of Munro Lake	T37N-R3W-S34
"	around old farm bldg.	T38N-R3W-S31

DISTRIBUTION OF PORCELLIO SPINICORNIS

Based on collections of summer of 1941

<u>COUNTY</u>	<u>LOCALITY</u>	<u>LOCUS KEY</u>
Sanilac	lime deposits on Lake Huron Beach	T10N-R16E-S13
Cheboygan	Old house in loft in Hay	T37N-R3W-S16

DISTRIBUTION OF TRACHEONISCUS RATHKEI

Based on Records of the Summer of 1941

COUNTY	LOCALITY	LOCUS KEY
Oakland	Roadside Park,US24	
St. Clair	Bank of Belle River	T5N-R15E-S32
Sanilac	Shore of Lake Huron	T10N-R16E-S13, opp.
"	" " " "	T14N-R16E-S32
Huron	swamp along L.Huron	T16N-R16E-S1
"	Shore of Lake Huron	T18N-R14E-S2
"	Beech-maple woods	T18N-R14E-S2
Tuscola	grassy woods,US34	T14N-R8E-S3
Bay	Aspen-brackenwoods	T15N-R4E-S35
Arenac	Maple grove	T18N-R4E-S35
"	Open woods	T19N-R6E-S16
"	Shore of Lake Huron	T20N-R7E-S12
Iosco	Old creek bed	T21N-R7E-S14
Alpena	Open aspen woods	T32N-R8E-S27
Presque Isle	Shore Grand Lake	T33N-R8E-S8
"	"	
"	clearing in conifers	T37N-R2E-S14
"	"	
"	Shore Little Lake	T35N-R6E-S30
"	"	
"	Shore Ocqueoc Lake	T36N-R2E-S30
Emmet	Shore of Lake Michigan	T39N-R4W-S11
"	woods north of CarpL.	T38N-R4w-S15
"	woods north of Cross	
"	Village	T38N-R6W-S34
"	Dried woodland pool	
"	at Cecil Bay	T39 ^N -R4W-S28
"	Shore of Carp Lake	T38N-R4W-S24
Cheboygan	woods along Burt L.	T36N-R3W-S8
"	Grapevine Point wood	T37N-R3W-S28
"	Shore of Munro Lake	T37N-R3W-S9
"	Ingelside	T37N-R3W-S17
"	Indian River St.Park	T35N-R3W-S25
"	Bank of Mill Creek	T39N-R3W-P.C.344
"	Shore of Silver Lake	T33N-R3W-S11
"	Bank of creek at	
"	Campbell Quarry	T35N-R2W-S36
"	Woods near Pigeon R.	T34N-R2W-S29
"	Woods onSturgeon R.	T33N-R2W-S1
"	woods on Pigeon R.	T34N-R2W-S2
"	Aloha State Park	T36N-R2W-S8
"	Shore of Long Lake	T36N-R1E-S12
"	Banks along creek	
"	Millåken,woody	T34N-R1W-S3
"	"	T34N-R1W-S14
"	Pigeon River State	
"	Forest	T34N-R1W-S32
"	Shore of U.Black R.	T34N-R1E-S11
"	West shore of Burt L.	T36N-R3W-S17
"	ditches around Nigger	
"	creek	T36N-R2W-S17,18
"	Around old farm bldg.	T38N-R3W-S31
"	" old dried bog	T38N-R3W-S31

DISTRIBUTION OF CYLISTICUS CONVEXUS

based on records of the summer of 1941

COUNTY	LOCALITY	LOCUS KEY
Sanilac	Shore of Lake Huron	T10N-R16E-S13,S32
Presque Isle	Shore Grand Lake	T33N-R8E-S8
" "	Shore Black Lake	T35N-R2E-S8
Charlevoix	Hog Is.in Lake Mich.	
"	Hat Is. in Lake Mich.	
"	PRsmyre Is.Lake Mich.	
Cheboygan	Shore of Burt Lake	T36N-R3W-S8
"	Bank of Mill Creek	T39N-R3E-Private claim344
"	Edge of creek, Campbell Quarry	T35N-R2W-S36
"	Woods along Sturgeon River	T33N-R2W-S7
"	Shore of Mullet Lake	T36N-R2W-S8
"	Shore of Long Lake	T36N-R1E-S12
Emmet	Shore Lake Michigan	T38N-R6W-S34
"	" " "	T39N-R4W-S11

Other Species collected

The aquatic forms that were collected have not been charted, since they have not been definitely identified. Collections, however, were made at Nigger Creek, Mill Creek, spring near Mill Creek, Creek near Cheboygan, Maple River at Powder Dam, Creek near old Saw Mill on shore of Burt Lake, and Big Stone Creek. Many other streams investigated proved negative.

Check List of Michigan Isopods as of 1941

Armadillidium nasatum
Armadillidium vulgare
Asellus communis
Asellus intermedius
Cylisticus convexus
Ligidium longicaudatum
Mancasellus tenax
Oniscus asellus
Porcellio laevis(?)
Porcellio scaber
Porcellio spinicornis
Porcellionides pruinosus
Tracheoniscus rathkei
" " (albino or orange colored species)

Habitat Preference

From the data collected todate, it appears that *Cylisticus convexus* has a definite preference for rocky situations which are moist to wet. This may be clearly noted from the chart.

Tracheoniscus rathkei, on the other hand, appears to prefer open woods or grasslands not used for grazing. These situations, however, must offer such facilities for protection as rocks, trash, fallen timber, as well as moisture and humus. It has been found with *Cylisticus convexus*, but usually along the margins of woods or grasslands bordering bodies of water.

Porcellio scaber has been found to occur only sporadically in woods, around old buildings, as well as along shores of lakes. It seems to be more dependent than other species upon man, since it is usually to be found near their abodes. Exceptions to this are the islands in Lake Michigan on which no one lives, but on which this species has been found.

The specific habitat for *Porcellio spinicornis* appears to be situations where there is lime of one type or another. It has only been found where this is available, altho the situation may be very dry. Very few specimens of either *Porcellio scaber* or *Porcellio spinicornis*, however, have been collected.

Size Distribution

During the summer of 1941, 6,667 specimens of *Cylisticus convexus* were collected and measured. This brings

the grand total of specimens measured over the three summers to 13,337. This summer as during the two previous ones, collections were made along the west shore of South Fishtail Bay, Douglas Lake. In the two previous summers, however, no definite method for collecting had been employed nor had collections been taken from definite areas along this shore. This summer, however, the beach along which the collections were to be made was divided into 24 units. In the middle of each of these divisions, a meter square was laid off and in its center a hollow potato as a trap was placed along the rocks or debris.

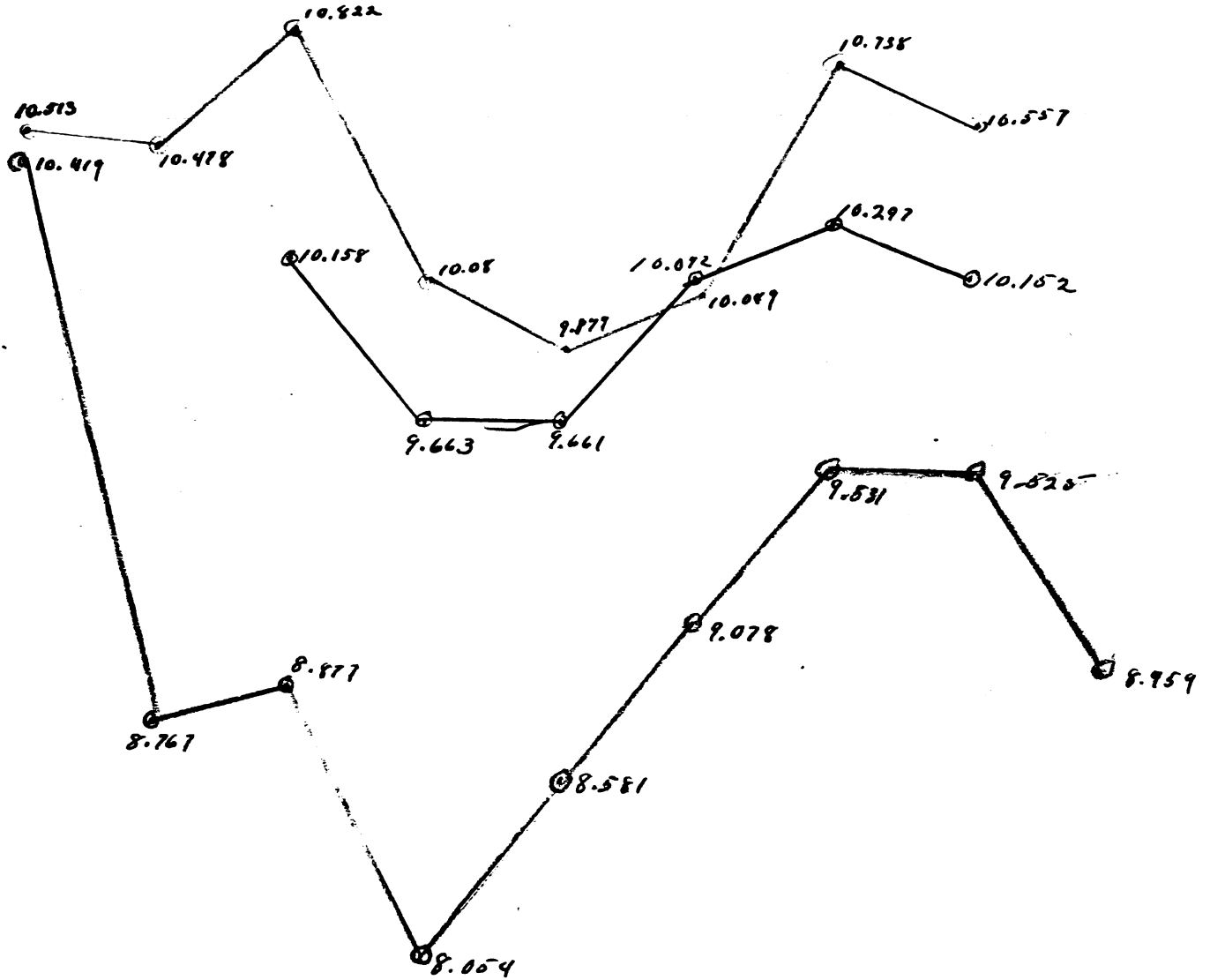
~~THE~~ Weekly collections for nine weeks were made, the specimens measured to within one millimeter, then their sizes were plotted on graphs. The following graphs show these weekly size distributions. It will be noted that the group 8-9 millimeters was always low between two highs. altho towards the last of the summer this low was tending to disappear. There was a gradual shifting of the populations from week to week. This being influenced by the birth and growth of young, as well as the dying off of older individuals. This shifting of the population is more clearly shown on graph #10, illustrating the means of the three summers weekly collections. The lowering of the means for the three summers is coincident with the birth of young. There being at least two broods during the summer weeks during which observations were made, and there appears to be a third, just before observation have begun.

— 1939
— 1940
— 1941

lyllisticus convexus Mean lengths

Summer of '39, '40, '41
beginning on 24 last week
of June

Average length in millimeters



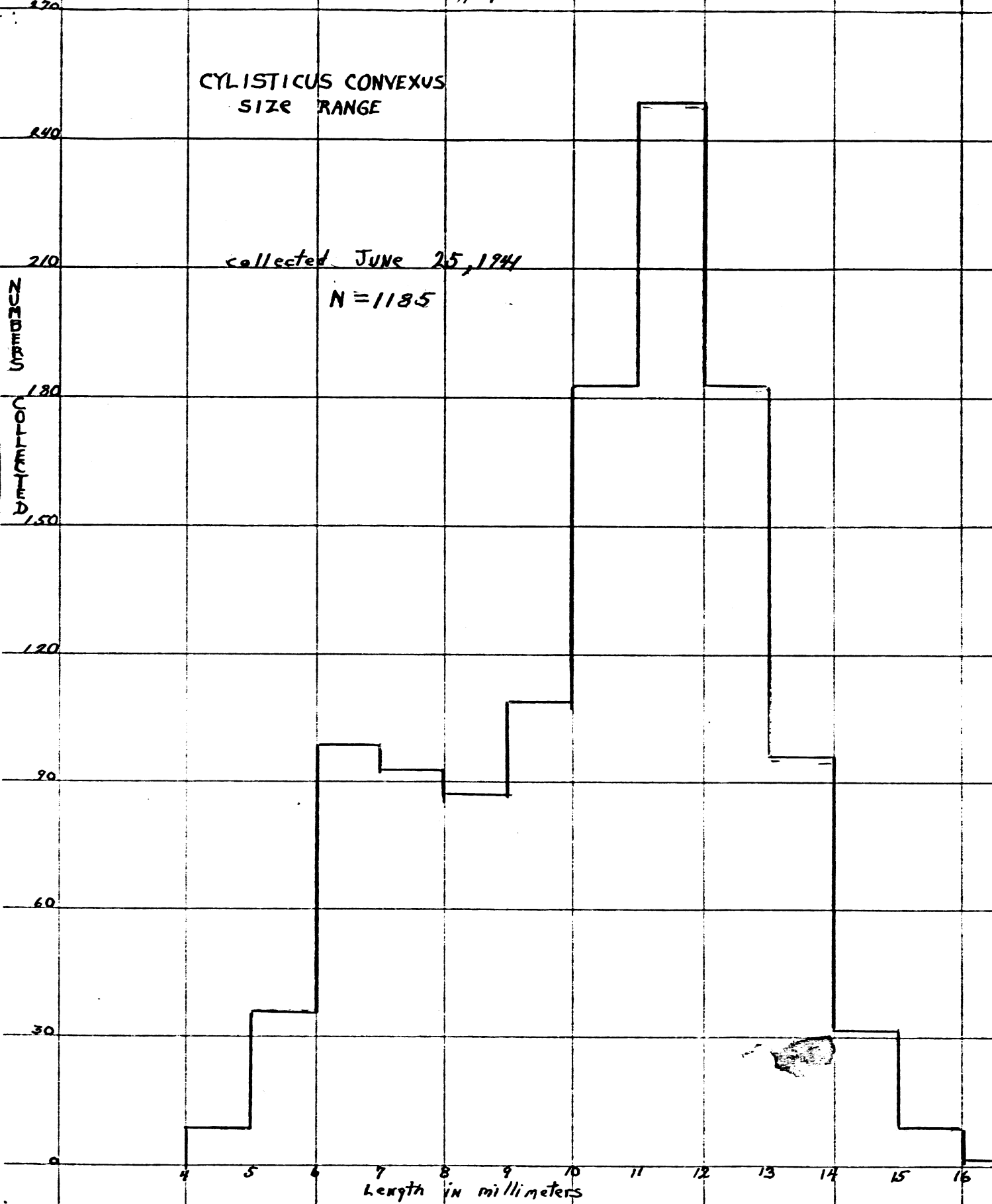
week collected

FR 1

CYLISTICUS CONVEXUS
SIZE RANGE

collected JUNE 25, 1944

N = 1185

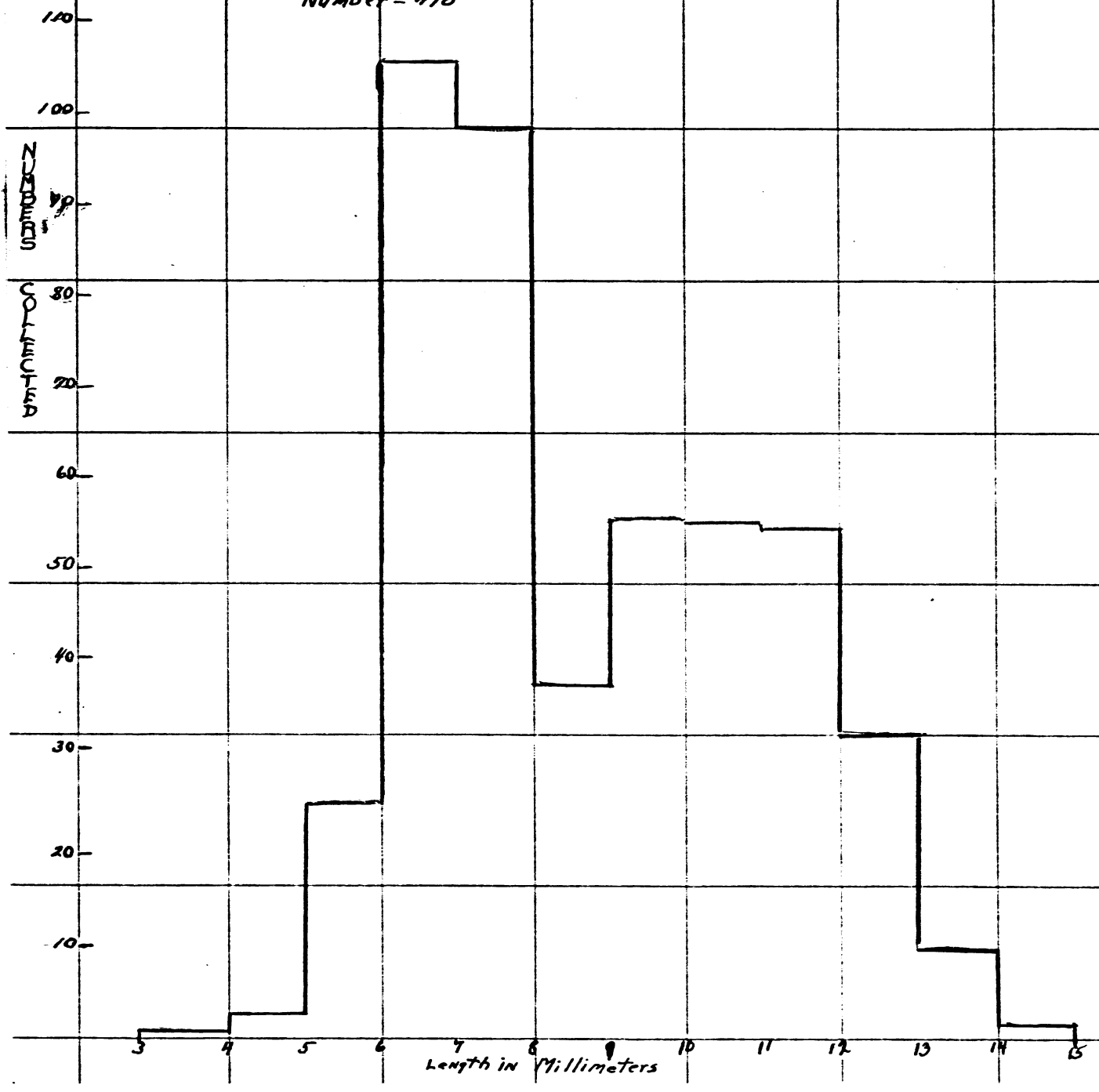


FF 2

CYLISTICUS CONVEXUS
SIZE RANGE

collected July 2, 1941

Number = 478



#3

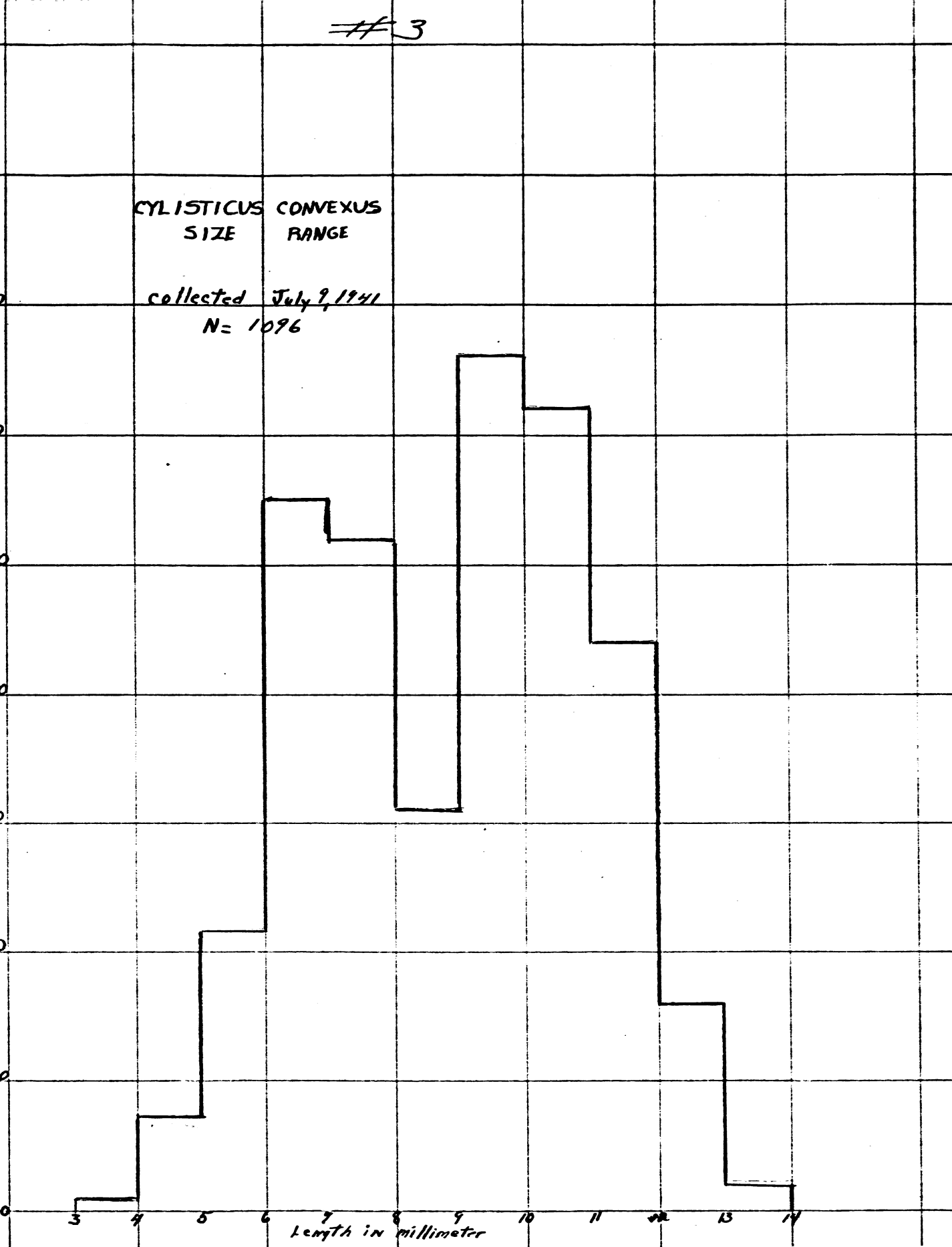
CYLISTICUS CONVEXUS
SIZE RANGE

collected July 9, 1941
N = 1096

210
180
150
120
90
60
30
0

NUMBER
COLLECTED

3 4 5 6 7 8 9 10 11 12 13 14
Length in millimeter



#4

CYLISTICUS CONVEXUS

SIZE RANGE

collected July 16, 1941

N = 716

240

210

180

150

120

90

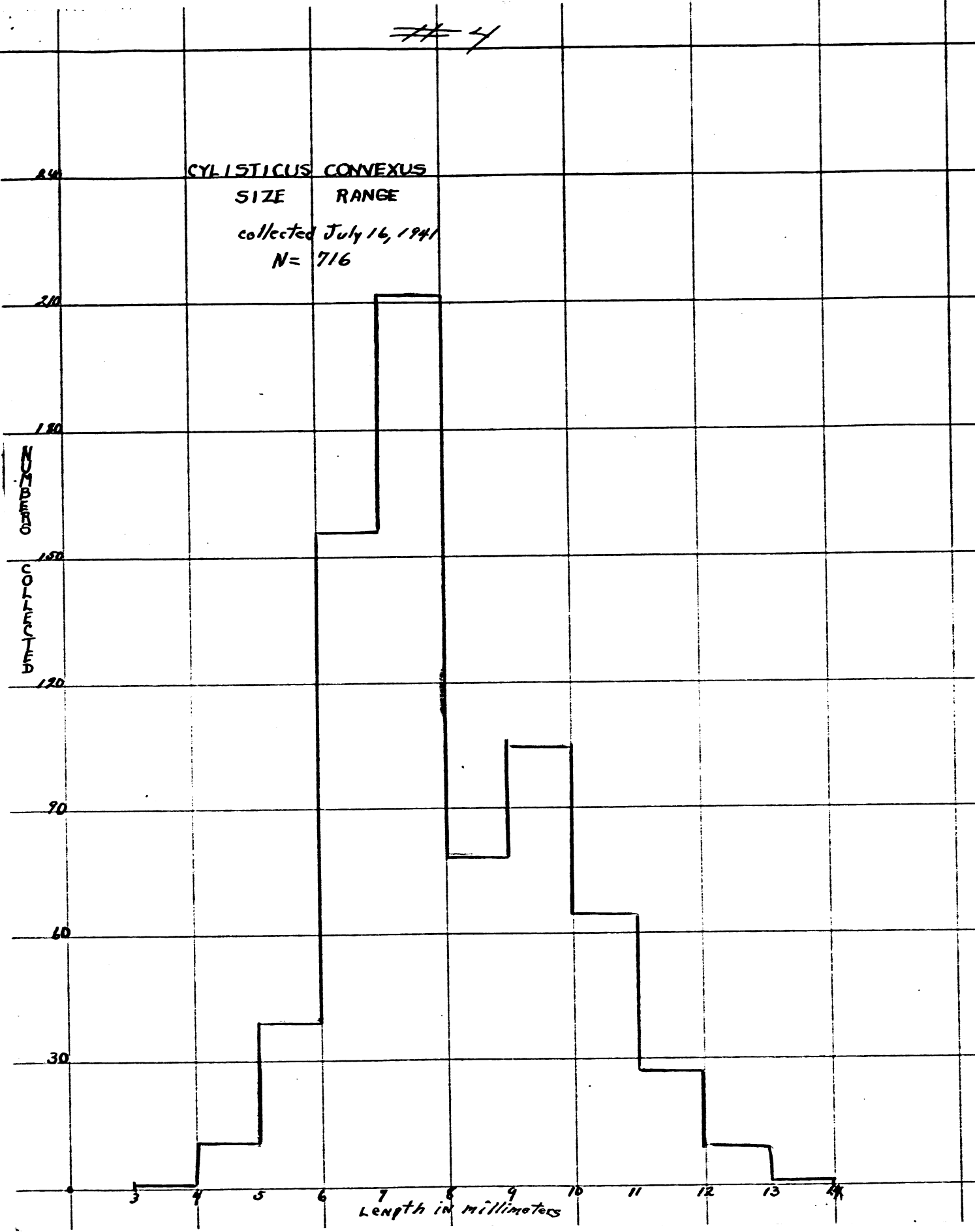
60

30

NUMBER COLLECTED

3 4 5 6 7 8 9 10 11 12 13 14

Length in millimeters

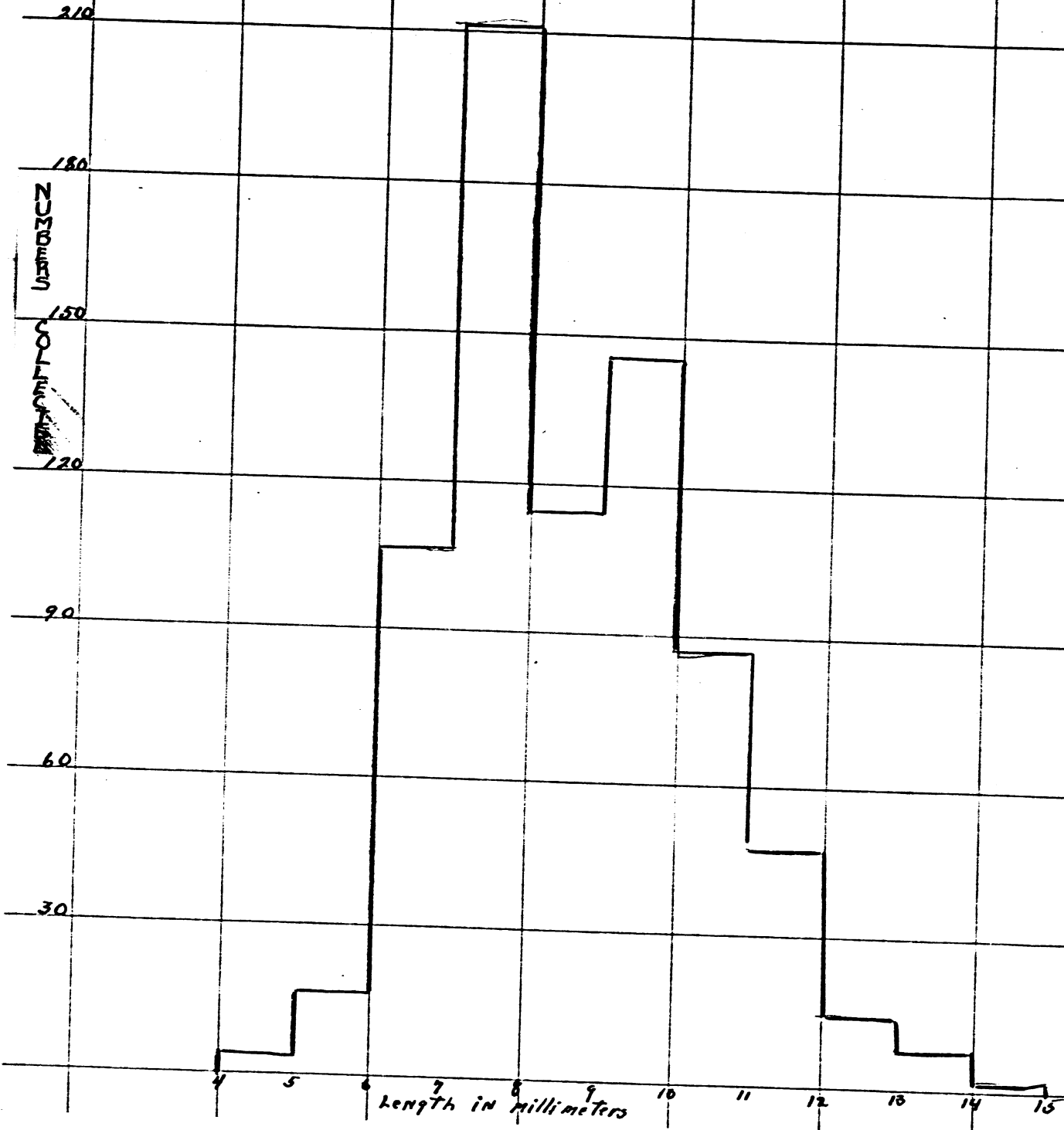


CYLISTICUS CONVEXUS

SIZE RANGE

collected July 23, 1961

N=752

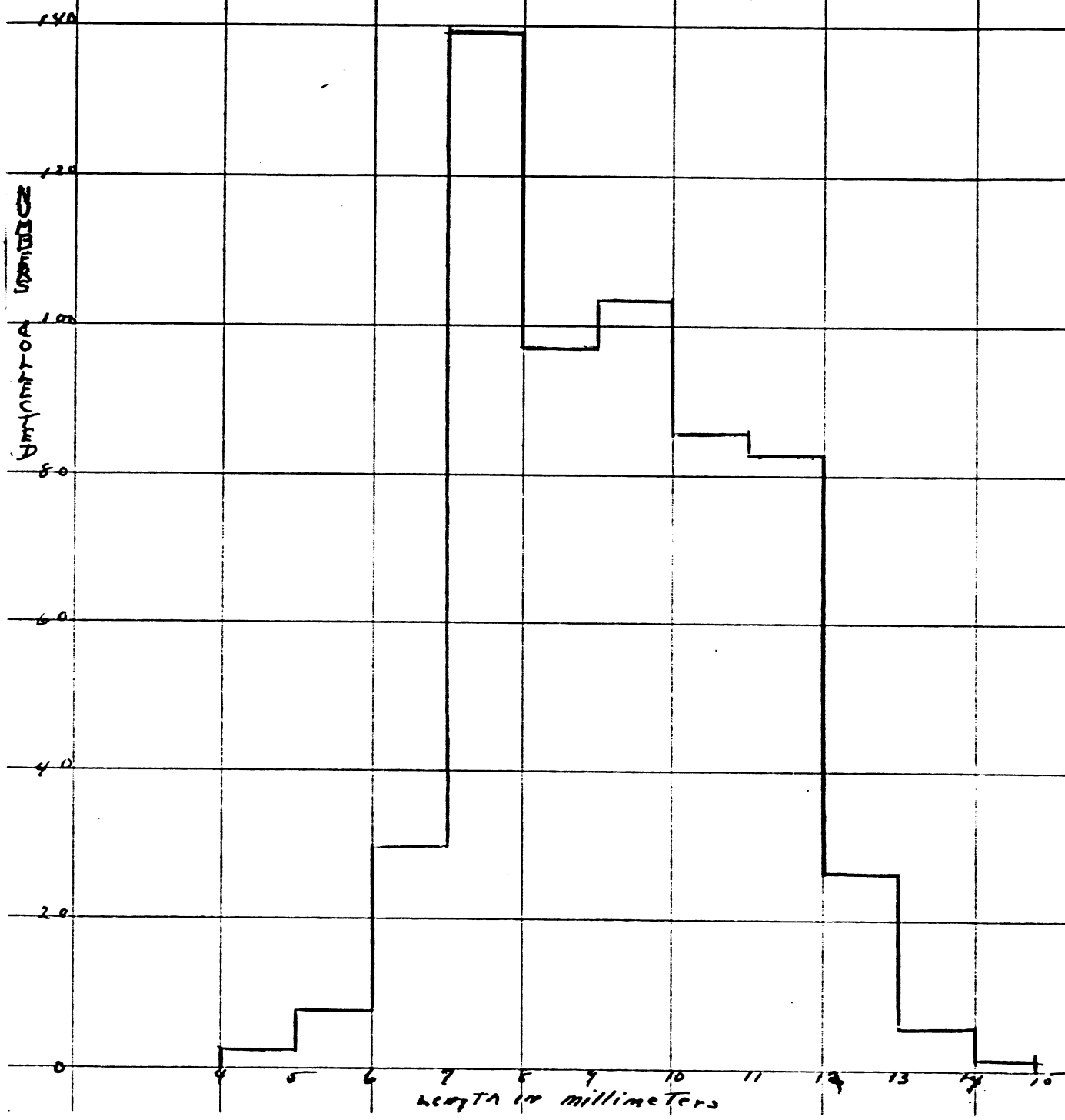


#6

CYLISTICUS CONVEXUS
SIZE RANGE

collected July 30, 1942.

N = 572



#7

CYLISTICUS CONVEXUS
SIZE RANGE

collected August 6, 1941

N = 645

160

140

120

100

80

60

40

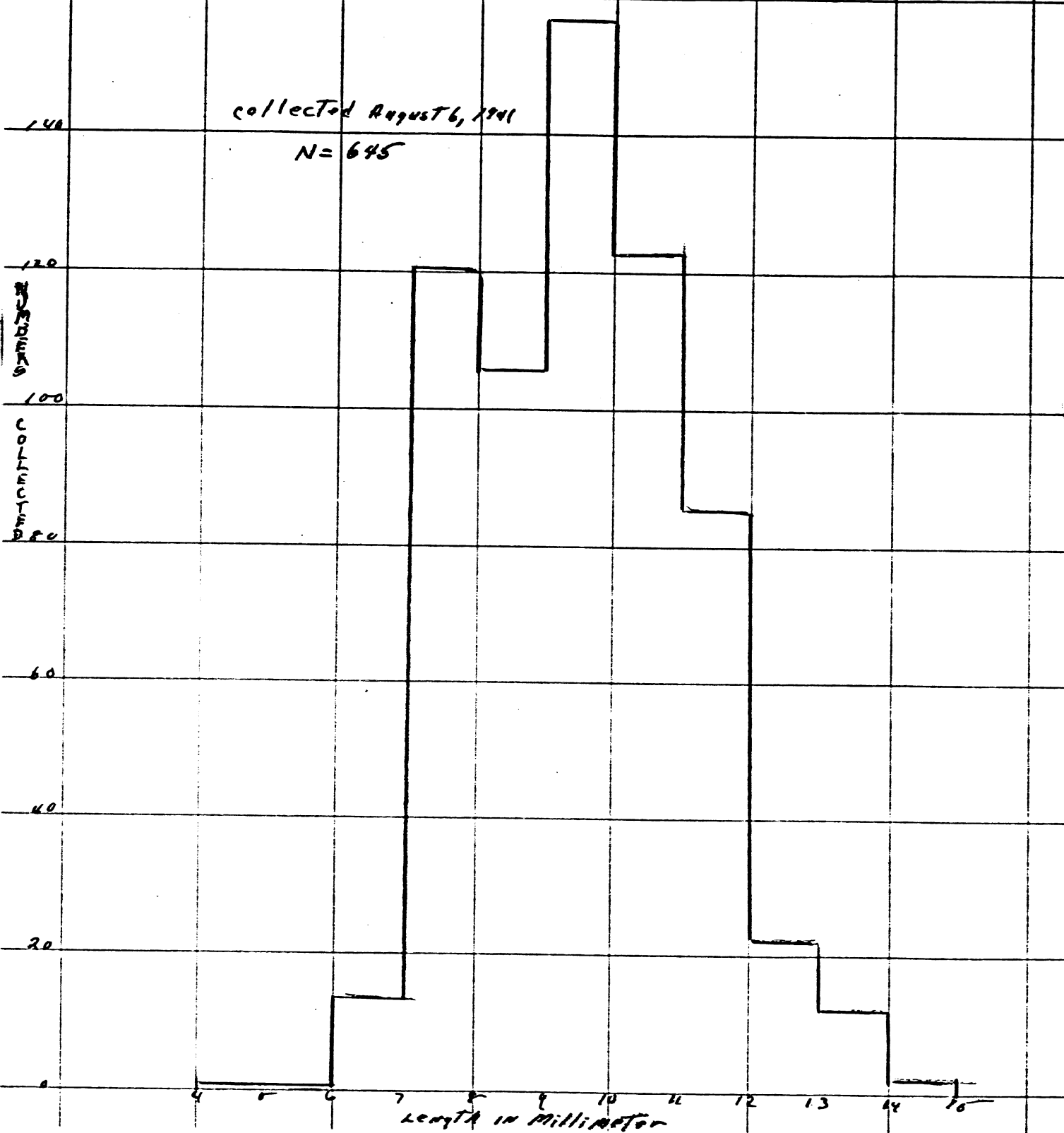
20

0

NUMBER
COLLECTED

4 5 6 7 8 9 10 11 12 13 14 15

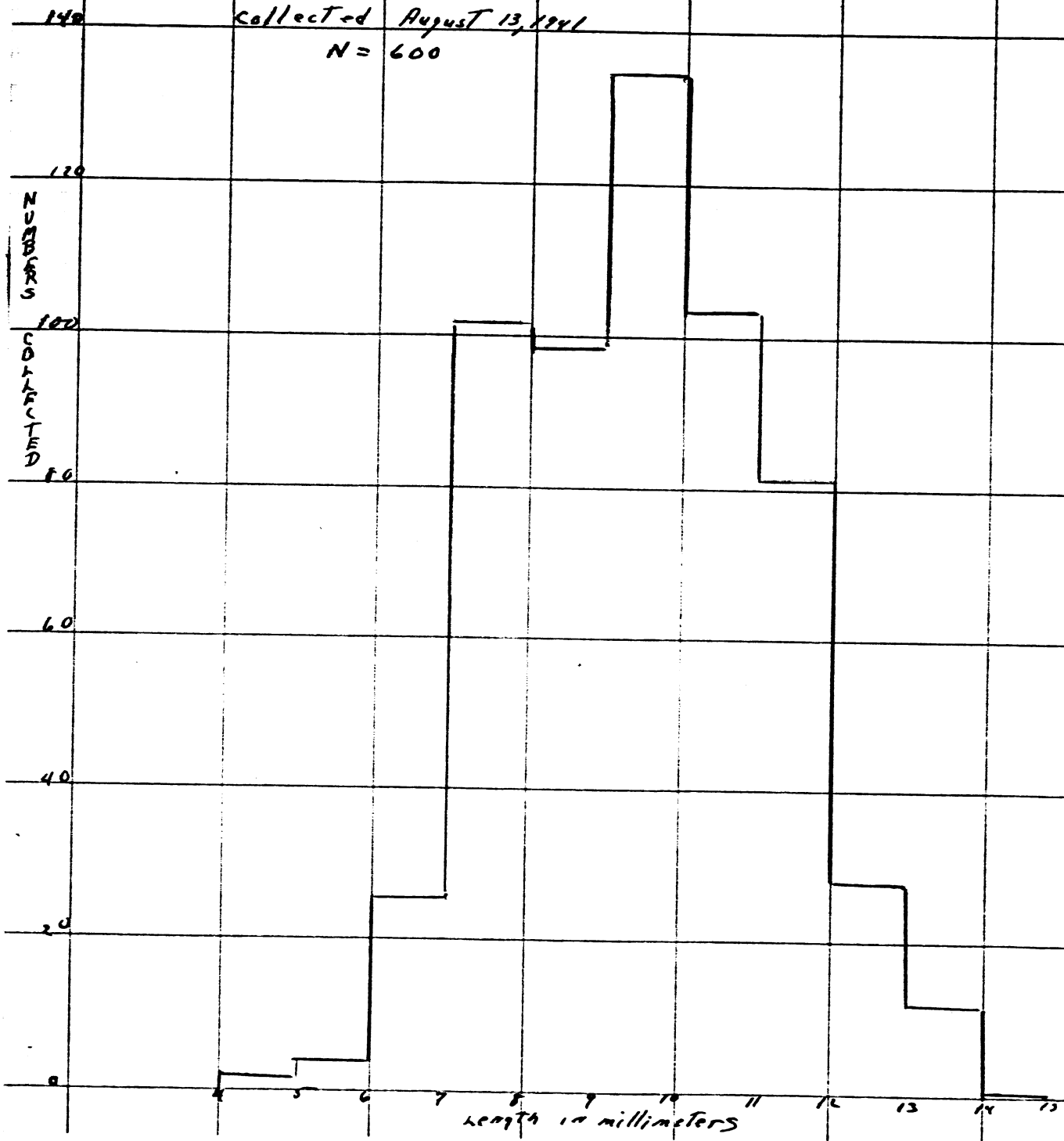
Length in millimeter



8

CYLISTICUS CONEXUS
SIZE RANGE

collected August 13, 1941
N = 600



9

CYBISTICUS CONVEXUS

SIZE RANGE

collected August 19, 1941

N=623

NUMBER OF INDIVIDUALS

