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(12) **United States Plant Patent**
Weber

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(54) **STRAWBERRY PLANT NAMED ‘WALKER’**

(50) Latin Name: *Fragaria*×*ananassa*
Varietal Denomination: **Walker**

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(57) **ABSTRACT**

This invention relates to a new and distinct June-bearing (short day responsive) strawberry plant named ‘Walker’ primarily adapted to the growing conditions of the west central New York and other regions of similar climate. The new plant is primarily characterized by longer than broad fruit, conical fruit shape, uniformity in shape between primary and secondary fruit, reflexed calyx, dark red-purple fruit color and glossy fruit skin.

5 Drawing Sheets

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Genus and species: *Fragaria*×*ananassa*.
Variety denomination: ‘Walker’.

BACKGROUND AND SUMMARY OF THE INVENTION

I. Field & Utility Summary

The present invention relates to a new and distinct variety of strawberry. The strawberry variety is primarily characterized by longer than broad fruit, conical fruit shape, uniformity in shape between primary and secondary fruit, reflexed calyx, dark red-purple fruit color and glossy fruit skin. Fruit of the new plant ripens after the plant ‘Honeoye’ (not patented), similar to the plant ‘L’Amour’ (U.S. Plant Pat. No. 16,480) and before ‘MNUS 210’ (U.S. Plant Pat. No. 10,191).

Test plantings in various locations at in New York, Illinois and Michigan have shown this plant to be widely adapted to differing soil and climactic conditions. It has shown cold hardiness typical to strawberries in a matted row system when covered with straw in the winter, which is standard procedure for this growing region.

The new plant is primarily adapted to the climate and growing conditions of west central NY, the upper mid-western U.S, the mid-Atlantic states and southeastern Canada. This region provides the necessary climate conditions required for it to produce a strong vigorous plant and to produce fruit in the summer harvest season from May to July, depending on location.

II. Cultivation Summary

‘Walker’ originated from hand-pollinated hybridization in 1997 in Geneva, N.Y.

III. Comparisons

NYUS299, the proprietary the female parent (unpatented), is June-bearing with smaller average fruit size (8.3 g) that is medium red, firm fleshed, and conic shaped that ripens in a similar season to ‘Walker’.

NY1674, the proprietary male parent (unpatented), is a very vigorous plant with smaller average fruit size (8.1 g) that

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is dark red, globose shaped, moderately soft fleshed and ripens in a similar season to ‘Walker’.

Other varieties which are believed to most closely resemble ‘Walker’ are ‘Honeoye’ (not patented), ‘L’Amour’ (U.S. Plant Pat. No. 16,480) and ‘Jewel’ (U.S. Plant Pat. No. 5,897).

In comparison to the similar plant ‘Honeoye’, ‘Walker’ differs by the following characteristics. The plant of ‘Walker’ is taller and more upright in growth habit with greater vigor. The fruit of ‘Walker’ is larger than that of ‘Honeoye’ with a more reflexed calyx. The fruit skin and flesh color of ‘Walker’ is darker red-purple than that of ‘Honeoye’. The yield of ‘Walker’ is larger than that of ‘Honeoye’. The fruit of ‘Walker’ is firmer with glossier skin than that of ‘Honeoye’. The fruit of ‘Walker’ has lower soluble solids (% Brix) and equal titratable acids compared to ‘Honeoye’ with similar juice pH. The fruit of ‘Walker’ has higher anthocyanin content compared to ‘Honeoye’. The harvest season of ‘Walker’ is later than that of ‘Honeoye’ and slightly less compact.

In comparison to the similar plant, ‘L’Amour’, ‘Walker’ differs by the following combination of characteristics. The plant of ‘Walker’ is shorter and smaller with more upright leaves. The leaflets are less wide and similar in length giving them a greater length to width ratio and an ovate shape. The stipules of ‘Walker’ are shorter and less wide than those of ‘L’Amour’. The fruit of ‘Walker’ is smaller in size, with darker red-purple flesh color than ‘L’Amour’. The fruit of ‘Walker’ has lower average soluble solids, higher titratable acids, lower juice pH and higher anthocyanin content than ‘L’Amour’.

The flowering trusses of ‘Walker’ are shorter than those of ‘L’Amour’. The flowers of ‘Walker’ are smaller in diameter than the flowers of ‘L’Amour’ with a greater petal length to width ratio than ‘L’Amour’. The harvest season for ‘Walker’ is more compact than that of ‘L’Amour’.

In comparison to the similar plant, ‘Jewel’, ‘Walker’ differs by the following combination of characteristics. The plant of ‘Walker’ is more vigorous but with shorter stature than

‘Jewel’. The foliage is smaller in size with less interveinal leaf blistering. A pair of petiole bracts are occasionally present in ‘Walker’ and absent in ‘Jewel’. The leaves are more sharply serrated in ‘Walker’ than ‘Jewel’. The stipules of ‘Walker’ are shorter and less broad than those of ‘Jewel’.

The fruit of ‘Walker’ is darker red-purple in color than ‘Jewel’ with more recessed seeds and a more reflexed calyx. The fruiting trusses of ‘Walker’ are shorter in overall length than ‘Jewel’. The fruit of ‘Walker’ has lower soluble solids and higher titratable acidity than that of ‘Jewel’. The fruit of ‘Walker’ has higher anthocyanin content than the fruit of ‘Jewel’.

Strawberry plant ‘Walker’ has these distinguishing characteristics;

1. Vigorous plants with an upright growth habit and moderate stolon production;
2. Trifoliate leaves with a flat appearance and gray green undersides and ovate leaflets with greater length than width;
3. Longer than broad fruit, conical fruit shape, dark red-purple fruit color, dark red-purple flesh color that is lighter towards the center, high fruit gloss and moderately soft flesh firmness;
4. Reflexed calyx generally equal or smaller in diameter than the fruit width;
5. Medium length pedicels and peduncles with few bracts;
6. Mid-season production with high yields; and
7. Compact harvest season.

IV. Breeding History

‘Walker’ originated from a hand-pollinated hybridization made in 1997 in Geneva, N.Y. between female parent NYUS299 (not patented)×male parent NY1674 (not patented). Both parents of ‘Walker’ are hybrids of the strawberry genus of the species *Fragaria×ananassa*. Thus ‘Walker’ is of the species *Fragaria×ananassa* Duchesne. The seeds resulting from this controlled hybridization were germinated in a greenhouse in Geneva, N.Y. during the winter of 1997-98. Resulting seedlings were planted in the spring of 1998 in Geneva, N.Y. The seedlings fruited in the summer of 1999 and one, designated NY99-15, was selected for its attractive, dark red-purple fruit and strong strawberry flavor.

V. Asexual Reproduction

During 1999, the original plant selection NY99-15 was propagated asexually by stolons (runners) at Geneva, N.Y. and a test planting of ten plants was established. Subsequently, larger test plantings were established with asexually multiplied plants at Geneva, N.Y. The new plant NY99-15 was re-designated ‘Walker’ and tested over the next several years in the fruiting fields at Geneva, N.Y. Further propagation was done using tissue culture in Geneva, N.Y. to produce disease free material for use in further testing. Tissue culture plants were used as mother plants for propagation from stolons.

VI. Stability

Asexual propagation has demonstrated that the combination of traits disclosed herein as characterizing the strawberry plant ‘Walker’ are fixed and remain true to type through successive generations of asexual reproduction. All propagules of ‘Walker’ have been observed to be true to type in that during all asexual multiplication, the vegetative and fruit characteristics of the original plant have been main-

tained. All plants planted from dormant crowns or rooted runner tips have fruited after one season of growth in the field.

BRIEF DESCRIPTION OF THE FIGURES

The accompanying color photographs show typical specimens of the new plant at various stages of development as nearly true as it is possible to make in color reproductions. The depicted plant and plant parts were from the first harvest season, approximately 13 months after planting.

FIG. 1A-FIG. 1B shows typical external fruit characteristics of ‘Walker’ (A) including calyx structure and fruit shape compared to ‘Jewel’ (B) on Jun. 6, 2012.

FIG. 2A-FIG. 2B shows typical internal fruit characteristics of ‘Walker’ (A) compared to ‘Jewel’ (B) on Jun. 6, 2012.

FIG. 3A-FIG. 3B shows typical external color of ‘Walker’ (A) compared to ‘Jewel’ (B).

FIG. 4A-FIG. 4C shows leaf margin serrations for ‘Walker’ (A), ‘Jewel’ (B) and ‘L’Amour’ (C).

DETAILED BOTANICAL DESCRIPTION OF THE INVENTION

The following description of ‘Walker’ unless otherwise noted, is based on observations taken during the 2012 growing season in Geneva, N.Y. These measurements and ratings were taken from plants planted in May 2011. The age of the planting is approximately 13 months and in its first harvest season. Yield observations and fruit quality characteristics are averaged from data collected during the 2003-04 and 2008-10 production seasons. The characteristics of the new plant may vary in detail, depending upon variations in environmental factors (temperature, rainfall, humidity and light intensity). ‘Walker’ has not been observed under all possible environmental conditions. Color terminology where noted follows The Royal Horticultural Society Colour Chart, London.

Comparative Fruit Characteristics

‘Walker’ fruit, fruit production and fruit quality characteristics. Fruit characteristics are taken from the first harvest season.

TABLE 1

Fruit characteristics: Yield					
Total fruit yield of ‘Walker’ and similar varieties from 2 separate trials, one harvested in 2003-04 and one in 2008-09 in Geneva, NY. Fruit was harvested in June in each year. The plants of ‘Walker’ were grown in Geneva, NY. The other varieties were grown in a nursery in South Deerfield, Mass. All plants were planted in May prior to the first harvest year for both trials.					
Cultivar (kg per ha)	2003	2004	2008	2009	Average
‘Walker’	8,740	24,790	4,910	20,010	14,610
‘Honeoye’	11,730	17,160	3,990	7,970	6,360
‘L’Amour’	7,090	14,490	—	—	10,790
‘Jewel’	11,160	15,440	11,270	5,760	10,910

TABLE 2

Fruit Characteristics: Weight					
Average fruit weight of ‘Walker’ and similar varieties from 2 separate trials, one harvested in 2003-04 and one in 2008-09 in Geneva, NY. Fruit was harvested in June in each year. The plants of ‘Walker’ were grown in Geneva, NY. The other varieties were grown in a nursery in South Deerfield, Mass. All plants were planted in May prior to the first harvest year for both trials.					
Cultivar (g per berry)	2003	2004	2008	2009	Average
‘Walker’	10.8	10.6	10.7	11.2	10.8
‘Honeoye’	13.2	10.0	9.5	9.2	10.5
‘L’Amour’	11.9	11.7	—	—	11.8
‘Jewel’	10.9	10.6	—	11.1	10.9

TABLE 3

Fruit Characteristics: Color Comparison of secondary fruit characteristics of ‘Walker’, with standards from Geneva, NY.				
Character	‘Walker’	‘L’Amour’	‘Jewel’	‘Honeoye’
RHS Exterior	red-purple 59A	red 46B	red 44A	red 46A
Color Mature Fruit				
Fruit Length mean (cm)	3.68	4.22	3.46	3.85
Fruit Width mean (cm) ¹	3.49	3.62	3.61	3.55
Fruit Length/Width Ratio	1.05	1.20	1.05	1.08
No. Sepals/Berry	10.0	11.0	12.4	12.7

¹Width is measured across the widest part of the berry, typically across the shoulders.

TABLE 4

Fruit Characteristics: Quality Comparison of 2010 fruit quality characteristics including soluble solids (% Brix), titratable acidity, juice pH and anthocyanin content of ‘Walker’, with standards from Geneva, NY.				
Character	‘Walker’	‘L’Amour’	‘Jewel’	‘Honeoye’
Soluble solids ^{1,2}	9.03	10.37	11.77	10.93
Titratable acidity ^{2,3}	9.29	9.64	10.93	10.89
Juice pH ²	3.38	3.50	3.38	3.42
Anthocyanin content ^{2,4}	306	117	147	148

¹soluble solids is estimated from % Brix with % Brix being an indirect measurement of the sugar content in the fruit
²Averaged from 3 samples on 3 dates during the harvest season.

³g per L equivalents of citric acid

⁴mg/100 g fresh weight

TABLE 5

Fruit Characteristics: Details	
Characteristic	Description
Ratio of length/width	Longer than broad
Size	Medium to large
Predominant shape	Conical
Difference in shapes between primary and secondary fruit	Little to none
Band without achenes	Intermediate width
Color of mature fruit	Bright to dark red
Evenness of color	Very even
Glossiness	Strong

TABLE 5-continued

Fruit Characteristics: Details	
Characteristic	Description
Insertion of achenes	Level to slightly recessed from surface
Attitude of the calyx segments	Somewhat reflexed up
Size of calyx in relation to fruit diameter	2.3 cm to 4.0 cm
Adherence of calyx (when fully ripe)	Strong
Firmness of skin	Moderately firm
Color of flesh	Dark purple-red with lighter ring (red- purple 59A to red 44A in center)
Distribution of red color of the flesh	Throughout the flesh with the darkest flesh around internal margin and lighter towards the center
Hollow center	Moderately to strongly expressed
Seed color	Medium yellow-green to dark red-purple (yellow-green 151D to red-purple 59A).
Time of flowering (50% of plants at first flower)	Medium to early
Time of ripening (50% of plants with first ripe fruit)	Medium to early
Type of bearing	Fully short day responsive
Avg. number of achenes	240 per fruit
Achene position	Indented in the flesh so that the upper surface of the achene is even to slightly extruded above the flesh surface
Presence of hollow core	Common, often with pithy flesh within the space
Hollow core length	5 to 15 mm
Hollow core width	5 to 7 mm

Plant Characteristics

‘Walker’ plant characteristics. Plant characteristics are taken from a fully mature mid-season plant.

TABLE 6

Plant Characteristics: Comparisons Comparison of plant characteristics of ‘Walker’, with standards from Geneva, NY Jun. 22, 2012.			
Character	‘Walker’	‘L’Amour’	‘Jewel’
Plant Height mean (cm)	26.0	31.9	27.3
Vigor ¹	8.0	8.3	5.0
Canopy density ¹	7.5	7.7	7.0

¹Rated on a scale of 1-9 (9 being more vigorous or dense) in mature replicated plots.

TABLE 7

Plant Characteristics: Details	
Characteristic	Description
Size	Medium
Habit	Upright
Density	High
Vigor	Strong

Foliage Characteristics

‘Walker’ foliage characteristics. Foliage characteristics are taken from a fully mature tri-foliate leaf during mid season.

TABLE 8

Foliage Characteristics: Comparisons Comparison of leaf characteristics of ‘Walker’, with standards from Geneva, NY on Jun. 22, 2012.			
Character	‘Walker’	‘L’Amour’	‘Jewel’
RHS Color (upper surface)	green 137A	green 137A	green 138A
RHS Color (lower surface)	greyed-green 191A	green 139C	green 137D
Terminal Leaflet Length mean (cm)	7.4	8.4	7.5
Terminal Leaflet Width mean (cm)	5.7	8.5	7.6
Terminal Leaflet ratio (L/W)	1.29	0.99	0.99
Petiole Length mean (cm)	21.1	22.8	19.9
Serrations/Leaf	26.9	22.3	18.3
Stipule Length mean (cm)	1.6	3.5	3.0
Stipule Width mean (cm)	0.6	0.8	0.8

TABLE 9

Foliage Characteristics: Details	
Characteristic	Description
Color of upper surface	Medium to dark green
Color of under side	Medium to light grey-green
Shape in cross section	Slightly concave
Interveinal blistering	Light to moderate
Glossiness	Low, flat coloring
Number of leaflets/leaf	Generally three
Terminal leaflet size	Small to medium
Terminal leaflet - length/width ratio	Longer than broad
Terminal leaflet - shape of base	Cuneate
Terminal leaflet - shape serrations	Acute
Petiole - pubescence density	High
Petiole - stipule color	Light to medium yellow-green (yellow-green N144C)
Petiole - anthocyanin coloration of stipule	Slight blush of Red 45D
Petiole - attitude of hairs	Strongly upward towards leaf
Petiole - size of bract leaflets	Small
Petiole - frequency of bract leaflets	Approximately 10% of the petioles
Avg. number of leaflets	3
Venation pattern of leaflets	reticulated

Flower and Inflorescence Characteristics

‘Walker’ inflorescence and flower characteristics. Inflorescence characteristics are taken from a fully mature plant during full bloom. Flower characteristics are taken from a secondary flower during mid season at full maturity:

TABLE 10

Flower and Inflorescence Characteristics: Comparisons Comparison of inflorescence and secondary flower characteristics of ‘Walker’, with standards from Geneva, NY on May 10, 2012.			
Character	‘Walker’	‘L’Amour’	‘Jewel’
Fruiting Truss Length ¹ mean (cm)	21.6	32.3	20.9
Corolla Diameter mean (mm)	35	36	31
Calyx Diameter mean (mm)	33	33	34
Petal Length mean (mm)	14.8	15.4	14.0
Petal Width mean (mm)	13.3	13.6	13.3
Petal L/W Ratio	1.09	1.13	1.09
Petals/Flower (mean)	5.8	5.1	6.3
Sepals/Flower (mean)	10.0	11.0	12.4
Petal shape	obovate		
Petal RHS color	white 155C		
	both surfaces		
Shape of Apex	rounded		
Shape of base	cuneate		
Shape of margin	entire		
	(not serrated)		

¹as measured from the base of the primary peduncle where it attaches to the crown of the plant to the furthest berry.

TABLE 11

Inflorescence Characteristics: Details	
Characteristic	Description
Position relative to foliage	Even with canopy
Fruiting truss length	Medium

TABLE 12

Flower Characteristics: Details	
Characteristic	Description
Color	White (white 155C).
Size	Medium to large
Size of calyx relative to corolla	Equal to smaller
Relative position of petals	No overlap when fully open
Petal length/width ratio	Longer than broad
Petal shape	Obovate
Sepal RHS color	Green 137D
Avg. sepal length	8.5 cm
Avg. sepal width at base	3.4 mm

Pest reactions: It is known to be moderately resistant to the two-spotted spider mite and susceptible to aphids and flower thrips. It is susceptible to leaf spot, scorch and blight. It is resistant to powdery mildew. The susceptibility of the new plant to any of the virus complexes of NY has not been determined.

We claim:

1. A new and distinct strawberry plant cultivar as herein described and illustrated.

* * * * *

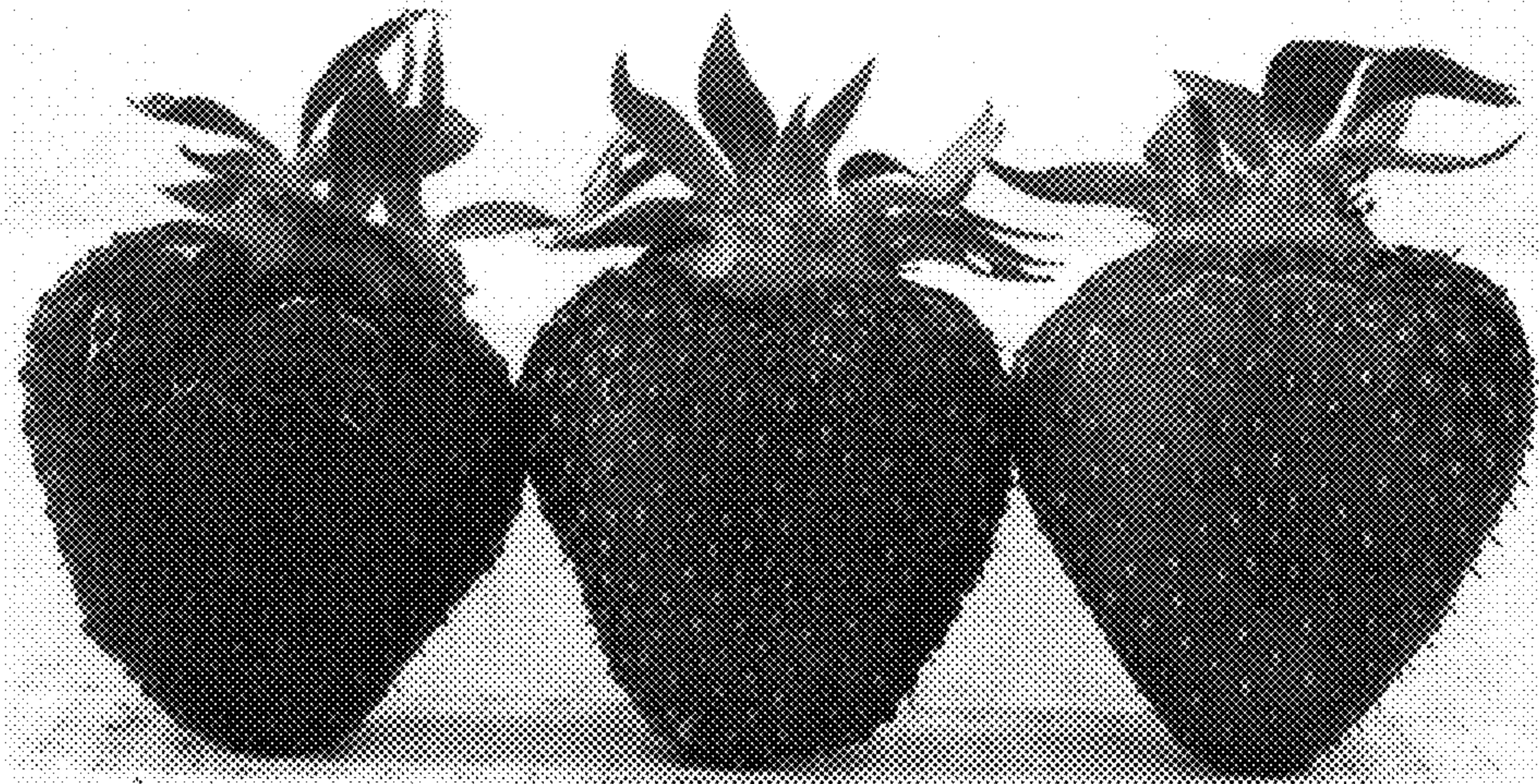


Fig. 1A

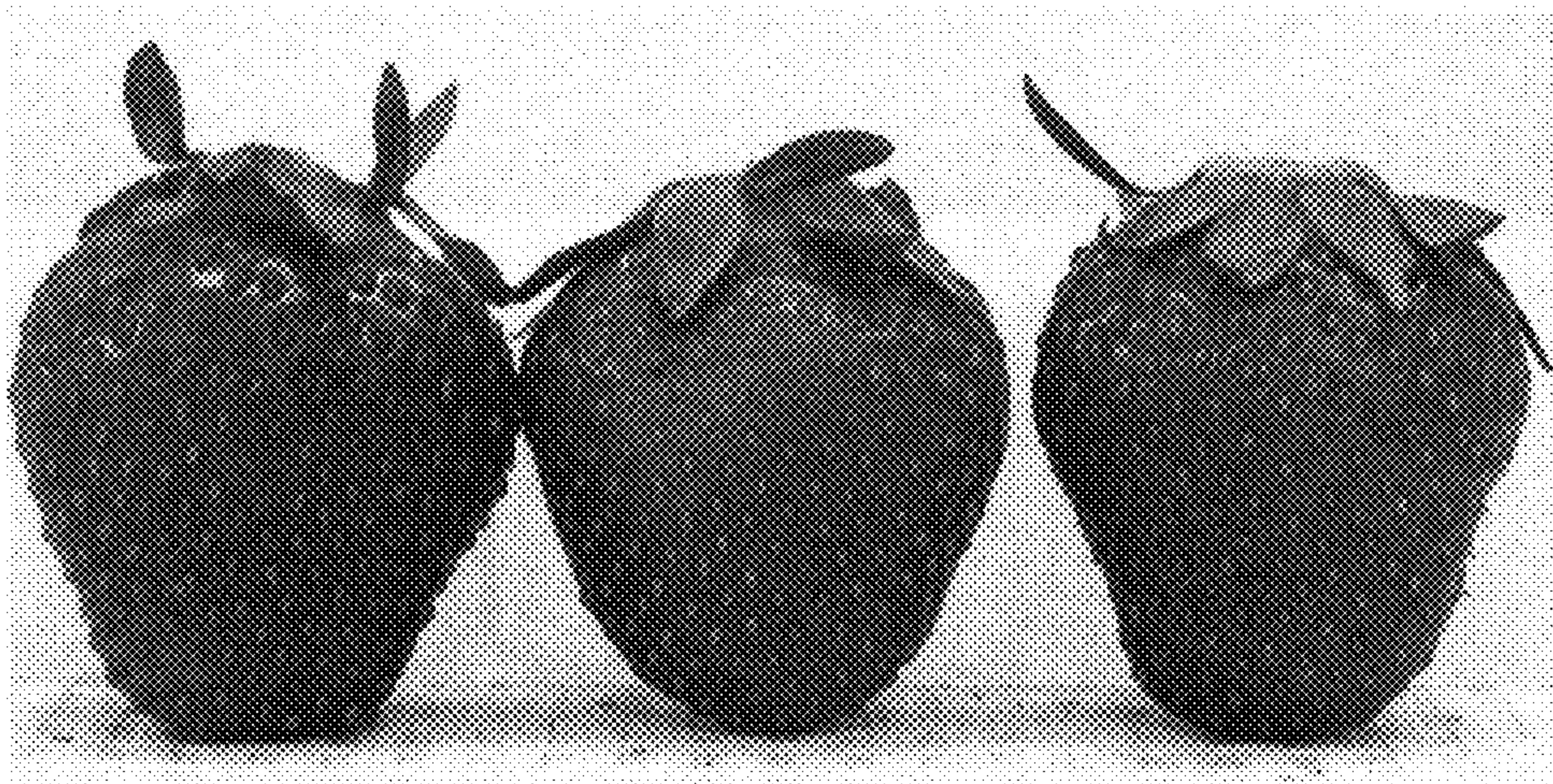


Fig. 1B

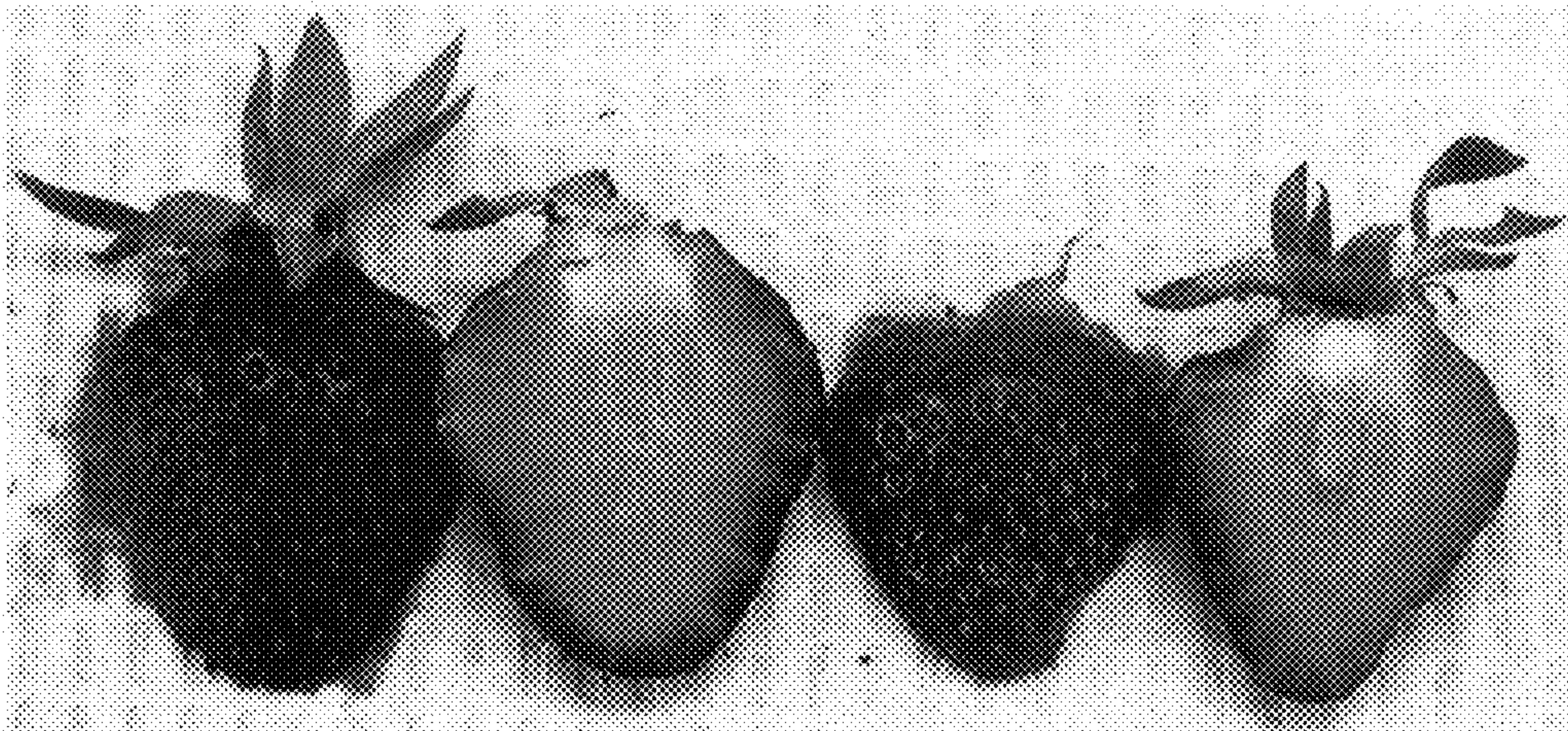


Fig. 2A

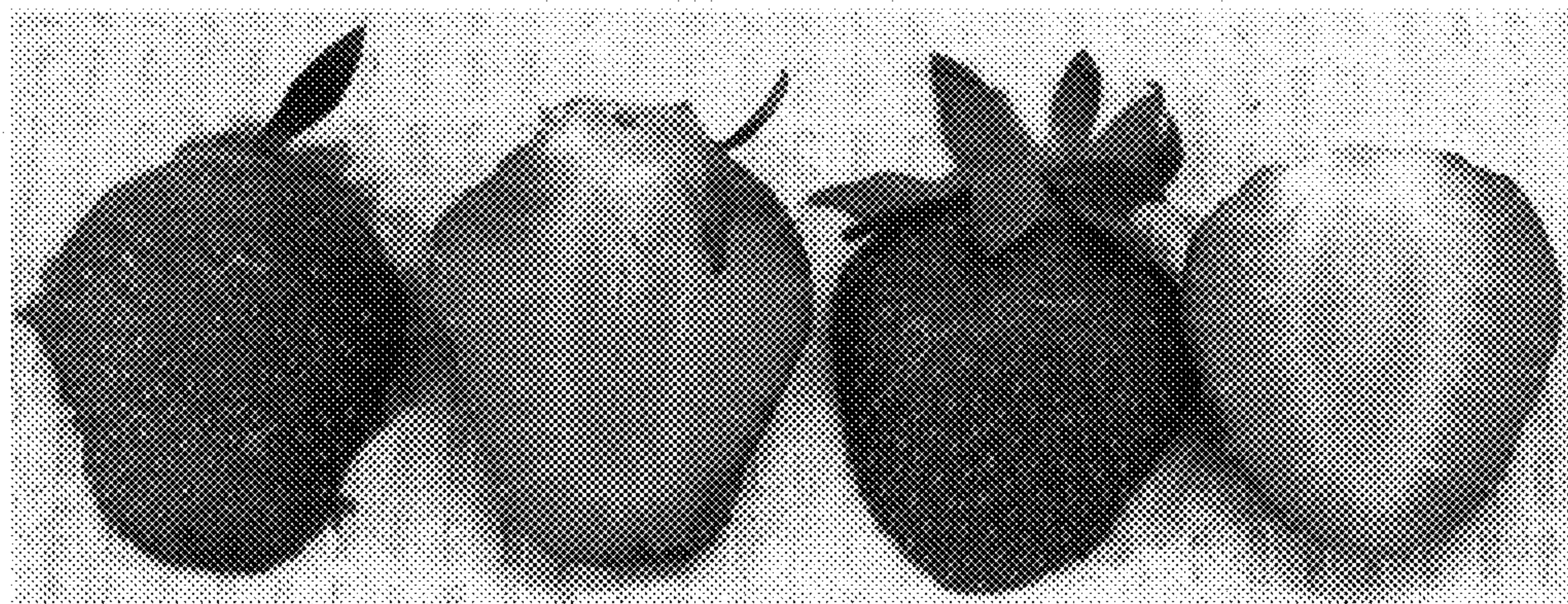


Fig. 2B



Fig. 3A

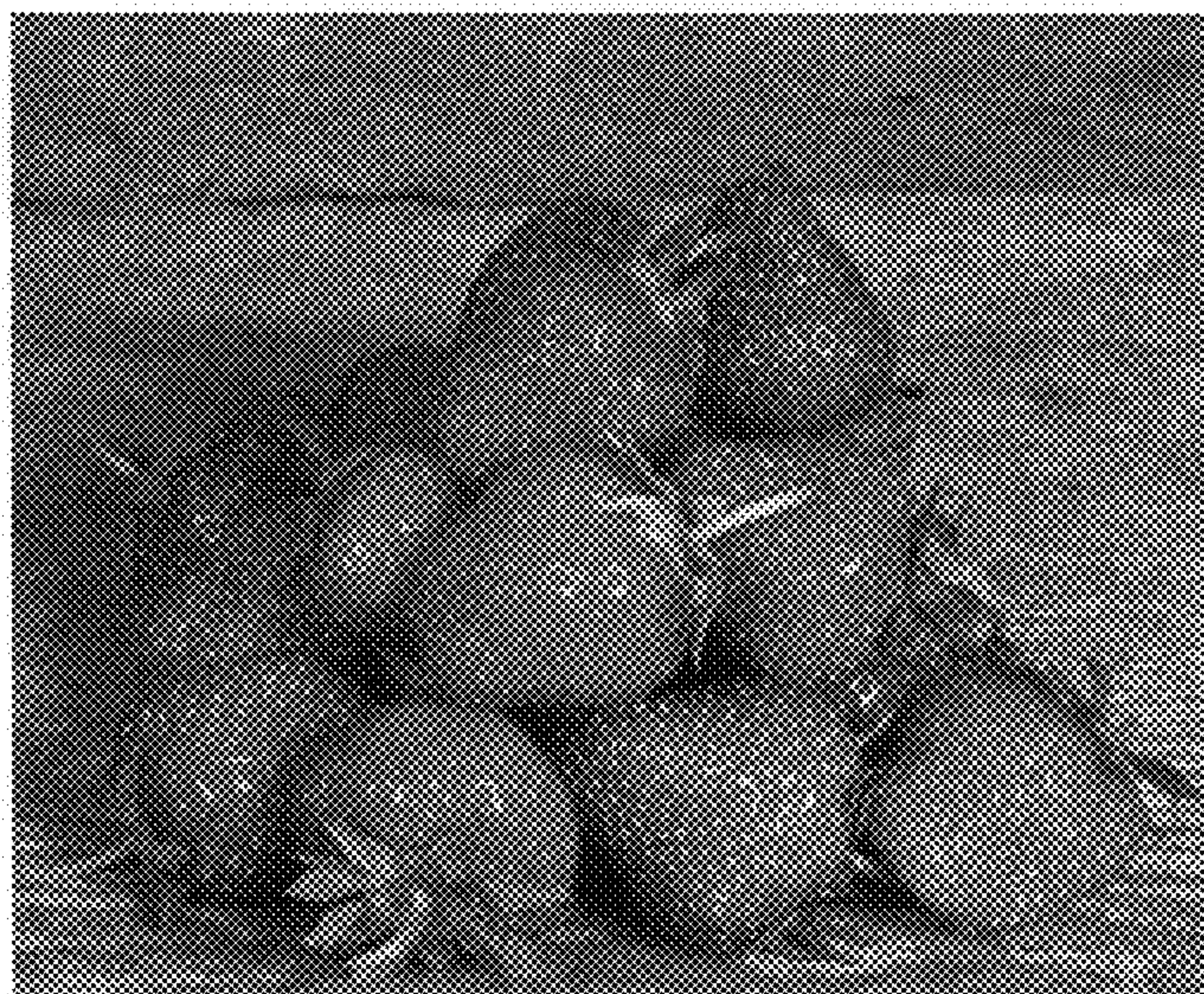


Fig. 3B

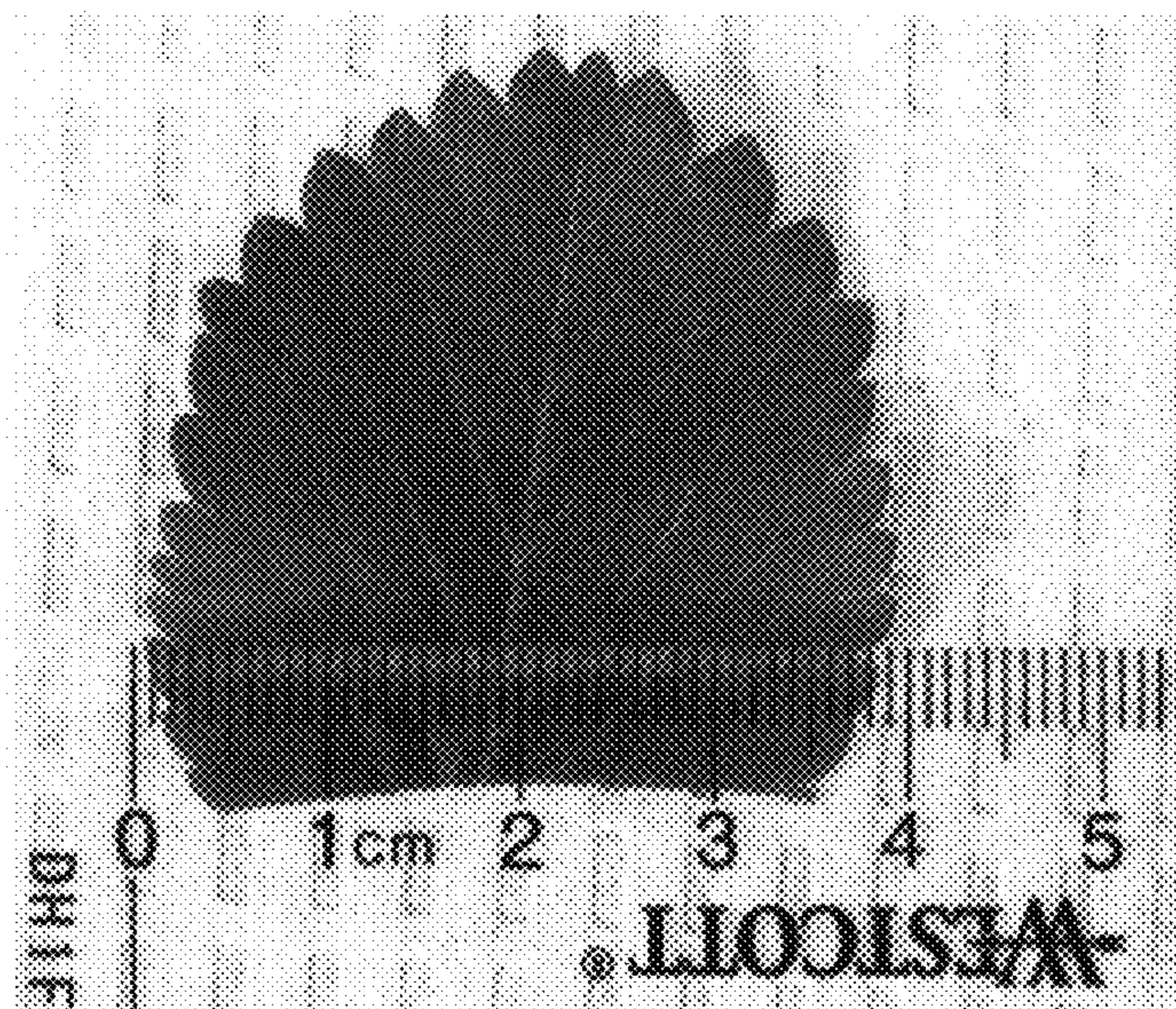


Fig. 4A

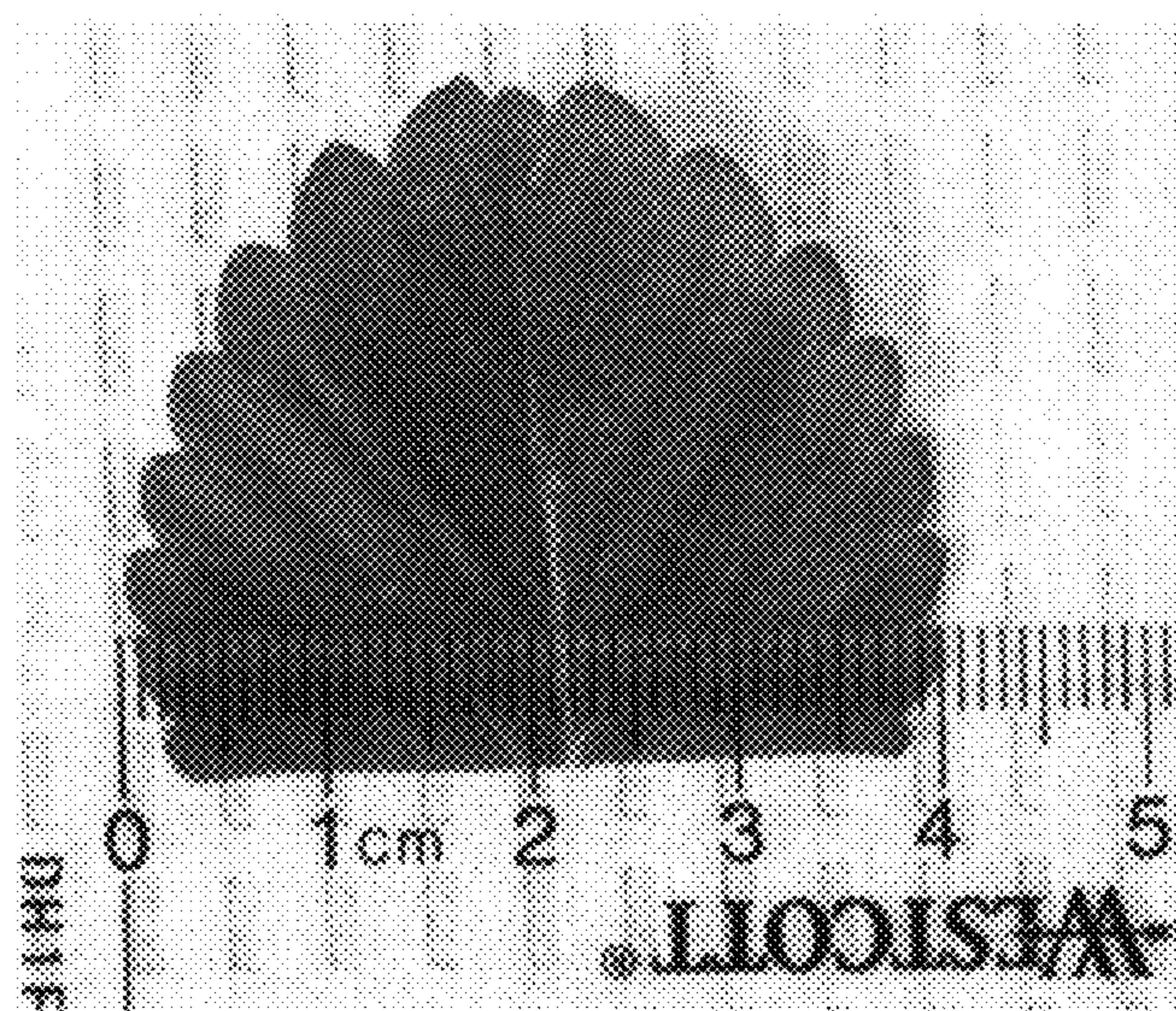


Fig. 4B

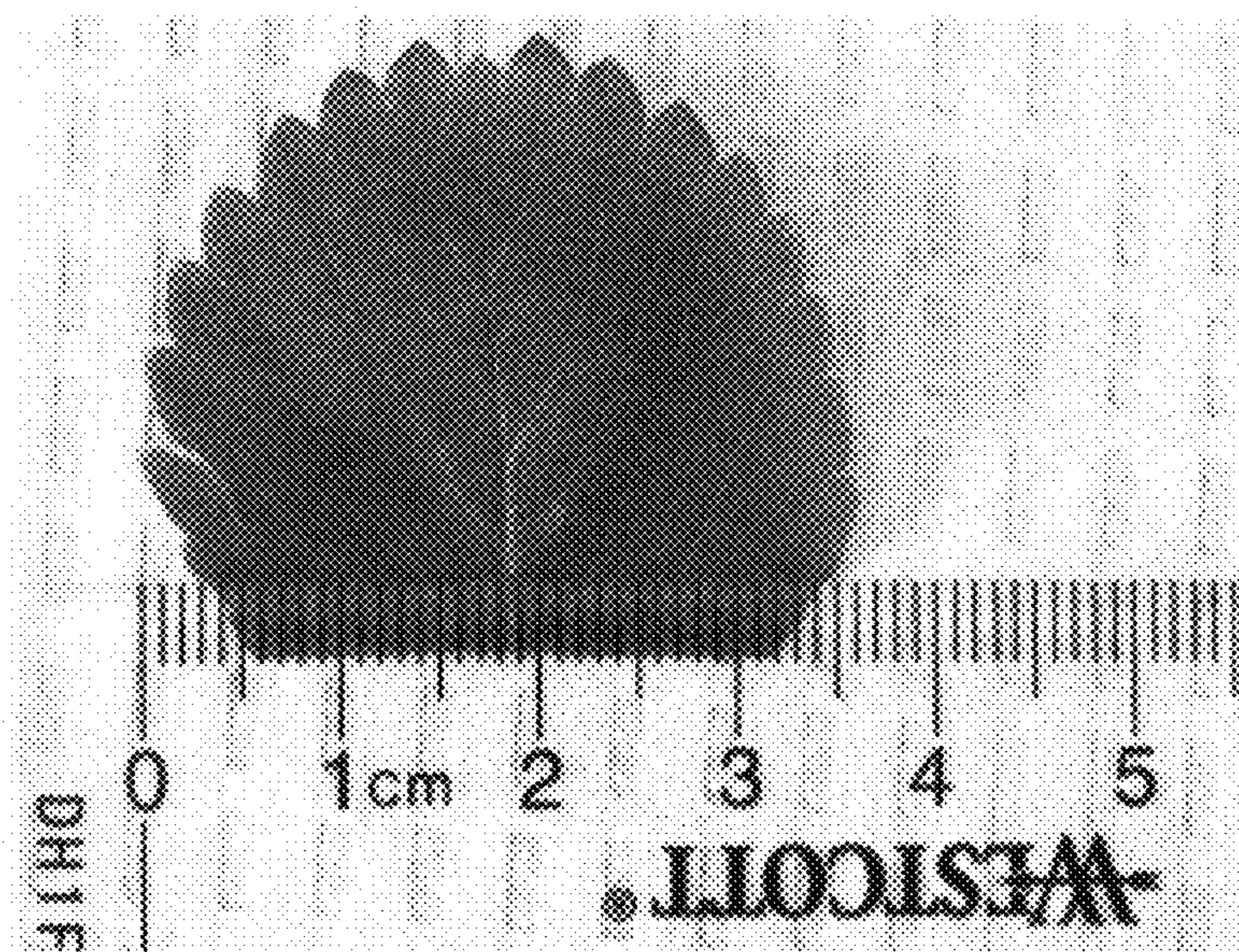


Fig. 4C