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About the Institute
The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

- Taxidmetrics Laboratory

May 23, 1967

Mr. Frank N. Paparello
Asst. Vice-President - Editorial
Encyclopedia Britannica
Educational Corporation
425 North Michigan Avenue
Chicago, Illinois 60611

Dear Mr. Paparello:

I am agreeable to the arrangements that you recommend in your letter of May 19.

Please note that my address will change July 1 to Department of Biology, University of Colorado, Boulder, Colorado 80302.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ch

ENCYCLOPÆDIA BRITANNICA
EDUCATIONAL CORPORATION

425 NORTH MICHIGAN AVENUE • CHICAGO, ILLINOIS 60611 • PHONE: (312) 321-6800

May 19, 1967

MAY 2 8 1967

Dr. David J. Rogers
Department of Botany and Plant Pathology
Colorado State University
Fort Collins, Colorado

Dear Dr. Rogers:

EBE and the David-Stewart Company are in the process of developing an Elementary Dictionary of the Natural Sciences. The advisory services you have contributed to the parent two-volume junior high school dictionary was most helpful towards having those publications become the success that they are. It is safe to assume that a similar popularity will accompany the elementary edition.

As so much of the initial work is already behind us, I should expect that your participation would require no more than a quick review of the word list. Practically all of the art work will be retained from the parent volumes, and most of the entries will be re-written consistent with early childhood comprehension levels.

I feel the publication will have considerably more respectability if you permit us to continue your name on the Advisory Board. If this is agreeable with you, the new word list will be made available to you shortly, accompanied by a $50 honorarium.

Very best wishes,

Frank Paparello (ds)

Frank N. Paparello,
Asst. Vice-President - Editorial

FNP/ds

32

October 13, 1965

Mrs. Frances H. Parker
Editorial Research Staff
National Geographic Society
17th and M Streets, N.W.
Washington, D. C. 22036

Dear Mrs. Parker,

I think the few changes made will satisfy my sense of what's correct on Manioc. There are one or two places that one might quibble about; but I don't think that it is worth the changing of it.

Sincerely,

David J. Rogers
Professor of Botany

DJR/ec
Encl. - proofs

Rec'd 10/12/65 JP.

National Geographic Magazine

WASHINGTON, D.C. 20036

EDITORIAL RESEARCH STAFF

11 October 1965

Dr. David J. Rogers
Taxonomy Lab
Department of Botany
Colorado State University
Fort Collins, Colorado

Dear Dr. Rogers:

I am enclosing excerpts from an article that we are preparing for publication by Harald Schultz on the Waura Indians.

You were very kind to have given me help on the telephone and to have answered my questions concerning manioc. As you suggested, it is better to have the written material. Would you be kind enough to look this material over and to call to my attention anything that is wrong or possibly misleading.

I spoke to the Members Relations Department about your change of address. They said they would do everything possible to speed this change along. It would aid them tremendously if you would give me your old address. I will send you a copy of the September issue, which I am sorry you did not receive.

Thank you very much for your kind cooperation. Since our deadline is right on us, if you deem any changes necessary on the enclosed excerpts, would you be kind enough to call me collect.

Sincerely yours,

Frances H. Parker

(Mrs.) Frances H. Parker
Editorial Research Staff

telephone: area code 202
296-7500
extension 772

FHP:mtm

TELEPHONE: 321-6800
AREA CODE 312

ENCYCLOPÆDIA BRITANNICA FILMS INC.
425 NORTH MICHIGAN AVENUE
CHICAGO, ILLINOIS 60611

August 9, 1966

AUG 12 1966

Dr. David J. Rogers
Department of Botany and Plant Pathology
Colorado State University
Fort Collins, Colorado

Dear Dr. Rogers:

I regret the delay in sending your complimentary copy of the film A Plant Through The Seasons - Apple Tree. It has been delayed along with several other subjects in the laboratory.

I hope you like the final results with this middle-grade subject. It has had very favorable opinion here.

Again, many thanks for your help with this assignment.

Sincerely,

J. J. Walker
Producer

JJW:mjl

Ed-
65/5

- Taxonomy Laboratory

December 7, 1965

Mr. John J. Walker, Producer
Encyclopaedia Britannica Films
Wilmette, Illinois

Dear Mr. Walker,

I am returning herewith the script for the film A PLANT THROUGH THE SEASONS: APPLE TREE. The film itself is fine, and I have the following comments on queries from you. I have noted on Scene 21 that your statement is all right -- that there is no need to say anything about compound pistils and carpels.

In Scene 53, the moth larvae is not the one that infests the fruit. As a matter of fact, the bugs inside the fruit were probably laid as eggs by the adult insect in the flower. At any rate, your suggestion to take out the scene of the larvae on the leaf is good.

Your statement in Scene 81 is all right. There is, indeed, some controversy that needs a lot of explaining to distinguish between drying out and freezing; and in the context of this film, I think that your statement will be all right.

You will note some other places in the script that I have suggestions which you may wish to take under consideration. I am not certain whether I passed these over earlier, or whether these were things that have just come to mind since that time. At any rate, I hope they are useful to you.

Sincerely yours,

David J. Rogers
Professor of Botany

P.S. I have looked through the materials on the Basic Life Science program for the elementary grades and noted in the program outline, under III. The World of Plants, that you have listed Plants Useful to Man. Inasmuch as I was once titled Curator of Economic Botany at the New York Botanical Garden, this particular title interests me. What is the status of that particular film? It would be interesting, if it's already done, for me to see it, and if it is not, I'd like to know more about it. That is, are you planning to put that one out soon? Have you written up any script for it? Has anybody done any filming, etc.? If need be, I would like to serve as a consultant for that film.

FROM: Encyclopaedia Britannica Films Inc.
1150 WILMETTE AVE. • WILMETTE, ILLINOIS

SHIPPING AUTHORIZATION ORDER

TO:

Dr. David J. Rogers
Taxonomy Laboratory
Dept. of Botony & Plant Pathology
Colorado State University
Fort Collins, Colorado 80521

PREPARE THIS FORM IN TRIPLICATE — ORIGINAL AND DUPLICATE TO BE TURNED OVER TO THE SHIPPING ROOM. TRIPLICATE RETAINED IN DEPT. SHIPPING LABEL IS INCORPORATED IN PART TWO OF THIS FORM.

CARRIER: SHOULD THIS SHIPMENT REMAIN ON HAND, COMMUNICATE WITH OUR GENERAL OFFICE: 1150 WILMETTE AVENUE, WILMETTE, ILLINOIS.

DATE	REQUISITION OR PURCHASE ORDER NUMBER AND DATE	AMOUNT OF INSURANCE
		$200.

QUANTITY ORDERED	QUANTITY SHIPPED	STOCK NUMBER	DESCRIPTION
			1 - 16mm color workprint of A PLANT THROUGH THE SEASONS: APPLE TREE

Received 11/29/65
4:15 p.m. EC.

SPECIAL INSTRUCTIONS:

VIA:
☐ REGULAR EXPRESS ☐ AIR EXPRESS ☒ AIR PARCEL POST ☐ SPECIAL DELIVERY ☐ REGISTERED RET. REC. REQ. ☐ OTHER:

NO. OF CARTONS
WEIGHT - LBS. DATE SHIPPED
SHIP. CHARGES B/L OR WAYBILL NO.
SHIPPED BY

SHIPMENT AUTHORIZED BY: J. Walker
DATE: 11/26/65
CHARGE TO: 552

FILE COPY

EBF 203 REV. 12-10-63 PRINTED IN U.S.A.

ALPINE 1-8700

CHICAGO PHONE
BROADWAY 3-4400

ENCYCLOPÆDIA BRITANNICA FILMS INC.
WILMETTE, ILLINOIS

November 26, 1965

Dr. David J. Rogers
Taxonomy Laboratory
Department of Botany and Plant Pathology
Colorado State University
Fort Collins, Colorado 80521

Dear Dr. Rogers:

The workprint of A PLANT THROUGH THE SEASONS: APPLE TREE came in from George Schwartz today. It is now on the way to you by air parcel post.

Please disregard the copy of the script which was with the letter of November 16th. This new one, which is enclosed, contains changes recommended by George Schwartz.

We would like to avoid mention of a compound pistil and carpels in Scene 21. Is it all right to say five pistils? They will be pointed out with looping arrows as is indicated in the rough drawing on your copy of the script.

In scene 53, is this a kind of moth larva that infests the fruit? If not, I'll take out the scene of the larva on the leaf but keep the scenes of the infested apples.

Scene 81 mentions protection from drying out and freezing. Is there a difference of opinion about the freezing? The quote is from page 11 of The Life Nature Series on The Forest.

> "Growing at the base of nearly every stalk, where last years leaves were connected to the twigs, is the promise of another spring - the winter buds, perhaps several million of them on a large tree. Each is an exquisite miniature, a master plan of all the elements that will make for renewed growth. There is a hoard of sugars for food, there is a cluster of cells possessing the ability to divide rapidly, there are embryo leaves - all enveloped in an armor of scales that defend the tender tissues against winter drought (not against cold) as is commonly supposed."

The small piece of title which is cut into Scene 9 in only for reference in editing. It will overlay the entire scene in the finished film. We will correct the copy to show your new affiliation.

Under separate cover, I am sending brochures on our BASIC LIFE SCIENCE and Secondary BIOLOGY SERIES of films. I hope you will find them of interest.

I'll look forward to your comments on A PLANT THROUGH THE SEASONS: APPLE TREE.

Sincerely,

John J. Walker

John J. Walker
Producer

cc:
M. Herzog
W. Deneen
enc.

- Taxonomy Laboratory

November 22, 1965

Mr. J. J. Walker
Encyclopaedia Britannica Films Inc.
Wilmette, Illinois

Dear Mr. Walker,

Your letter of November 16th arrived here today. I am sorry that I did not notify you of my change of address. I trust that it is not too late to do so before the film is shipped. Please send the film to:

Dr. David J. Rogers
Taxonomy Laboratory
Department of Botany and Plant Pathology
Colorado State University
Fort Collins, Colorado 80521

I will be pleased to follow through from here.

Sincerely yours,

David J. Rogers
Professor of Botany

DJR/ec

ALpine 1-8700

NOV 2 2 1965

CHICAGO PHONE
BRoadway 3-4400

ENCYCLOPÆDIA BRITANNICA FILMS INC.
WILMETTE, ILLINOIS

November 16, 1965

Dr. David Rogers
The New York Botanical Garden
Bronx Park
New York 58, New York

Dear Dr. Rogers:

We have now completed the editing of the film A PLANT THROUGH THE SEASONS: APPLE TREE. This is the subject on which you so kindly agreed to act as scientific advisor in your letter of December 8, 1964.

During the course of production, alterations have had to be made in the original script. To keep the subject to one reel in length, or 11 minutes, some scenes were eliminated. Vocabulary has also been modified slightly, after testing this film in lower elementary classes. None of these changes has harmed the basic theme.

Please bear in mind that this is a workprint and lacks the finished appearance of a completed film. It will have only a small clip of the main and credit title which will be superimposed over the scene in which this clip now appears. There will be no fades or dissolves nor will the superimposed words and arrows that name parts of the flower or identify parts of the action be in evidence. These are all added later. Scene 75 which is an extreme closeup of the point of attachment of leaf stalk and bud, is being rephotographed. A piece of blank film now appears at this point in the reel.

I'm sure you will have no difficulty reading the narration to the film, if it is projected at sound speed.

Mr. George Schwartz, the educational advisor for the Life Science Series of EBF films will send the print to you after he has completed his review. When you have finished with the film, please send it to my attention by parcel post, special delivery insured for $200.00. I will refund the cost of shipment with the payment for your collaboration, if you will inform me of the mailing charges.

I am looking forward to your comments. Thank you for your cooperation.

Sincerely,

J. J. Walker

J. J. Walker
Producer

November 16, 1965

A PLANT THROUGH THE SEASONS - APPLE TREE

EBLOGO

1. Children on beach in summer.

If your home is in a part of the world that has seasons, you know that you can live through the heat of summer and cold of winter --

2. Children sled riding in winter.

-- and that your activities --

3. Reverse angle children on sleds.

-- change during the year.

4. Ducks on pond. Reflections of trees in fall foliage.

Other living things must be able to survive the same changes of climate.

5. Ducks framed through willow branches.

How do they do it?

6. Oak tree in fall foliage at edge of pond.

Have you ever thought of a tree going to sleep in autumn --

DISSOLVE TO:

7. Matched view of same oak tree in summer foliage.

-- and waking up in spring?

DISSOLVE TO:

8. Zoom back from branches heavy with apples to full shot of apple tree.

Here's a tree all of you know -- the Apple.

9. Two rows of apple trees in fall foliage.

In this movie we can watch some of the things that happen in its life during the four seasons.

Superimpose Main Title: A PLANT AND THE SEASONS
APPLE TREE

Superimpose Credit Title:

10. Branch of tree in fall foliage.

Do you think we call the season Fall because leaves fall from the trees in Autumn?

11. Tilt down from tree to leaves on ground.

How does this help the trees?

DISSOLVE TO:

12. Tilt up from snow on ground to bare apple tree.

Can a tree in winter be compared to a hibernating animal? Doesn't it seem to sleep through cold weather?

DISSOLVE TO:

13. Animation. Dormancy ends. Superimpose the word DORMANT.

While it rests or remains dormant -- it uses water and food more slowly. When the gradually rising temperature of early spring passes 40 degrees, its rest ends. The warmer weather, the shorter nights and the increased moisture from melting snow and rain all help take the food stored in the roots up the trunk and into all parts of the tree in the form of sap.

14. Time-lapse - Leaves emerge.

As soon as the extra food in the watery sap reaches the twigs, the whole tree seems to burst into action. Buds swell - leaves --

15. Time-lapse - Flowers opening.

-- and then flowers come out.

16. Time-lapse - Buds grow leaves.

You can watch this action again withthe special slowed-down camera.

17. Time-lapse - Flowers emerge.

18. Apple branch and flowers.

To see what flowers and leaves do for the tree --

19. One apple flower.

-- let's use our camera like a magnifying glass, and look first at one of the flowers.

20. Reproductive parts of flower.

In the center of each are the tiny structures that reproduce the seeds and fruit.

21. Pistils of apple flower - Arrow overlays point out each pistil. The word Pistil is superimposed.

Five of these, called the Pistil, are the female part of the flower.

22. Stigmas of pistils. Arrow overlay points to sticky knob of stigma. The word Stigma is superimposed.

On top of each is a sticky knob called the stigma.

23. Stamens. Arrow overlay points to anthers and pollen. The words Stamen, Anther and Pollen are superimposed.

Surrounding the pistil are the parts we call Male or stamens. Each stamen has a little sac at its top called the anther, which contains a kind of dust called pollen.

24. Branch and flowers. M.S. Flowering branches of tree moving with the wind.

Before apples can grow, pollen must be moved from the anthers to the sticky knobs of the stigmas.

25. Flowers in wind.

It gets there with the help of the wind --

26. Cluster of flowers and bee.

--and by insects seeking nectar from the flowers.

27. Bee moves to another flower. Second bee alights on flower.

A bee brushes against the stamens and pollen sticks to its hairy body. Then, as it moves from flower to flower --

28. Bee in center of flower. Bee flies off.

--the insect body touches the pistil and some of the pollen --

29. Bee body touching stigma of flower.

--sticks to the stigma.

30. Bee moves from one flower to another.

The way pollen travels from stamen to pistil --

31. Bee with pollen. The word Pollination is superimposed.

-- is called pollination.

32. Animation.
Reproductive parts of the flower. Pollen is on top of the stigma. Tubes begin to grow down the stile toward the ovary. The word Ovary and Fertilization are superimposed.

After pollen gets on the stigma, it sends out long tubes which grow down the stem-like parts and enter a place called the ovary. Tiny living male cells are carried inside the tubes. One of these unites with one of the female egg cells in the ovary. This is called fertilization. The eggs will ripen into seeds and the ovary will grow into an apple.

DISSOLVE TO:

33. Bee hives in orchard.

Many fruit growers keep bees in their orchards.

34. Hives and bees.

Now you probably know how this helps with pollination.

35. Tilt down from tree to wildflowers.

There are many plants in the orchard besides apple trees. Who seeded them?

36. Dandelions growing in orchard.

Can you guess?

37. Flicker with food at hollow tree.

Spring is a busy season for birds and they are useful to the orchard grower. Know why?

38. Fading flower.

With its work done, most of the apple flower withers and falls away.

39. Lower part of withered flower.

Only the lower part that grows into fruit and seeds remains.

40. Developing fruit.

Here you can see it partly grown.

FADE OUT:

FADE IN:

41. Apple tree in summer shower.

Summer is the season for food making by the tree.

42. Rain on leaves.

Green plants are the only living things that can make their own food.

43. Sunlight on wet leaves.

What do they use to make it -- and where? --

44. Sunburst through leaves.

-- do they do the work?

DISSOLVE TO:

45. Animation. The words water, carbon dioxide, chlorophyll are superimposed.

You can see in this drawing that water from rain comes up from the roots to the leaves. From air, a gas (carbon dioxide) enters the leaf through tiny openings on its underside. Inside the leaf is a green coloring material called chlorophyll which changes the water and carbon dioxide into food in the form of sugar by using the light energy of the sun. The tree uses some of this food to live and grow. The rest is stored in other parts of the plant.

46. Summer shower.

With each summer shower --

47. Ripening fruit in bright sunshine.

-- and each day of sunshine, the tree gets what it needs to make more food.

48. Ripening apple.

It will grow well and produce fine fruit, if it can be kept free --

49. Curled leaf.

-- of disease and insect enemies like --

50. Aphids on leaf.

-- aphids which attack branches and roots --

51. Tent caterpillars.

-- the tent caterpillar --

52. Pan to eaten leaves.

-- which eats the apple leaves --

53. Moth larva on leaf.

-- and the moth larva --

54. Larva infested apples.

-- which makes the fruit wormy.

55. Diseased apples.

56. Spraying apple trees.

To control pests, like these, apple growers must spray --

57. C.U. Spray in trees.

-- their trees all summer long.

FADE OUT:

FADE IN:

58. Fruit picking machine and man.

Now it is autumn. Apples are ripe --

59. Man picks apples.

-- and ready for picking.

60. Closeup of hand picking apples.

61. Closeup one ripe apple.

Seeds inside the apple have ripened too.

DISSOLVE TO:

62. Cutaway apple showing seeds.

Where do new apple trees come from?

63. Closeup of seeds.

Seeds like this will grow after a winter's rest.

64. Planting seeds and watering.

If you want to plant some seeds, you can speed up their resting period by cooling them in a refrigerator for several weeks.

65. Time-lapse of seeds germinating.

Let's watch a few of them growing --

66. Time-lapse of young seedlings.

-- with our special slowed-down camera.

67. Time-lapse seedlings grow.

68. Time-lapse seedlings in planter.

DISSOLVE TO:

69. Montage - Four scenes of apple harvesting.

There are many different kinds of apples. They vary in size and color. They also taste different.

70. Avenue of apple trees in fall foliage.

What does the color of these leaves tell you about the season.

71. Closeup of autumn leaves.

Can a leaf make food when the green coloring matter of chlorophyll has disappeared?

72. Single apple tree in fall foliage.

Hasn't the tree finished its important work? It has made seeds and fruit and it has stored food that will help it live through the winter.

73. Branch in autumn foliage.

Now to save moisture and protect other parts of the plant during cold dry weather--

74. Low view avenue of trees.

-- the water supply to the leaves is cut off.

75. Closeup of bud and leaf stalk.
Overlay arrow to point out attachment.

At the place where leaves are attached to buds, a thin cork-like wall grows across the leaf stalk and stops the flow of water.

76. Leaf breaks from twig.

When a leaf falls it leaves a scar.

77. Closeup of leaf scar.
Overlay arrow to point out scar.

The scar is the place where the cork wall grew.

78. Closeup leaf falls.

See how easily the leaves break off in the wind and fall?

79. Developed winter bud.

Buds developed during the summer. They contain next year's leaves and flowers.

80. Cutaway bud.

Here you can look inside a bud to see how small these parts are and how neatly they are packed.

81. Bud and covering scales.

Each bud is protected from drying out and freezing by waterproof scales with a fuzzy outer covering.

DISSOLVE TO:

82. Twig with buds in snowstorm.

Now the tree is ready to face the winter.

83. Avenue of trees in snow.

Roots draw water from the ground slowly. Sap has almost stopped flowing.

84. Ice covered twigs.

Buds are closed and covered to help prevent freezing and drying --

85. Closeup one bud in ice.

-- under the most severe conditions.

86. Tree trunk in snow.

The tree is dormant --

87. Branches and snow.

--but everything is ready for the coming spring.

88. Time-lapse dawn on a spring morning.

Soon the earth will get warm again. Sap will rise.

89. Time-lapse, leaves emerge

Leaves will come out --

90. Time-lapse, flowers emerge.

-- followed by flowers --

91. Travel shot - apple orchard in flower.

-- and the cycle of life through the seasons will go on and on again and again.

End Title and Credits