How to Make Fertilizer

by: Harlan H.D. Attfield

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VITA TECHNICAL BULLETIN 8

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ILLUSTRATIONS BY MARINA F. MASPERO

This bulletin contains easy to follow, well-illustrated directions for making fertilizer using materials likely to be found in a village situation. Given here are a list of possible raw materials, instructions for making the fertilizer in a simple frame or container, and a list of general guidelines, including directions for mixing chemical and natural fertilizers.

This bulletin is a basic introduction to composting; it is an excellent tool for use by extension agents, community workers, and others seeking to introduce organic farming methods in areas where they are unknown. It would make a useful addition to an extension training program.

The material, as shown here, has been adapted from a booklet prepared by Harlan H. D. Attfield as part of an innovative and meaningful approach to community development which is underway in Bangladesh. The Sylhet Package Program, as this effort is called, is funded by International Voluntary Services, Inc. (IVS), a respected US-based private development organization, in cooperation with three local agencies--the Rural Development Training Institute, the Bangladesh Rural Advancement Committee and the Government's Integrated Rural Development Program. In summary, the "package" project involves extension work to promote production of high-yielding rice, vegetables, fish, and ducks, health and family planning, functional education and cooperative development.

Mr. Attfield, the author, has been associated with VITA as an expert Volunteer for four years and is the author of a number of books and articles, including *Rabbit Raising* which is published by VITA. VITA is pleased to be able to make available the work of this author and the fine program of which he is a part.

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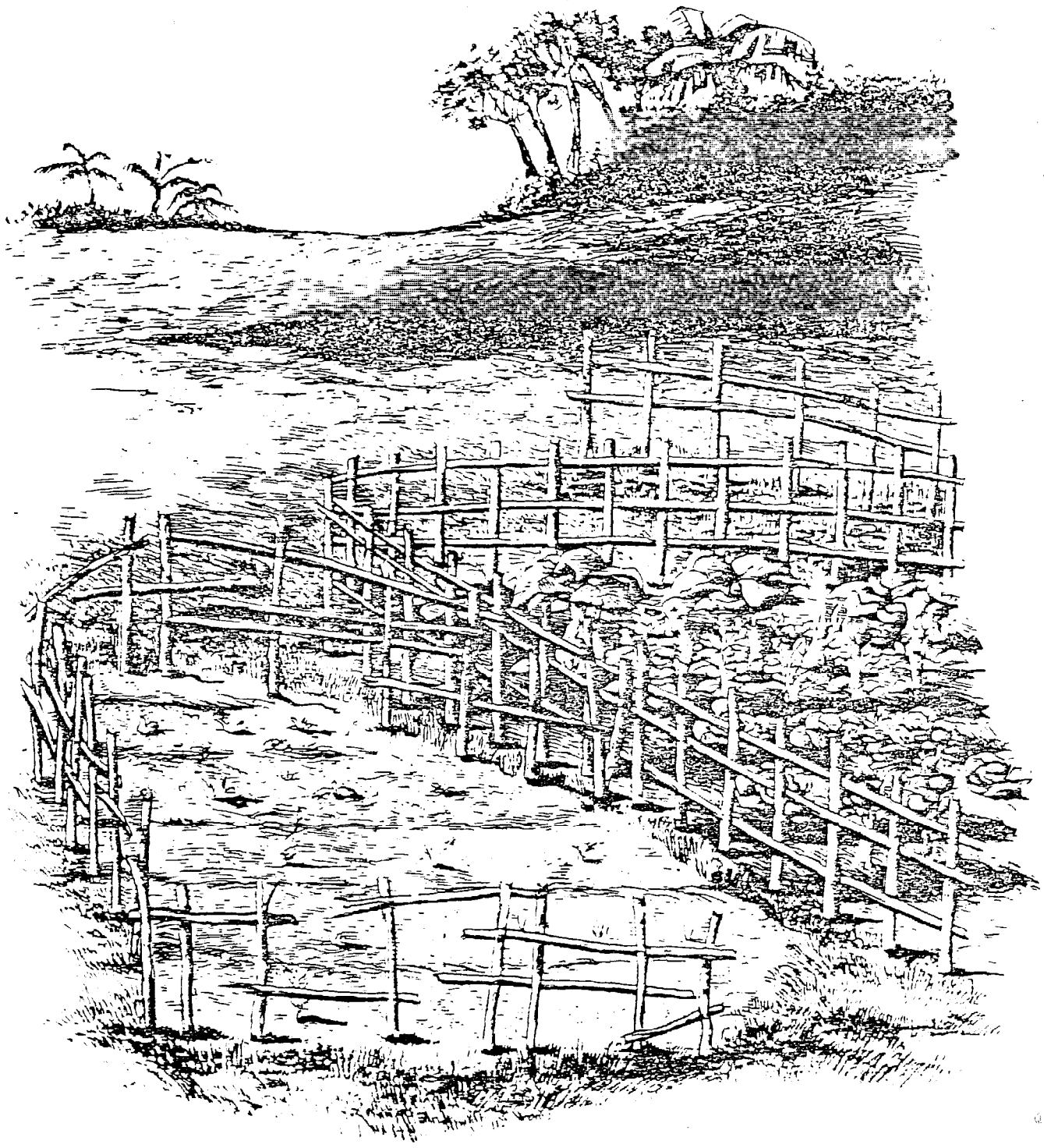
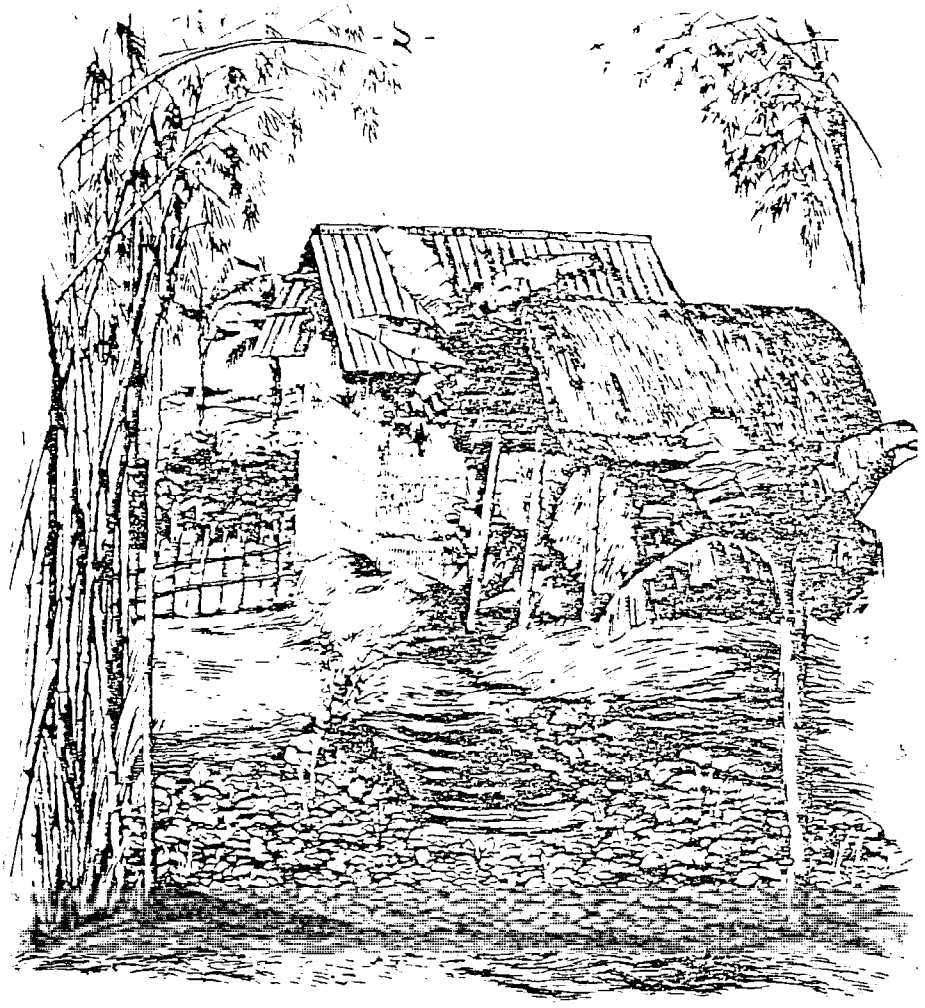


Your soil is alive! And if you want it to be healthy, fertile and always productive it must be fed with plenty of natural fertilizer.

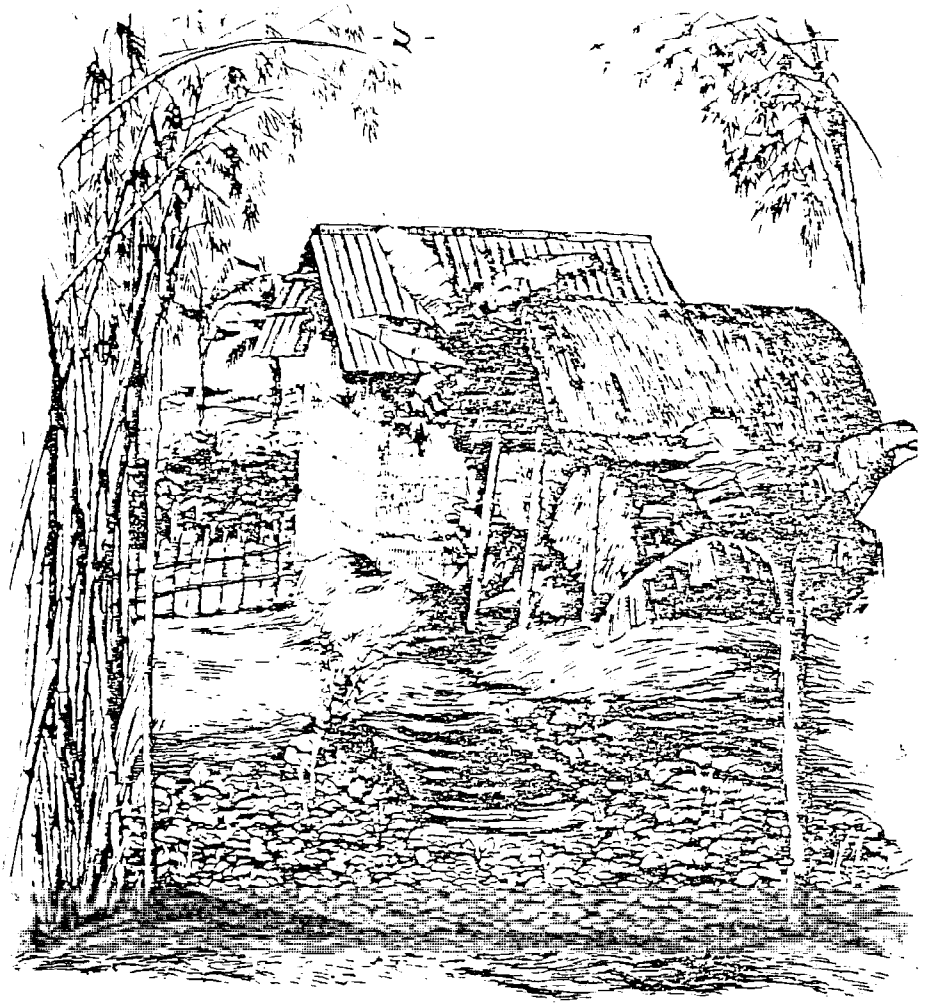
You can easily make fertilizer yourself. There are probably lots of materials around your home which can be made into fertilizer, while costing you nothing except some labor to collect them.



HERE ARE JUST SOME OF THE MATERIALS THAN CAN BE USED TO MAKE NATURAL FERTILIZER

1. Water hyacinth
2. Ashes (from wood and straw)
3. Banana skins and stalks
4. Egg shells
5. Feathers
6. Fish cleanings
7. Old flowers
8. Grass
9. Hair trimmings
10. Animal manures
11. Rice hulls
12. Sawdust (turned grey by weathering)
13. Wood shavings
14. Ground shells (mussel, oyster, crabs)
15. Silk mill waste
16. Sugar cane residue (bagasse)
17. Rice straw
18. Hedge clippings
19. Seaweed
20. Kitchen scraps (not meat or fat)
21. Leaves
22. Sour milk
23. Vines
24. Peanut hulls
25. Mustard plants (after harvest)
26. Potato wastes (leaves, stalks, skins)
27. Old paper
28. Black soil dug out of canals or swampy places.

You can easily make fertilizer yourself. There are probably lots of materials around your home which can be made into fertilizer, while costing you nothing except some labor to collect them.



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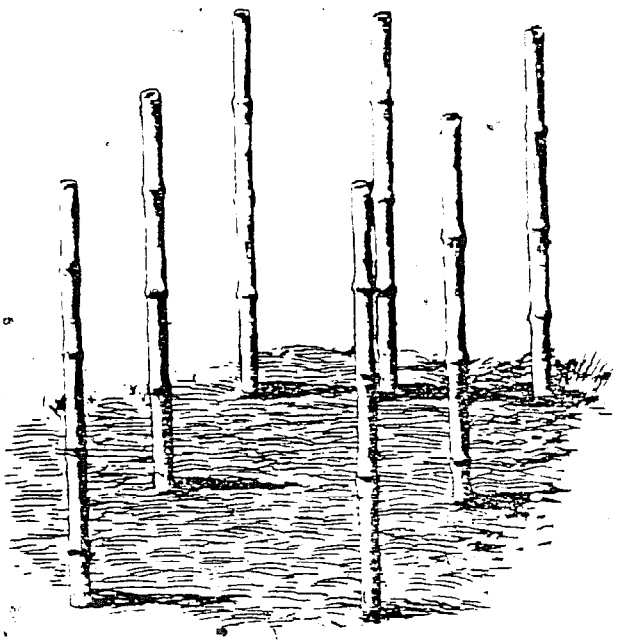
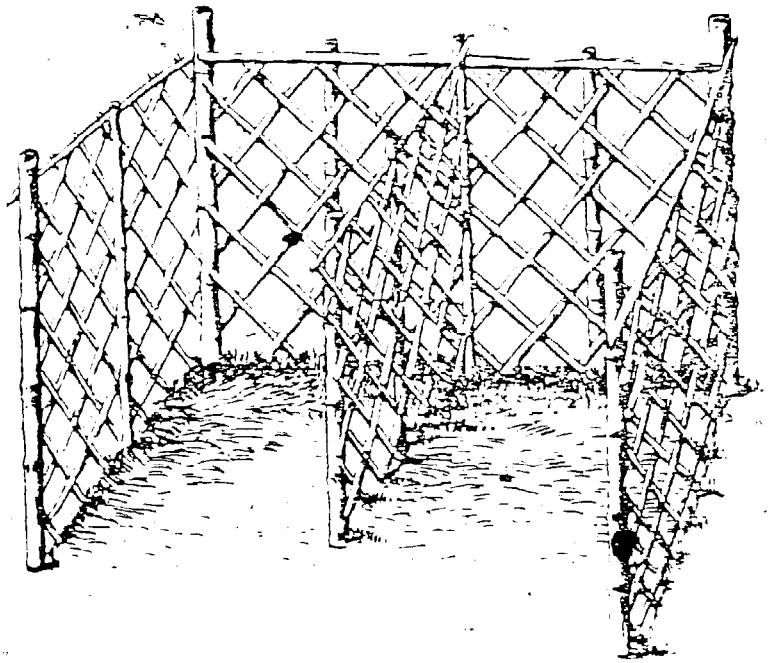


A simple frame

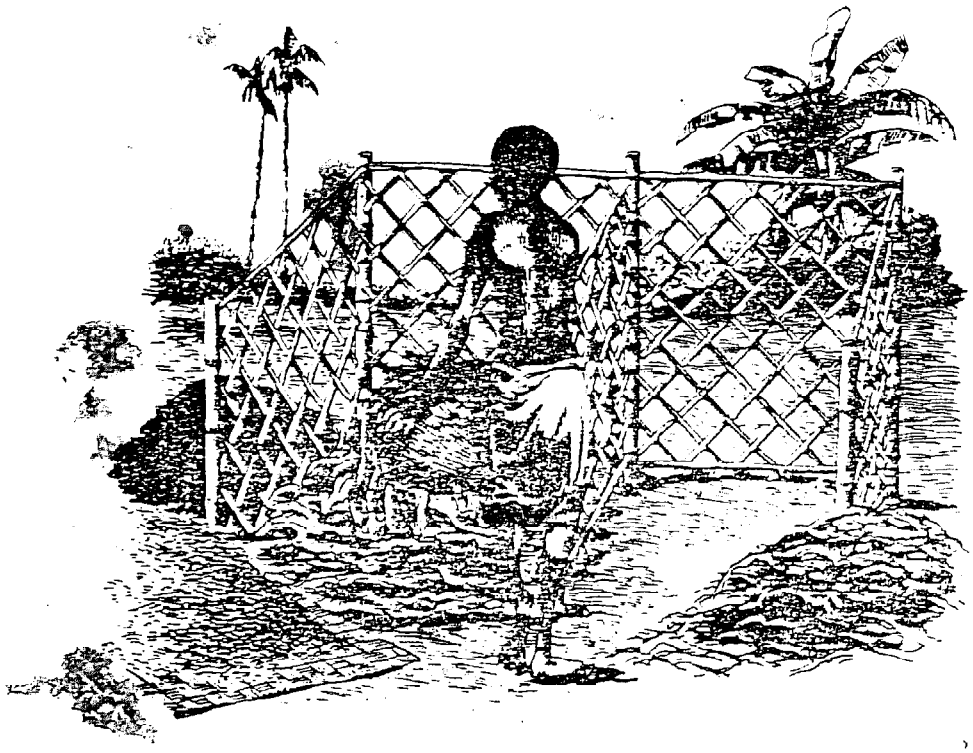


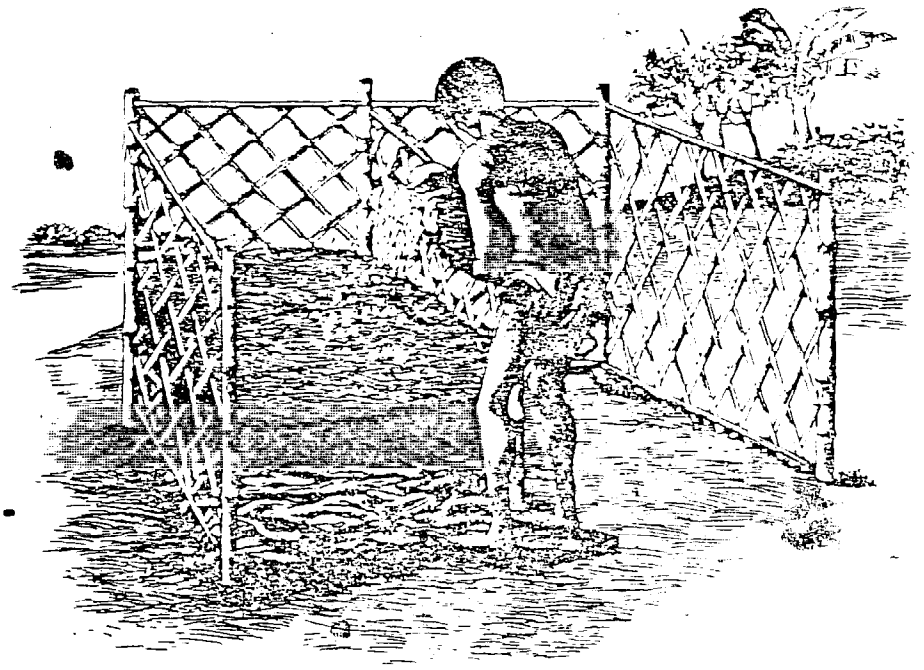
A 2-bin container

You can make fertilizer in an open pile, but some kind of simple container keeps things better organized. The bamboo container described in this bulletin is for people who don't have large amounts of garbage, who don't have enough land to have lots of plant waste, and who like to keep their place nice and attractive.

The container below was built 8 feet long, 4 feet wide, and 4 feet high. It is separated in the middle by a removable partition.

After collecting whatever material you have, begin by putting a 6 inch layer of plant material -- like partially rotted water hyacinth or grass and leaves -- in one of the bins.



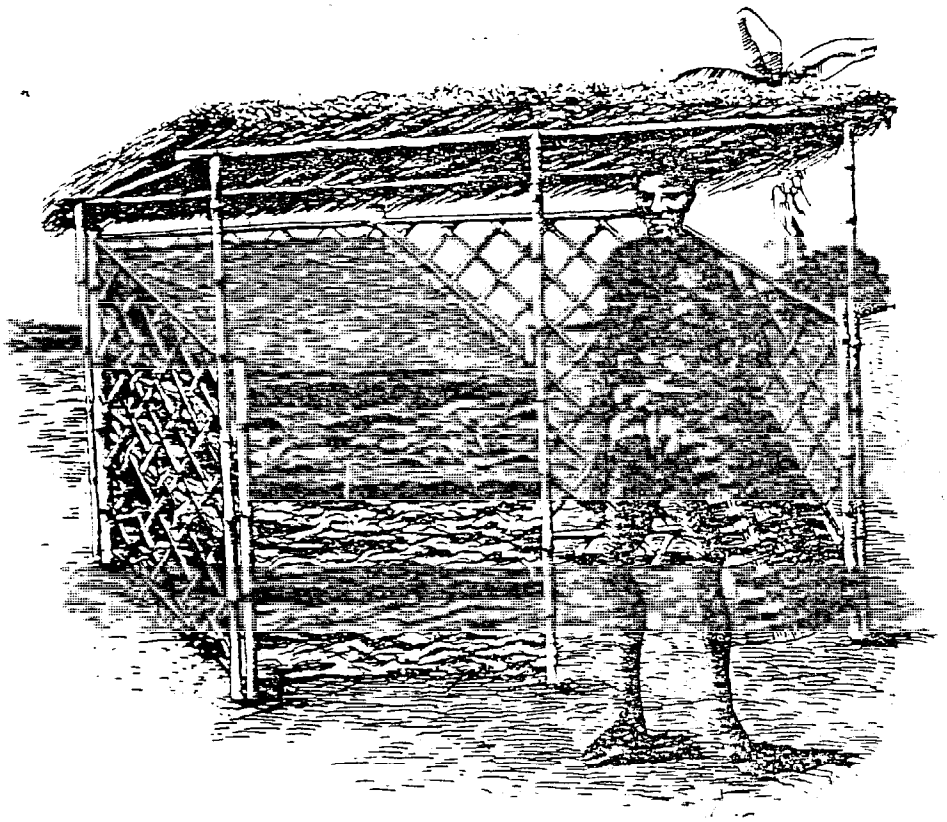


On top of this add a layer of some animal manure and a thin layer of soil. A sprinkling of lime or wood ashes and a little superphosphate can also be added if you have them. These are not absolutely necessary but will improve the quality of the finished fertilizer.

If the pile is made with lots of straw, dry leaves and grass or other dry plant materials, you should add a sprinkling of water after each layer of earth. If the pile contains lots of water hyacinth, no additional water will be needed.

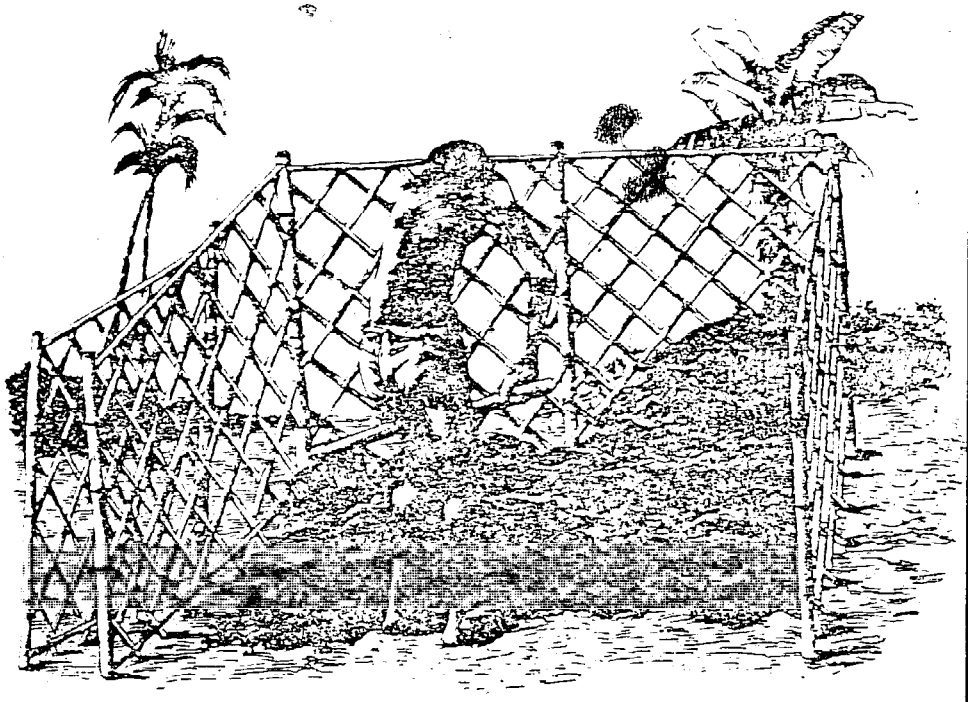
A good pile should always be moist, but never too wet.

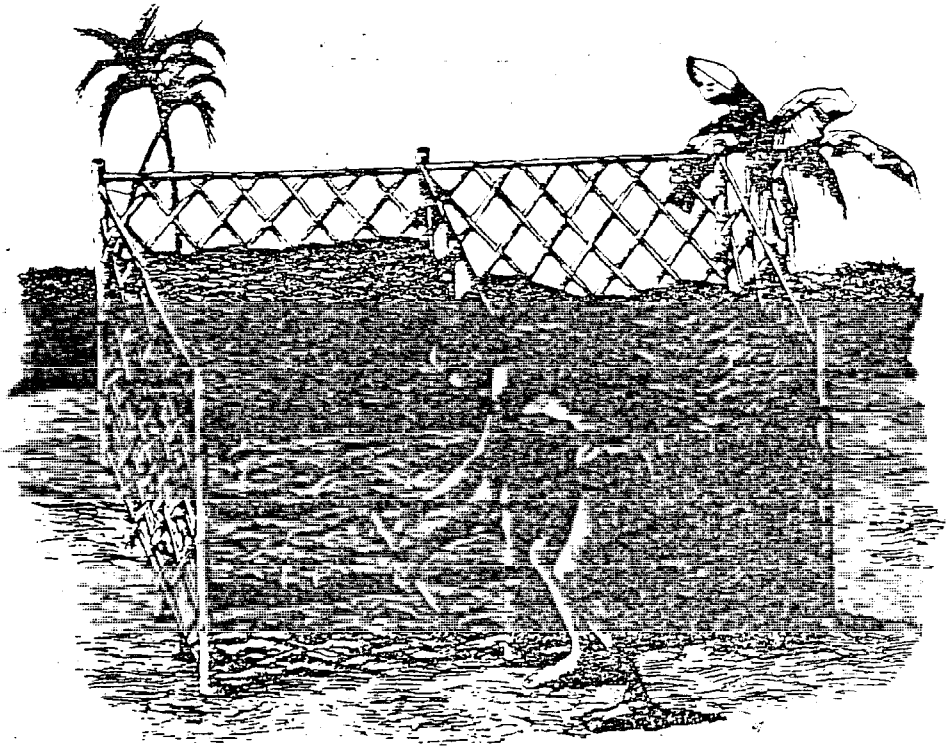
Now a thin layer of rice hulls or rice straw can be added, and the whole process started again by adding another 6 inch layer of plant materials, followed by more manure and earth until the pile is finally 4 feet high.



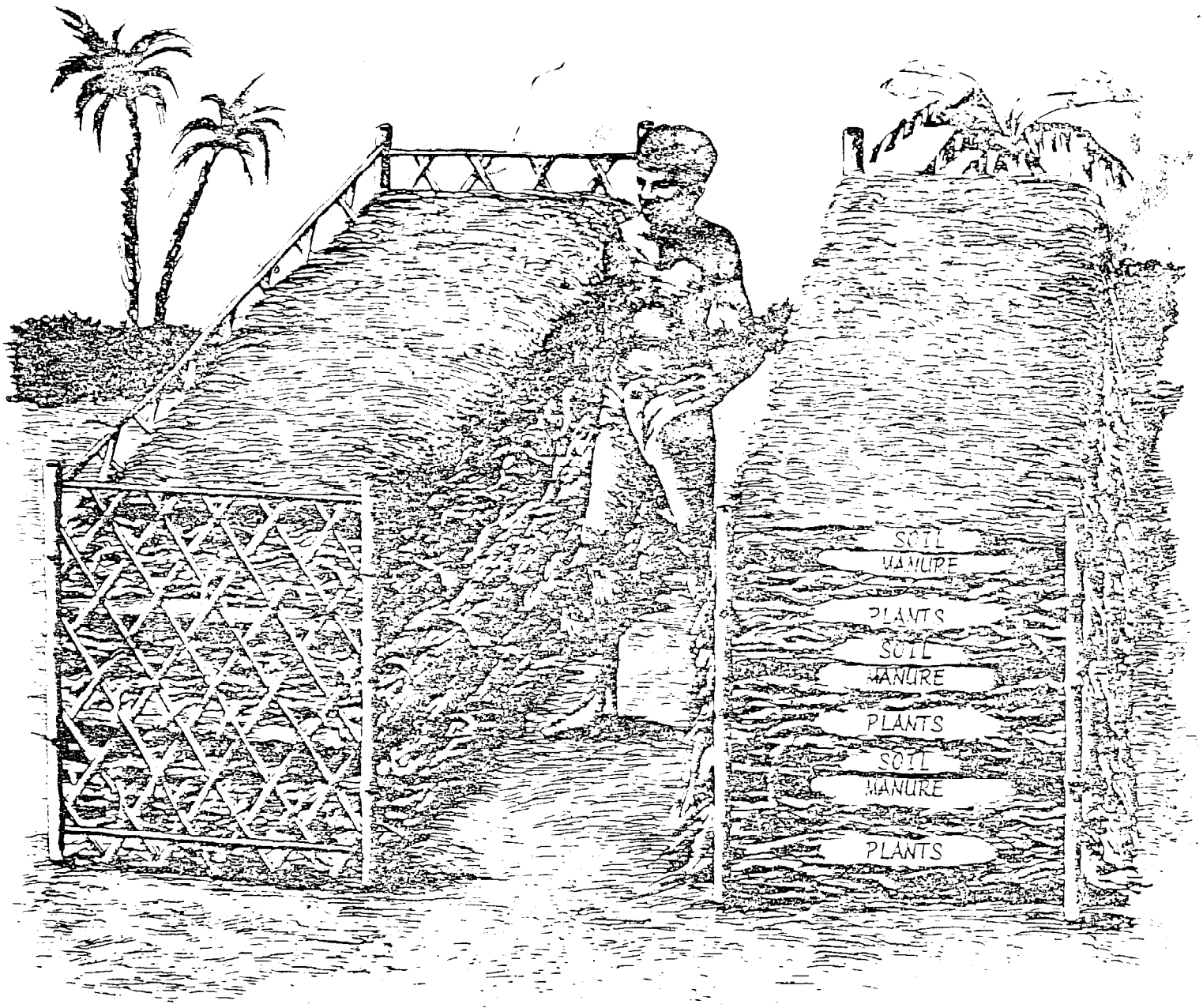
The top of the pile is then covered with a 1 inch layer of earth. Woven mats, a thick layer of straw, or even a straw roof can be used to protect the pile during the rainy season.

After two weeks, remove the middle partition and place the rotting materials into the other bin. Begin making more fertilizer in the emptied bin. Piles made with tender green plants, rice hulls, manure and dirt, are often ready for use after just another 2 or 3 weeks of rotting. Sometimes 2 or 3 months are needed for piles made with straw, leaves, and other dry materials.





If we turn the pile frequently and keep it moist, it will always smell sweet. If the pile smells bad, it is because we did not turn it soon enough. Test the pile by pushing a bamboo stick into the center and after a few minutes pull it out. If the stick feels dry or smells bad, the pile should be turned.



If lots of materials for making fertilizer are available, you might like to remove the center partition and make one large pile. Or, just build a pile to the same size using a few bamboo stakes to hold the sides in place.

WHAT YOU SHOULD KNOW ABOUT FERTILIZERS

1. Rotted organic materials, such as leaves, straw, grass, weeds, rice hulls, vines and animal manure make a good fertilizer called COMPOST. Compost will not cost us anything except work and is easy to make.

2. An old formula for compost making is: a 6 inch layer of plant material, a second layer of different plant material, a layer of some sort of animal material (usually manure), a thin layer of soil, a sprinkling of ashes, then water, and repeat the process.

3. It takes a long time for some materials to rot completely. Don't worry if some of the materials are not completely rotted. Final rotting will take place in the soil itself. In the meantime, your plants will be getting lots of nourishment. Partly rotted compost is good fertilizer because it releases its nutriments to the plants slowly.

4. The size of a pile can be as long as you want to make it, but a pile 4 to 5 feet wide and 4 to 6 feet high is just about ideal.

5. Turning and mixing the materials every once in a while is very important. This will allow more air into the pile so the materials will rot quickly.

6. Some people add chemical fertilizers containing nitrogen to the compost pile. It helps the materials rot quickly if manure and garbage are not available.

7. For our home gardens we sometimes use chemical fertilizers because we lack animal manures. But we must remember that chemical fertilizers are a SUPPLEMENT to organic fertilizers (compost), and that the more organic materials we mix with our chemical fertilizers, the better it will be for our plants and the continued fertility of the soil.

8. Chemical fertilizer costs money. And a large percentage of the chemical fertilizers we place in our fields may be washed away by rain, and evaporated into the air. But if we mix our chemical fertilizer with our compost fertilizer, it will not easily be washed away or evaporate.

9. Experience teaches us that one sack of chemical fertilizer mixed into compost and applied to the fields is better than three sacks of chemical fertilizer applied alone to the fields. So to save money on the price of commercial fertilizer, mix it with the compost first, and make it into enriched compost fertilizer.

10. Some of us have forgotten the lessons which our ancestors learned a thousand years ago. We will be wise if we apply compost to our fields, thus returning to the soil all the waste plant and animal materials that are available around us, instead of burning them or throwing them away.