



Family Trademarks

➤ "FIDDLEHEADS" are the ferns' universal trademark. They all uncurl their new leaves in the same way, whether they are shy little wood-ferns in Nova Scotia or giant tree-ferns in New Zealand. Some botanists have likened them to bishops' croziers; this might do for the tree-ferns, but somehow for the smaller ferns of our own woods the more earthy name, fiddlehead, with its New England saltiness, seems more appropriate. They have fiddlers at Titania's court, but no bishops.

Not only does the main axis of a fern frond uncurl in this characteristic fashion, but the pattern is repeated in

EMBRYOLOGY

## Study Pre-birth Patterns

➤ MAN is able to wink some six months before birth, although the wink "serves no immediate practical purpose."

This and other examples of how "amazingly early" behavior patterns are formed were given by Dr. Arnold Gesell, director of the clinic of child development, Yale University School of Medicine, at the Cooper Union Forum in New York.

Eight weeks after conception, when the human fetus is only one inch long, it responds to touch stimulation of the mouth region, Dr. Gesell stated.

"At 14 weeks it reacts with a patterned grimace; it is also able to swallow, to clasp its fingers, and to wink even though the eyelids are still fused and the wink serves no immediate practical purpose," he said.

At 20 weeks, when the future infant is only half way through its pre-birth development, it already has its full quota of 12 billion neurons, or nerve cells. "Intrinsic growth processes determine the

every detail of development. Every leaflet uncurls exactly as the main stem does, and if the leaf is doubly or trebly compound, as it is in many fern species, these subdivisions come out as smaller fiddleheads, repeating the parent pattern.

Ferns have a second family trademark, less conspicuous than the fiddlehead but no less characteristic and interesting. If you will look carefully at a fern leaf, after it is expanded, you will find that the veins do not form an irregular net, as they do in many seed plants, or run in close parallel lines, as they do in others, but always divide in a two-pronged forking pattern.

Characteristic as these two trademarks are of the fern family, they are not a monopoly. Both the uncurling of the leaves and the forked venation are found in the cycads, a very ancient group of seed plants now found only in the tropics and subtropics. Forked veins can also be seen in the flat, wedge-shaped leaves of the ginkgo tree, sole survivor of another very ancient family, now native only to China but planted to some extent in American cities. Existence of these fern-like characters in seed plants is generally considered to be evidence of the fern or fern-like ancestry of these forms, and through them the later-developed and more highly evolved seed plants generally.

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arrangement and relationships of these neurons, which in turn determine the forms and sequences of the eventual behavior," Dr. Gesell explained. "All this basic patterning, neurological and behavioral, is accomplished prior to and independent of experience. Such patterning operates not in utero, but throughout the whole postnatal cycle of mental growth, from germ to maturity. This is mental maturation."

Shakespeare's famous seven ages of man start with birth. Dr. Gesell presented seven developmental stages of human life as follows: "1. stage of the embryo, 0-8 weeks; 2. stage of the fetus, 8-40 weeks; 3. infancy, birth to 2 years; 4. the preschool age, 2-5 years; 5. childhood, 5-12 years; 6. adolescence, 12-20 to 24 years; 7. adult maturity.

"Man, of all creatures, has the longest period of relative immaturity. He is so complex that it takes him over 20 years to grow up, physically and mentally."

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## Do You Know?

Calcium salts are an aid in preserving many fruits and vegetables.

The mineral *vermiculite*, used in lightweight concrete because it expands enormously when heated, makes a good bed in which to start seeds; plant food must be added because vermiculite contains no organic matter.

Trisodium phosphate, three pounds to a gallon of hot water, plus a cupful of ammonia, will remove old *whitewash* from a wall that is to be given a coat of paint.

The largest single source of American farm income is *milk*.

Recent advances in *fruit breeding* are partly due to exchange of new and old varieties between America and other countries.

TOXICOLOGY

### 1080 Poison Less Toxic to Some Birds than to Mammals

➤ THE sensationally successful poison for rats and other vermin, 1080, appears to be less toxic to certain kinds of flesh-eating birds than it is to mammals. This is a matter of considerable practical importance, since 1080 is used in control operations against small rodents that swarm on western rangelands, and also against coyotes; and useful predatory and scavenger birds might suffer secondary poisoning by picking up such poisoned animals, or by finding poisoned meat baits left for coyotes.

In tests conducted by the U. S. Fish and Wildlife Service, eagles survived doses of 1080 that were 22 times larger than the amount fatal to coyotes. Buzzards ate "unlimited quantities" of meat dosed with 1080 in five times the concentration customarily used on coyote baits. Magpies seem to be the only meat-eating birds likely to be endangered.

Baits of poisoned grain intended for rodents on the range are now dyed with bright colors. It has been discovered that seed-eating birds practically never touch grain of these "wrong" colors. Most of the lower mammals, including the rodents, seem to be color-blind; at any rate they pick up the poisoned grain without hesitation, no matter what its color.

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