

stead, it constitutes a "secondary" stage: a community of lower order than the original terrain supported.

Fighting malaria by timing mosquito-control activities with peaks in the malaria mosquito's breeding schedule was suggested by Dr. E. Harold Hinman of the Tennessee Valley Authority. These peaks, marking the time when broods or crops of mosquito larvae are produced, seem to come at about ten-day intervals in the region Dr. Hinman studied. Climate and other factors may change the schedule in other regions. If the larvae are produced at regular intervals, however, Dr. Hinman believes that larva-destroying measures should be timed to fit the peaks of larva production.

Buckwheat may be a serious enemy of pine trees, through harboring a fungus that causes a serious root rot, E. J. Eliason of the New York State Conservation Department stated. In a New York tree nursery, young trees sickened and died on land where buckwheat had been grown as a cover crop. Even four years after the last planting of buckwheat, the fungus was still in the soil, virulently ready to attack pine roots.

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PERILOUS TREASURE

Getting these sorcerers' masks out of their ancient tribal home territory was rather risky: it is "verboten" for strangers to possess them.

ETHNOLOGY

Mystic Rites of West Africa Revealed to Harvard Scientist

Men and Women Have Secret Societies for Teaching Youths and Girls During Long Seclusion in "Bush"

MYSTIC religious rites of West African savages, with their emphasis on spirit worship and human sacrifice, many of them kept secret for many centuries by a merciless death penalty for their revelation, have been pieced together by a Harvard scientist.

According to Dr. George W. Harley of Harvard's Peabody Museum, who has just returned from 12 years in the bush, more than 2,000,000 natives of Liberia, Sierra Leone and French Ivory Coast, virtually the entire population of the area, were members of the Poro, a secret religious society fostering these strange rites, at the height of its power only a generation ago.

Today, due to the government's vigorous efforts to modify it, the Poro is only half its one-time size and its more barbarous practices have been stamped out. While the Poro is best known in Liberia, it represents the culmination of many similar societies which once spread across the continent.

300 Ceremonial Masks

Dr. Harley has brought back more than 300 wooden ceremonial masks used by the Poro, the most complete collection of its type ever assembled, as well as numerous other sacred relics.

How sacredly these are held by the natives is shown by the fact that a simple stone axe he has obtained was so revered that it could never be bought or sold. Instead, through the centuries of its existence, it was handed down from one high priest to another with the transference traditionally solemnized by the sacrifice of the recipient's eldest son.

"This is not all cruelty and savage blood-thirstiness," Dr. Harley explains. "It's just that the people take their religion so seriously they hold human life cheap rather than neglect its demands."

In addition to its religious significance, the Poro was very powerful politically, so powerful indeed that officials of the society have been known to stop bitter tribal wars merely by walking between the fighters. The Poro also served,

and still does, to a large extent, as a tribal educational institution.

Boy candidates for the society were taken into the bush by their elders for a rigorous educational program. First the boys went through a ceremony symbolizing their death; theoretically they were swallowed by an enormous sacred crocodile. Relatives and friends not members of the society, including all the women of the tribe, were told the boys were dead. This pretense was kept up for from three to seven years while they were isolated deep in the sacred forest, learning trades, tribal traditions, history and culture and the secret sign language of the society.

Living in Spirit World

During this period the boys were supposed to be living in an invisible spirit world and no one was allowed to see them on pain of death. Even those who might accidentally stumble on the Poro meeting place were killed and then eaten so that no human traces would be left in the supposedly spirit world. Even those members of the Poro who died accidentally in the bush were eaten in sacred ritual feasts.

Concerning these rituals the initiates swear to secrecy on the mask of the great "devil," the big man of the Poro. They hear his voice but do not see his face unmasked until the day of graduation, a grand occasion. At this graduation the boys are supposedly reborn from the belly of the great crocodile and they return to their village with great celebration.

They are entirely new beings now—men instead of boys—and they do not recognize any of their old friends or any past events. Indeed they must be introduced as strangers to their own mothers.

The masks, an integral part of the Poro, are worn in conjunction with flowing robes and "hula" skirts which completely cover the body. Lest his voice be recognized, the wearer speaks with a throaty, rolling falsetto. Thus mask and voice effectively conceal his identity, as well as serving as a badge of office. The

masks are worn at all ceremonial functions and serve to carry out the belief that the wearer is not a man but a spirit from the jungle.

The masks are of various types, all of them beautifully carved by special tribal artists. Many of them are portraits, occasionally of an important ancestor; others are caricatures. They vary in size, some being small replicas "for the spirit to rest on when he's tired." Some are tiny portraits of the owner, serving both as a sort of fraternity badge and as an object of personal worship. All are plain black except those worn by high officials which may have white stripes or red lips, red being the sacred Poro color.

The women of the tribes, excluded from the Poro, have a parallel society, the Sande, which functions in a somewhat similar manner and gives the girls instruction in the household arts and medical remedies, as well as a thorough training in poisons and their uses. Thus, while religion is for men only, the women actually have a much higher standing than in other primitive societies by this threat of poisoning.

Another mark of woman's relatively high position is a very carefully guarded Poro secret. The consort of the big man of the Poro is head of the Sande and attends Poro meetings. Only these two are members of both, a fact known only to high officials.

Dr. Harley has also obtained valuable records of black magic societies, leopard and snake societies, and some of their sacred relics and other examples of primitive African arts.

Science News Letter, January 1, 1938

ENGINEERING

Industry's Giants Are Industry's Children

See Front Cover

DESTINED perhaps to be the driving power behind great industrial plants, these beginnings of giant electrical machines are themselves industry's offspring—giants on the way to birth. Here they are growing in the assembly aisle in the Westinghouse factory. Presently they will be the servants of men; now men are serving them.

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Beavers were once plentiful around Sante Fe, N. M., and they are now being re-introduced there in a state park.

Only one-seventh of Japan is fit for farming.

BIOLOGY—MEDICINE

Individuals Changing Sex Neither Man Nor Woman

Intersexes Not Rare, and Biologically Important; Prolactin Has Outstanding Role in Growth of Intestine

WHEN a woman turns into a man, and thereby becomes front-page news, it is pretty safe to assume that she never was entirely a woman.

More probably she was an "intersex"—a being neither female nor male, but in process of transition from the one to the other from the earliest pre-birth stage of development onward.

The denouement, when "she" is declared legally a "he", is only the last step in a long process.

Intersexes are by no means rare throughout the whole animal kingdom, declared Dr. Richard Goldschmidt of the University of California to the American Association for the Advancement of Science. They are found in all gradations between completely male and completely female. Dr. Goldschmidt confined his discussion mostly to examples taken from among the insects.

An intersex individual begins development normally enough, as either all male or all female. But there comes a physiological turning point, where biochemical or genetic forces tending toward opposite sexuality begin to operate. The later-developing sex organs may then become those of the individual's natural opposite.

Two types of influence may give rise to intersex development. Hereditary influences, resident in or on the chromosomes within the cells, may start and carry through the process; or female may be turned into male (or vice versa) by the natural or artificial injection of opposite-sex hormone or gland secretion.

Milk-Hormone

Prolactin, the gland secretion or hormone that causes the flow of milk in mother animals, also causes growth of an important part of the digestive tract, it was demonstrated in experiments reported by Drs. J. P. Schooley, Oscar Riddle and R. W. Bates of the department of genetics of the Carnegie Institution of Washington, with laboratories at Cold Spring Harbor, N. Y.

Prolactin is one of the products of the pituitary, a ductless gland situated in the head, near the brain. The three in-

vestigators surgically removed the pituitaries from 149 pigeons. They then administered pituitary extracts to part of them, leaving the rest untreated.

The birds given the pituitary extracts lived and grew in a way much more nearly normal than did the untreated pigeons. The latter showed marked loss in length of the small intestine, as well as in its food-absorbing inner surface. As might have been expected, the pituitary-less pigeons showed serious loss in weight.

Better appetite was evident in the operated pigeons receiving supplementary pituitary extract. They ate two or three times as much as did the pigeons not receiving the extract.

The critical test came when one group of operated birds was given prolactin, and a comparison group received pituitary extract from which all prolactin had been removed but which still presumably contained all its other elements. The prolactin group thrived well; the extract-minus-prolactin group did no better than would have been the case had they received no treatment at all.

Syphilis Damage

Over one-fourth of all children born with syphilis have involvement of the nervous system—brain, spinal cord or nerves or all three, Dr. Charles C. Dennie of the University of Kansas Medical School reported. He studied some 1,200 cases of congenital syphilis, that is, cases in which the disease was implanted in the brain and spinal cord at birth or sometime during childhood or adolescence.

Many of these children are in institutions for the feebleminded. Dr. Dennie described them as "simply motivated lumps of flesh without conscious volition of their own." Their degree of mental deficiency shades upward from idiocy to dull wittedness. For the ones who have paresis or softening of the brain, there is no hope. Even with the most modern forms of treatment, only a few of them improve. Most of them gradually degenerate into a state of imbecility, followed by death.