

the mysteries of the spirit world, described by a series of metaphors and personifications. Much of it is of very ancient date, and is hardly intelligible even to the best native scholars at the present day. In studying the translations and analysis of Dr. Emerson, we cannot avoid the suspicion that much is vague and uncertain, and that the interpretations may sometimes ascribe to these apparently meaningless songs a significance which reflects modern romantic conceptions alien to the spirit of the early singers. Throughout the whole drama the themes are essentially religious. The chief deity invoked is Laka, the impersonation of the powers of vegetation, who is addressed in special hymns and worshipped at an altar adorned with leaves and flowers of those plants which are believed to be specially acceptable to the goddess, because they are the forms in which she prefers to manifest herself. With her are invoked the spirits of the wood, which resemble the fairies of Europe, Pele, the goddess of the volcano, and her sister, Kapo, who, like the Mother goddesses in other parts of the world, assumes a dual form—benevolent as a sylvan deity, chthonic or lewd, the latter phase being only occasional.

As Mr. A. Lang has pointed out, the mysteries of Greece



Woman playing on the Nose-flute (Ohe-l-ano-ihu).

can best be interpreted on the analogy of rites among savage or semi-savage races. The Hula accordingly presents notable resemblances to the Greek Eleusinia and similar celebrations. The performers are carefully selected; they must observe stringent purity tabus, sexual license being prohibited; they are kept in a special enclosure, which they must never leave except with muffled heads, and they must engage in no conversation beyond its limits; above all things, they must avoid contact with a corpse. As the Greek hierophant proclaimed, "Ye mystae, to the sea!" in Hawaii the performers rush into the ocean, going and returning in a state of nudity; there is a pass-word of admission, a prayer at the beginning and end of each performance, and a special supplication for the removal of tabu; a ritual dress, modelled on the primitive fig-leaf. Finally, the central act of the rite is a form of sacrament. A cooked pig is brought into the assembly, and the hierophant, acting as carver, "selects the typical parts—snout, ear-tips, tail, feet, portions of the vital organs, especially the brain (*lolo*). This last it is which gives its name to the ceremony. He sets an equal portion before each novice. Each one must eat all that is laid before him. It is a

mystical rite, a sacrament; as he eats he consciously partakes of the virtue of the goddess that is transmitted to himself."

The Hula assumes various forms. A special type is assigned to each instrument—the drum, the gourd rattle, the bamboo rattle, a kind of xylophone, pebble castanets, a hollow bamboo beaten on the ground, a jew's harp, and that remarkable instrument the nose-flute. Others include the use of marionettes, or mimetic delineations of animals, as the shark and dog dances.

On the whole, this elaborate study of a primitive folk-drama is interesting from many points of view—as a description of savage music recorded in the recognised notation; as throwing fresh light on the problem of the mysteries; as a new conception of folk-poetry, with its sensuous, enigmatic lyrics. Lastly, it throws novel light on the interpretation of the popular mythology and traditions. If we cannot always accept Dr. Emerson's interpretations of the materials which he has collected, we can admire the industry and insight which appear throughout this volume.

PIGMENTATION AND CANCER.

DOES the absence of skin pigment predispose white men to cancer? This question has been answered in the affirmative in a paper¹ which has attracted some attention. The author, Dr. Watkins-Pitchford, adduces instances of the inverse ratio obtaining between the degree of pigmentation of the skin and of the body cavity, and explains that the external and internal pigmentations protect the tissues from excessive "irradiation" by actinic rays, of which the influence is assumed to be highly inimical to the life of the individual. More weight would have attached to his observations, in whatever bearing they have upon cancer, had the thickness of the body wall been considered in relation to the degree of internal pigmentation and the slight penetrating powers of many of the rays loosely called actinic.

"White man is of all animals the most liable to cancer" forms the postulate from which the author elaborates his views. This is an old dogma which is by no means universally accepted as true, and for certain individual organs is now proven to be false. For example, cancer of the mamma is probably as frequent in Indian hospitals as it is in London, and it is as common in the mouse as it is in the human female. It certainly occurs in the native African negress more frequently than was formerly supposed. However, the author brings this first postulate into line with his second, "the absence of effective pigmentation, or other form of external protection, in white man is the primary cause of his liability to cancer"; the same holds for domesticated animals. The liability to cancer should therefore be found increasing in proportion as pigmentation is decreasing, and the true albino of any species, man included, should display the greatest liability of all. A table is given to illustrate the scale of liability of black, brown, red, yellow, and white races of man by estimations of "probable" cancer death-rates for Zulus, Tamils, Red Indians, Chinese, Italians, English, Dutch, and Swedes. The figures can be definitely stated to be worthless for purposes of comparison. Those for the Chinese in the United States are meant to show the intermediate incidence of cancer in the yellow race; but why not have chosen the Japanese, who have relatively excellent national statistics showing more than 25,000 deaths annually, and who admit that this number is far short of the total, which would represent a death-rate probably not less than in England? The Italian figures presumably represent "brown" man, but the Italian national statistics are among the worst in Europe, and cannot be compared with English statistics. The table merely gives a list of increasingly worthless figures and correspondingly untrustworthy records of the occurrence of cancer. The argument would, however, break down for another reason—by its failure to explain the frequency of cancer in the negroes of America as contrasted with its real or apparent infrequency in Africa.

¹ "Light, Pigmentation and New-growth, being an Essay on the Genesis of Cancer." By Dr. Wilfred Watkins-Pitchford. Pp. 350. Read at the South African Medical Congress, Durban, August 2, 1909.

The general application of an inverse relation between degree of pigmentation and liability to cancer cannot be maintained, and it fails equally when applied to explain the varying incidence of the disease in different anatomical sites of the body. For carcinoma of the breast, the argument is much as follows. The woman of the white variety of mankind stands erect with her mammæ projecting, and fully exposed to direct solar irradiation; she has no pigment or hair to aid her delicate, translucent skin in protecting the glandular epithelium lying immediately beneath the surface. She covers her bosom with a single garment—the flimsiest of white silk blouses. The man, in addition to wearing shirt and underclothing, protects his chest from irradiation by coat and waistcoat of dense cloth and of dark colour. Hence there are 100 cases of cancer of the breast in the woman to one in the man. The differences between the male and female, and between the mammary glands in the two sexes, are not of the subordinate importance assigned to them in determining the onset of cancer. They are of primordial importance, since the difference between the male and female obtains for all species liable to carcinoma mammæ.

The frequency of this form of cancer in the woman requires to be considered, almost certainly, from totally different points of view. Not only do the sites of predilection vary from one class of vertebrate to another, but, if the Mammalia themselves be considered, some species are very liable to cancer of certain organs from which others, even nearly allied, are relatively or altogether exempt, as illustrated, e.g., by the variations in the frequency with which the mamma is attacked. The liability of the woman is merely a peculiarity shared, e.g., with the female of the mouse and dog, whereas in other domesticated mammals, e.g. in the cow, cancer of the mamma is practically unknown. Equal degrees of "irradiation" will not harmonise the parallel liability of the woman and the female wild mouse to cancer of the mamma, nor will differences in "irradiation" explain the exemption of the cow and the proneness of the tame albino and the wild grey mouse to this form of the disease.

These specific differences in liability depend in part, at any rate, on something more than external conditions. Under very divergent conditions, as regards habits (exposure to daylight), environment, and food, the incidence of cancer may be parallel, as in the case of the tame and wild mouse. Therefore innate fundamental tendencies of much biological import cannot be dismissed by assuming that cancer occurs in the mamma of dogs because the abdomen is "irradiated" through sitting up when "begging," or in consequence of a too great fondness for lying before an open fire. Nor can the biological significance of the sites of predilection for cancer of the rectum and uterus in mankind be explained by their corresponding with the sites on which a full bladder focusses actinic rays! The assumption that organs which are dark red or brown in colour are less liable to cancer than organs of a lighter colour will not explain why primary carcinoma of the liver is more frequently recorded in cattle than in other domesticated mammals.

A real and grave increase in cancer is asserted to have occurred during the past fifty years, and the attempts to allay tendencies to public panic by soothing assurances to the contrary are stated to be a praiseworthy policy, but intentionally misleading. This is rather a grave charge to bring, without substantiation, against investigators who have as much claim to be taken seriously as has Dr. Watkins-Pitchford in his explanation of the increase he alleges, viz. that there has been a decline in the use of woollen garments during the past fifty years, a change in the colour of the clothing worn, and that black broadcloth and black silk have ceased to be the clothing of respectable society, except the clergy, who enjoy a "privilege of cloth," and with it a low cancer death-rate.

In short, the prevention of cancer is represented as a matter of effective protection against solar irradiation, to which white man, having lost his pigmented skin, exposes himself both blindly and nakedly; but, we pause to ask, How is it, then, that the black-coated mouse is as liable to cancer as is the albino? We wonder if the difference in the recorded frequency of cancer in black and white man is the result of imperfect opportunities for observing

the disease in the former, and of the attainment of the cancer-age by a smaller relative number of individuals. We remember that the black man and woman are by no means exempt from cancer, and we regret that the drudgery of putting their opinions to a sufficient test is not undertaken personally by a large army of arm-chair speculators who essay to write on the nature, cause, prevention, and cure of cancer. This punishment should certainly be theirs.

E. F. B.

CHEST DEVELOPMENT IN BOYS IN NEW SOUTH WALES.

THE New South Wales branch of the British Science Guild has just circulated a report in which it states that a special sub-committee investigated a number of points in connection with the physical development of boys in New South Wales, and compared the results with those of other countries. It was found (1) that the average girth of English boys round the chest is roughly 3.6 inches more than that of boys in New South Wales at seventeen years of age; (2) Tasmanian boys have always measured rather more than New South Wales boys round the chest, and at the late age of sixteen or seventeen years they come approximately to the English average; (3) the chest growth of the New South Wales boy is at all ages much less than that of the Washington boy, viz. at nine years nearly 1 inch, at ten years more than 1 inch, between thirteen and fifteen years $1\frac{1}{2}$ inches or more; (4) as a result of this the lung capacity of New South Wales boys averages at all ages much less than that of the American boys, and the deficiency varies from 500 c.c. at nine years of age to 625 c.c. or more at seventeen years.

The committee found it difficult to give a complete estimate of the causes of this devaluing condition, the factors at its disposal being too indeterminate, but the suggestion is offered that the habit of the young Australian of leaning against lamp-posts and door-posts, or the difficulty with which he can be got to walk for an outing so long as there is a conveyance to be had, or his inveterate custom of supporting the games of cricket and football by leaning across a fence or resting his form upon a shaded bench while he bets upon the odds or barracks more or less enthusiastically, have to be considered in this connection.

The executive council of the Guild at Sydney passed the following recommendations:—(1) that the attention of the Government and municipal councils be drawn to the supreme importance of providing areas specially set apart and adapted for the purpose of healthy games, it being understood that such areas should be left bare of trees and flowers, save on borders, and should be provided with running tracks and facilities for cricket, football, lacrosse, basket-ball, and similar games; (2) that as the principle of taxing the unimproved value of land is a direct discouragement to schools to provide such areas, representation should accordingly be made to the Government and to municipal councils to allow some substantial concessions to all *bona fide* schools providing adequate playgrounds, such playgrounds being, like parks, really a guarantee of the people's health.

THE ADMINISTRATION OF ANÆSTHETICS.

THE report recently presented to Parliament concerning deaths resulting from the administration of anæsthetics (Cd. 5111, price 1d.) touches upon a matter of grave public interest, in which expert medical opinion and questions of pure science and the common sense of the intelligent "man in the street" alike contribute. We may say at once that the report appears to us to be of high value; it recognises a danger that for many years past has weighed very seriously upon the minds of those who know the danger, namely, of sudden death during the administration of chloroform, and it ends by recommending towards the remedy of this danger that a small standing committee or commission should be appointed to deal with the subject under the control of the Home Office.

The body of the report, although offering, no doubt, points open to criticism by individual authorities, is, on the