roughly doubled itself in the last decade. This is not all. The figures are not improving, in spite of the publicity given to them. Since 1927 the cost of medicines and appliances had increased by more than another half a million pounds." And, "In no sort of way was it possible to show a decrease in amount of illness among the insured population."

THE COSTS OF THE SYSTEM

Summarizing the total cost of the system it appears that from 1912 to 1932 the total contributions have amounted to 586,261,000 pounds, or about $2,931,305,000; the total cost of administration, 76,145,000 pounds or about $380,725,000; the expenditures for sickness benefits, 143,275,000 pounds or about $716,375,000; disablement 61,142,000 pounds or about $305,710,000; maternity benefits, 25,755,000 pounds or about $128,775,000; medical benefits, 137,465,000 pounds or about $687,325,000; other benefits, 27,134,000 pounds or about $135,670,000; making the total benefits 394,771,000 pounds or about $1,773,855,000.

The huge amounts paid for maternity benefits have apparently not materially affected the death rate from puerperal diseases. In 1922 the death rate for diseases of pregnancy, childbirth and the puerperal state combined was 38.1 per 100,000, increasing to 40.4 in 1932. For puerperal sepsis alone the death rate increased from 13.9 per 100,000 in 1922 to 15.5 in 1932, with the figure as high as 18.4 in 1930. The death rate for ectopic gestation was 1.1 per 100,000 in 1922, increasing to 1.3 in 1932. The rate for puerperal hemorrhage shows a slight decline from 5.0 in 1922 to 4.5 in 1932. Puerperal albuminuria declined from 7.1 in 1922 to 5.8 in 1932. The rate for other toxemias of pregnancy increased from 0.5 to 2.4. Without enlarging upon this aspect of the problem, it is sufficient to point out that the maternal health of Great Britain has not improved materially during the last ten years, regardless of the huge amounts spent by the national health insurance for maternity benefits.

COINCIDENT POOR RELIEF COSTS

Going now to the question of poor relief, the situation is complicated by a number of years of industrial distress which make exact comparison of conditions extremely difficult. The cost of outdoor relief in England and Wales—according to the report of the Ministry of Health for 1932—changed from 5,793,383 pounds in 1921 to 15,167,000 in 1933. During the last three years, the cost of outdoor relief has increased from 11,611,006 pounds in 1931 to 12,406,600 in 1932, and, as stated before, to 15,167,000 in 1933. In other words, the anticipated health benefits have not been realized in compulsory health insurance, nor has the anticipated reduction in poor law expenditures materialized.

(To be continued)

THE LURE OF MEDICAL HISTORY*

SOME MEDICAL OBSERVATIONS IN THE PACIFIC ISLANDS AND DUTCH EAST INDIES†

By ALBERT E. LARSEN, M. D.
San Francisco

THE information in this article was gathered while making a leisurely trip around the world on a sailing yacht. This method of travel offered an unusual opportunity to see conditions in many of the more remote sections of the Pacific, and afforded as well, time to spend in the more developed places without the worry of steamship connections.

THE MARQUESAS ISLANDS

After a 3,000-mile sail from San Francisco, the Marquesas Islands are reached. The status of the population of these islands presents a striking example of the effect of the contamination of a primitive, isolated civilization by the white race. Herman Melville, early in the nineteenth century, described the Marquesans as the most physically beautiful of their race in existence. They were reputed to be the most warlike and feared people in the Pacific. Their islands were densely populated and contained an abundance of natural resources. They were practically free from any serious disease when first visited. When Jack London beheld Typee Valley, once the most densely populated of all, he wrote of being "lulled to sleep by the cough of a dying race." Today the valley is practically uninhabited.

The great cause of death was tuberculosis. The disease struck these susceptible people with all its virulence. Fine healthy individuals would be suddenly stricken and seldom recovered. It is now about 150 years since the first whalers put in at Nuka Hiva. There are still some Marquesans remaining. Although tuberculosis is today quite prevalent, it does not cause death so rapidly. There are now many chronic cases. Many of these could become arrested with proper medical treatment, but it is practically impossible to keep a native in bed for more than a few days. The presence of so many carriers has naturally increased the amount of exposure to children and noninfected people; yet the statistics show that the population during the past few years has been increasing at the rate of about twenty per thousand. There are several factors which may be responsible for this. There has been a great intermixture of white blood, so much so, that it is now hard to find a pure-blooded Marquesan. It is possible that during the 150 years the race has

* A Twenty-Five Years Ago column, made up of excerpts from the official journal of the California Medical Association of twenty-five years ago, is printed in each issue of CALIFORNIA AND WESTERN MEDICINE. The column is one of the regular features of the Miscellany Department of CALIFORNIA AND WESTERN MEDICINE, and its page number will be found in the front cover index.

† From the Pacific Institute of Tropical Medicine within the Hooper Foundation of the University of California.

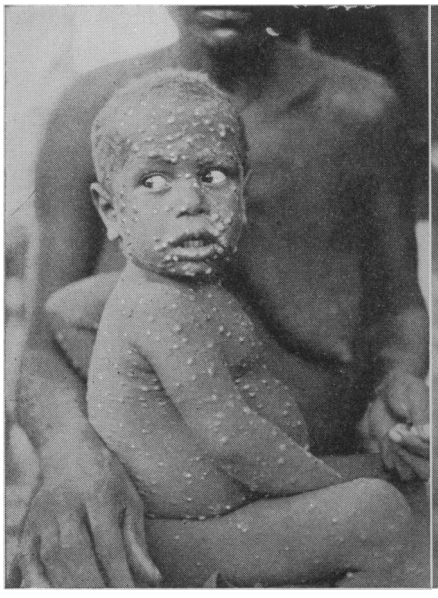

Fig. 1.—Frambesia—Solomon Islands.

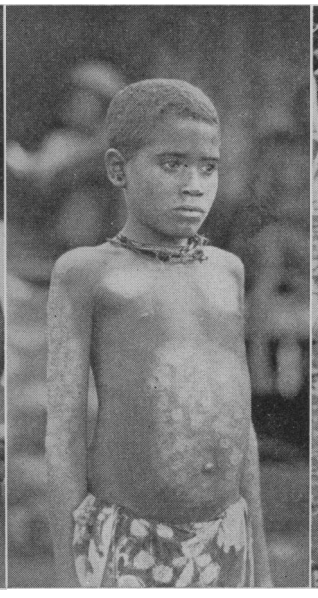

Fig. 2.—Tinea Imbricata—Solomon Islands.

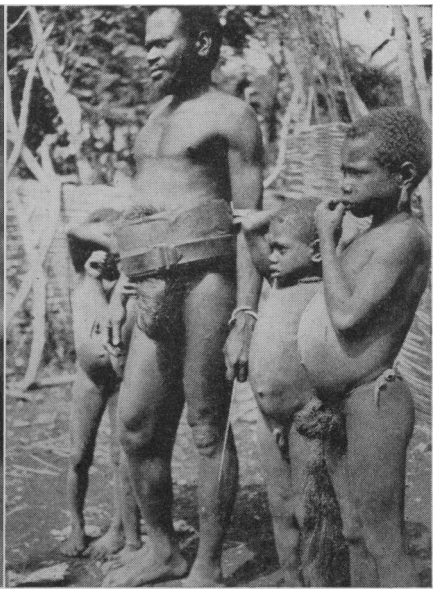

Fig. 3.—Bushmen of the New Hebrides. The pot bellies of the children are caused by large spleens due to malaria.

finally acquired a degree of immunity to tuberculosis. During the past eight or nine years there has been careful medical supervision. Childbirth is handled better, and some consideration is given to the care of infants.

Debilitating diseases such as lues are treated. These factors may be responsible for the slow revival of a once almost extinct race.

LOW ARCHIPELAGO ISLANDS

A few hundred miles from the Marquesas lie the islands of the Low Archipelago. These are coral islands, with a narrow thread of land enclosing beautiful lagoons. There is very little soil and only the cocoanut will grow naturally. The inhabitants have taken to the sea for a livelihood. The population is small, as only the hardiest can survive. They have become expert boatsmen and fishermen. The pearl-diving industry has supplied them with the opportunity for considerable monetary income. The people have become skilled divers. The technique of descending, bare-skinned, to great depths, shows how experience can lead to the development and utilization of physiological principles. Diving is done at an average depth of 60 feet. Some of the best divers may work constantly at over 100 feet. The diver hangs onto the side of the canoe and breathes deeply many times, exhaling slowly while singing or whistling. After a last full and rapid inspiration, he descends to the bottom with the aid of a weight. As he goes down he holds the nose and forces air into the pharynx and nares. This, of course, equalizes the internal and external pressures on the ear-drum. He stays on the bottom for about two minutes and then swims up. As he ascends, he clicks his ear-drums to again equalize the pressure. Unless this is done correctly, a severe headache results. The divers descend every ten or fifteen minutes from dawn until early afternoon. It is said that the average life of a diver is about ten or fifteen years. This shows in the population, as very few elderly men are to be seen. The few that were still living when the writer visited the Archipelago were obviously dying of cardiovascular disease complicated by emphysema.

FRENCH OCEANIA

Farther south, at Tahiti, is the center for medical activities of French Oceania. From here roving physicians, traveling by means of trading schooners, visit most of the important outlying islands. A physician has to hunt disease, as it is seldom that a native will consult him voluntarily. His chief interest is the discovery of syphilis and leprosy. In this way, several hundred lepers have been gathered at the leper colony on the island of Tahiti. It is quite a problem to transport a case from a distant island, for there is still native superstition and dread of the disease. In one instance it caused a leprous girl to be transported in an open boat, towed behind a schooner, for several hundred miles. The leper colony is located in a beautiful canyon. Only symptomatic treatment is given.

Venereal disease is very prevalent. Practically all the town girls are *dangereux*. They appear at the out-patient clinic only when there is some outward manifestation of the disease. As soon as this has been cleared, they will not return for further treatment. On some islands gonorrhea affects the large majority of inhabitants. The disease is mild among the natives. They seldom seek treatment. It is said that the male seldom develops stricture and that salpingitis in the female is very rare.

COOK ISLANDS

As one progresses farther west, the disease picture begins to change. At the Cook Islands, yaws appears sporadically and syphilis is not so

common. When Samoa is reached, syphilis has completely disappeared and yaws becomes the most prevalent disease. There is here much discussion of the relation of the two spirochaetal diseases. The physicians at Pago Pago believe that an attack of yaws must produce some immunity to syphilis. Lambert at Suva is quoted as saying that, "I have never found a physician in the South Pacific who has seen a chancre or the scar of one on a Pacific Islander." There is also discussion as to the best method of the control of yaws. One group advocates complete eradication by systematic treatment and isolation. Another believes that the most practical method is to allow natural infection and then treat. This latter method would allow an immunity to be developed and prevent the appearance of syphilis.

AMERICAN SAMOA

American Samoa, under the efficient administration of the Navy Department, has developed one of the finest medical services in the South Pacific. There is a modern hospital at Pago Pago with health centers scattered in the outlying districts. The inhabitants are examined at regular intervals, and a record is kept of the disease history and examination of each individual. This latter work will eventually provide material for considerable statistical deductions. To date it has shown that filariasis requires a long exposure before a person becomes infected. After infection it will take several years for elephantiasis to appear. The visitor to Samoa is struck by the frequency of complete or partial blindness. There is a native custom for the removal of foreign bodies in the eye which was largely responsible for this. It has been the practice to have someone spit in the eye in the attempt to wash out any material. If their eyes subsequently became inflamed the irritating sap of a tree was instilled. If an ulcer developed, it was scraped with the sharp edge of a cocoanut palm, or even sand was rubbed in. The natives have been taught to avoid these harmful procedures, and to ask for medical attention, with the result that blindness is becoming less and less frequent. American Samoa, by rigid quarantine,

Fig. 4.—Oil of Chenopodium being administered to large groups. Djokjakarta, Java.

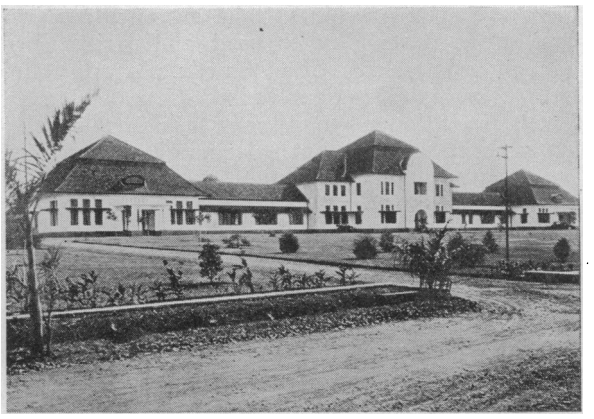

Fig. 5.—Pasteur Institute, Bandoeng, Java.

was one of the few places in the world to escape the first shock of the great pandemic of influenza in 1918. This disease struck most of the islands of the Pacific like a thunderbolt. A mortality of from 10 to 20 per cent was left in its wake. In 1928, when the disease finally made its appearance in Samoa, it was mild. Though one-fourth of the population was affected, there were very few deaths. British Samoa has the same problems, except that dengue fever is more prevalent, and occasionally appears in epidemic form and disables a large proportion of the white population. The natives seem immune. During the depression years much of the good work done by medical supervision was destroyed by the lack of funds and political unrest. As elsewhere, under these conditions, medical work is the first to suffer. The natives refuse to seek medical aid and there is a general disregard for sanitation laws. As a result, diseases such as yaws and typhoid, which had been controlled with great difficulty, reappeared in alarming frequency.

FIJI ISLANDS

The index of diseases again changes when travel is continued to the Fijis. Here the great problem has been the yearly epidemic of bacillary dysentery. Each year in the wet season the medical authorities can expect an epidemic of varying severity. Tropical conditions and lack of funds for public-health work make it practically impossible to prevent such outbreaks. This disease was probably brought to the Fijis by labor imported from India. The medical authorities live in constant fear of the possible introduction of cholera through this source. Rigid quarantine laws have been developed to prevent such a visitation.

Suva is the center for medical activities of the New Hebrides, Solomon, Gilbert and Ellis, British Samoa, and the Tonga groups. About forty years ago a medical school was established which has recently been supported by the Rockefeller Foundation. It is probably one of the most unusual schools of its kind in the world. The student body is composed of dark, savage-looking Solomon Islanders, giant crinkly-haired Fijians, handsome straight-haired Samoans, and typical Polynesians from the Gilbert and Ellis islands. Most of

these are sons of chiefs. The entrance requirements are the ability to read and write English, and a knowledge of arithmetic. After a four-year course the student becomes qualified as a native practitioner and returns to his own island to practice. He has learned enough to diagnose and treat the more common conditions, and is highly successful in bridging the gap between native and European medicine.

NEW HEBRIDES

In passing from the Fijis to the New Hebrides, health conditions and the disease index again change with striking suddenness. Malaria, the scourge of the tropical world, makes its first appearance. It is remarkable, when one considers the probable free intermingling of Pacific Islanders in the past, along with the probable path of racial migration, that this disease did not work its way farther east. The whole situation is dependent on the presence of the Anopheles mosquito, which to date has not been able to work its way across the two hundred miles of ocean which separates the Fijis from the New Hebrides. It is interesting to contemplate how this disease would have affected the idyllic islands farther east. They doubtless would have been transformed into very inhospitable places.

Conditions in the New Hebrides are quite primitive. The natives of these islands are savage and still cannibalistic. Malaria, yaws, hookworm, and tinea imbricata are rampant. Blackwater fever is common. Except in the small settlements, there are few whites. Most of these have been riddled with malaria. Many young adventurers, lured by the tales of the South Sea Islands, have tried to meet the ordeal. Many have succumbed or must leave after a short stay. Others, with pallid faces and bloodless lips, may be seen paying the price of acclimatization.

SOLOMON ISLANDS AND NEW GUINEA

The Solomon Islands and the Great Island of New Guinea are also still quite primitive. The mining of gold in New Guinea is done under great difficulties. Aeroplanes are used to transport labor and equipment over the impenetrable jungles, but malaria meets them at the site of the mine. There has been a great loss of life. To exploit successfully the valuable mineral resources, the future miner will have to have a Gorgas to pave the way for drills and shovels. Along the east coast of New Guinea, in the D'Entrecasteaux and Trobriand Islands, venereal granuloma is very prevalent. All found to be infected are isolated on a small island near Samarai. Here one may see the complete clinical picture of the disease from the small papule or vesical on the penis or labia minora to extensive skin ulcerations of the groin and thigh. It is treated successfully with antimony, but often leaves deforming cicatrices which require surgical correction.

Doctor Strong, Commanding Medical Officer of British New Guinea, at Port Moresby, has been in the tropics for many years and has made some interesting observations. He has noticed that the incidence of eye disease is high among the natives. He believes that its prevalence is due to the lack of vitamin A in the diet, and he has successfully treated large numbers with cod-liver oil. The people living on the coast who are fishermen have a much smaller incidence of the disease. He has also explained the fact of larger families, and the lesser susceptibility of the coastal people to tuberculosis, on the basis of diet difference.

DUTCH EAST INDIES

The Dutch East Indies, farther west, provide an example of the effect of a continuous warfare against the minute enemies of man. This has been so successful that it is now possible for many Europeans to live and work with impunity practically on the equator. The Dutch have developed their possessions into one of the most productive of tropical countries. To do this they have had to evolve an efficient medical service. Large modern hospitals have been built. A fine example of this is the Government Hospital at Weltevreden. It has a capacity of over one thousand beds. Lesser hospitals are scattered through the islands at strategic points, and all are completely equipped and can be ranked as Class A.

The common diseases requiring hospitalization are malaria, tuberculosis, beriberi, typhoid fever, smallpox, trachoma, ankylostomiasis, and ulcerative colitis. Another common disease is cirrhosis of the liver. It is usually the Lennec type. An interesting fact in the etiology is that none of these people are addicted to alcohol. The theory is that the use of strong cayenne peppers and the prevalence of low-grade intestinal infections are responsible. Along with this is the fact that primary cancer of the liver is the most common abdominal malignancy. An out-patient clinic is connected with each hospital. These are well attended, as the native has learned to have confidence in the yellow medicine in the hypodermic syringe. They seek its use for all conditions, and believe that it will cure anything. They not only know its curative powers, but also ascribe an increased sexual power to its administration.

The skin clinic has the greatest number of visits. Yaws is the most common condition seen. In one morning one may see all of its manifestations from the initial papule to sabre shins. Though yaws is prevalent, syphilis flourishes. Most Dutch physicians, however, believe that there is very little relation between the two. Unlike Lambert's experience in the South Pacific, they will cite numerous instances of a primary chancre on the penis in the presence of tertiary manifestations of yaws. An interesting clinical point of differentiation in a late case is that a weakly positive Wassermann reaction indicates syphilis, whereas a strongly positive reaction suggests yaws. The Wassermann reaction in yaws is not affected by treatment.

JAVA

Leprosy is quite common in Java. Patients are not isolated as in other parts of the world. They

regularly visit an out-patient clinic where the chaulmoogra derivatives are given by mouth. The Dutch believe this method gives as good results as the injection method. As in other parts of the tropical world, acute appendicitis in the native is extremely rare. Peptic ulcer is also uncommon. Cerebrospinal and arterial manifestations of syphilis are seldom seen except in the Chinese and the white race.

Public health problems assume magnified importance in a tropical country. Epidemiological problems are centered in the Pasteur Institute at Bandoeng, Java. Bubonic plague made its appearance in Java in 1911. The inland villages seem to be the endemic centers, while the seaports are said to be free. The wave of plague started in eastern Java and has worked two-thirds across the island. An intensive campaign against its spread is going on constantly. The line of progression has been established, and along this front rodents are exterminated and dwellings rat-proofed. At the Pasteur Institute flea counts and pathological examinations are made on all rodents caught. There has been no great epidemic in recent years, but the evidence shows that the country is still infected. Haffkin's serum has been given a trial without apparent success.

MALAY ARCHIPELAGO

The malaria problem is handled by stations scattered through the Archipelago. Malayans have been trained in the recognition of different types of mosquitoes as well as in the recognition of different types of malaria from blood smears. They have become very adept in this work. They travel about the islands collecting specimens of water. Any larvae are allowed to develop and the type of mosquito identified. Anopheles districts are charted and an attempt made to clean them up. During the wet season bacillary dysentery occasionally appears. Amebiasis is common all the year round. A public-health problem of considerable importance is the annual exodus and return of large numbers of inhabitants of Mahommedan faith during the Mecca season.

Aside from actual medical control there is intensive propaganda designed to teach the natives coöperation in public-health measures. The work was started by Doctor Hydrick of the Rockefeller Foundation and has developed into a far-reaching organization. Native speakers visit every village and talk to groups informally. Moving pictures about yaws, hookworm, plague, etc., produced in a simple, understandable way, have been shown to large audiences. The work has been very successful.

IN CONCLUSION

The region described in this paper is seldom thought of by physicians in America. There is a great deal of excellent work being done, especially in Java, which has been overlooked. The islands of the Pacific are somewhat backward in scientific medicine, but they provide ideal conditions for the observation of many diseases.

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CLINICAL NOTES AND CASE REPORTS

UNUSUAL EMBRYONAL DEVELOPMENT ERROR

By E. L. MEYERS, M. D.
Chico

IN reading the report in the January 1934 CALIFORNIA AND WESTERN MEDICINE by W. A. Shaw of Reno, the thought suggested itself that I report the following case: The child, D. L., was delivered on November 12, 1931. The mother was a primipara. The presentation was that of a breech, with a very difficult and strenuous delivery. When the feet and legs were delivered through the manipulations, I had first thought that I had injured the right leg of the child, as the femur appeared to be a malposition, and there was also a tremendous amount of shortening, as if it might have been a fracture.

REPORT OF CASE

The weight of the child was 9½ pounds, and it measured 20 inches in length. The mother's age was twenty-three years; the father's, twenty-seven. They

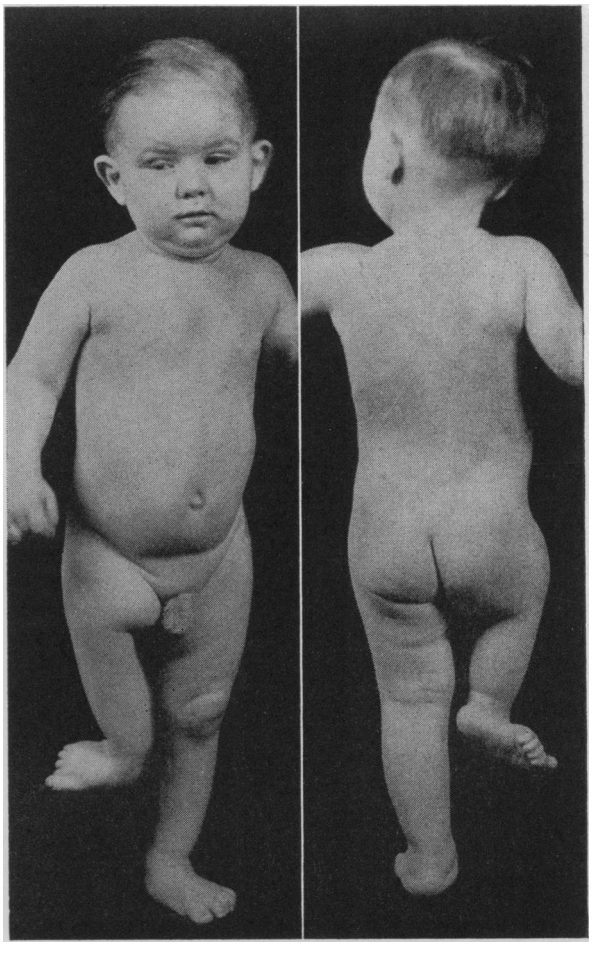

Fig. 1.—Anteroposterior photograph, taken January 22, 1934.