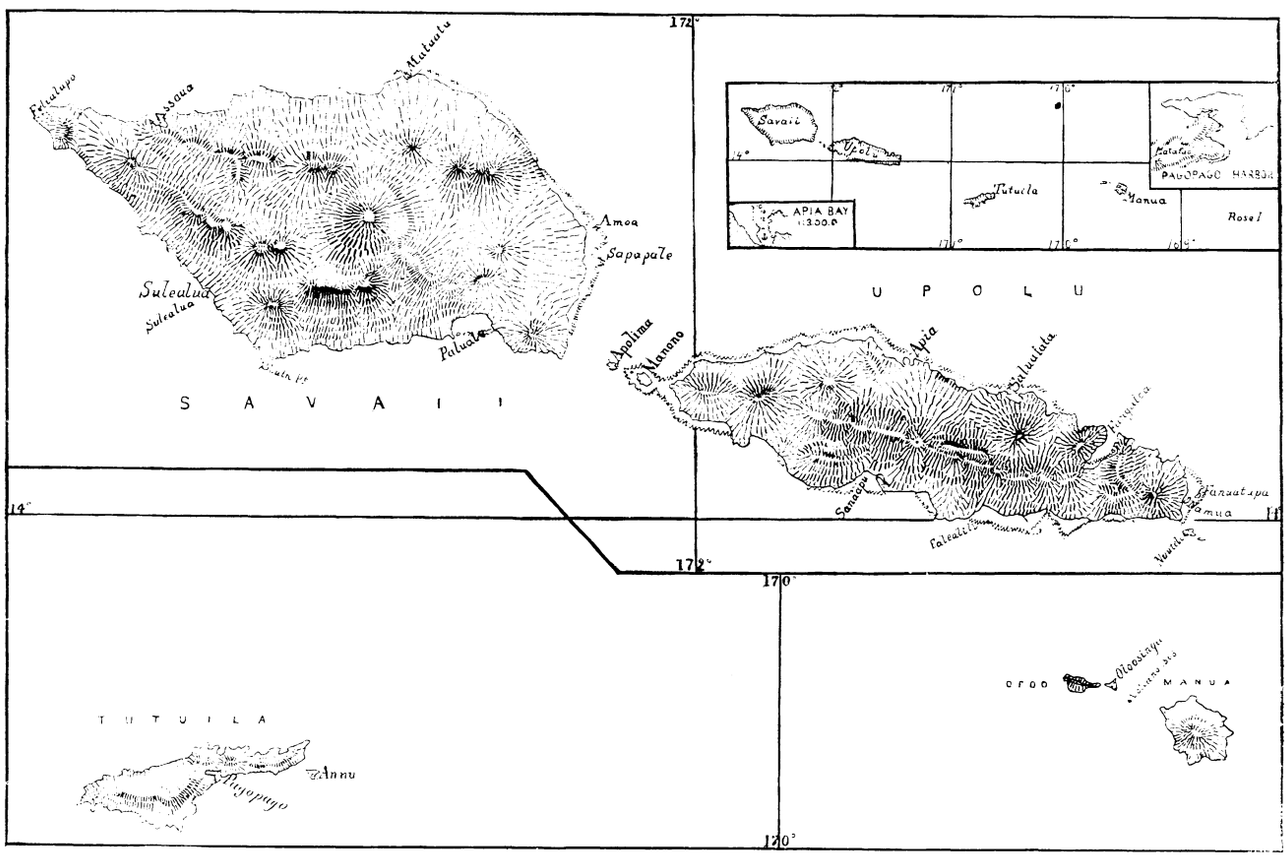
any harbor among all islands of the South Pacific. Here vessels of any size can lie at anchor, secure from every wind, all the year round. It is well adapted as a coaling station or for refitting and repairing ships, and affords, moreover, plentiful supplies of timber, food, and water.

Upolu, and to some extent Tutuila, have attracted a considerable number of American and European capitalists, the latter mostly Germans; and a large portion of the land has passed into the hands of foreign residents, who number about three hundred. The bulk of the foreign trade belongs to the successors of the famous Hamburg firm of J. C. Godefroy & Son. Cotton, cocoanuts, and bread-fruit are cultivated for export; and maize, sugar, coffee, etc., for local consumption. Copra (dried cocoanuts) is the most important article of trade. In 1881 the planters had about 1,800 laborers from the Line Islands, New Britain, New Hebrides, etc., the Samoans being too independent to hire themselves out.

Among the natives of these islands dissensions have always been raging, and the European traders did not fail to take advantage of their internal wars. In 1860 the firm of Godefroy, which at that time encountered no considerable competition in the Pacific, stood on the side of Malietoa, a chief belonging to one of the most distinguished families of Samoa. Although Malietoa was never in reality ruler over the whole group of islands, he assuredly had the expectation of the first place in the country, and the royal title was formerly willingly given him.

Throughout the next twenty years, which passed with continuous dissensions among the natives, the Europeans who had gradually settled in Samoa, Germans, Englishmen, and Americans, found abundant opportunity to meddle in the quarrels of the inhabitants, which they did accordingly in the fullest measure. They sought, by taking sides with or against Malietoa, to strengthen respect for their nations, and thereby increase their commerce. Since Malietoa was influenced principally by Americans, the German Commercial and Plantation Society, who had originally supported him, took the opposing side, and in 1887 helped Tamasese to dethrone his old adversary. Before the recent uprising, a German, Tamasese's prime minister, was in reality possessor of all power, under the protection of German guns. Tamasese is, of course, as much of a puppet in the hands of the Europeans as Malietoa has always been. The conflict between the native parties has reference not so much to whether the one or the other person be king, as to the question of whether Germany or England-America shall retain the upper hand.



MAP OF THE SAMOA ISLANDS.

HEALTH MATTERS.

Poisonous Milk.

PROFESSOR L. P. KINNICUTT of the Worcester (Mass.) Polytechnic Institute reports to the *Boston Medical and Surgical Journal* five cases of poisoning by milk in which, upon chemical analysis, he found tyrotoxicon.

The milk was in a pint beer-bottle with patent rubber stopper, and appeared and tasted perfectly fresh and good. After carrying it to the laboratory, it was allowed to remain in the tightly stoppered bottle for one week before it was examined. The milk had by that time decomposed, separating into two layers. It was filtered through thick Swedish filter-paper, the filtrate neutralized with a dilute solution of sodium hydrate, placed in a separating-funnel, and shaken thoroughly with ether. A thick emulsion formed, and it was only after four days, and by the use of various mechanical means, that a separation could be effected. The ether solution was allowed to evaporate at the ordinary temperature, and the residue carefully tested. Re-actions were obtained which agreed perfectly with those given by Vaughan (*Journal of Analytical Chemistry*, vol. i. pp. 25 and 281) for tyrotoxicon. There is therefore no doubt that the poisonous action of the milk was caused by the same poison that Vaughan found in the various cases cited by him.

A visit to the dairy from which the milk was obtained was made, and it was found that the herd consisted of fifteen Jersey cows, all in the best condition, well fed and cared for. The dairy supplies about forty families with milk, and the milk of all the cows is mixed together before subdividing it into the various portions; and as only one family out of the forty supplied with the milk, as far as can be found out, suffered from any poisonous effect, it proves that

the poison was developed after the milk had been delivered. This was also found to be the fact on questioning the servants of the family poisoned. The milk had been received in a tin can, which it was their business to keep clean, and it had been immediately subdivided into two portions. One portion was placed in an earthen dish to raise cream, and the other was used during the same morning as fresh milk, without causing the slightest trouble. The symptoms of poisoning were caused by the first portion, after standing over night. The above facts seem to show that the tyrotoxicon was developed during the twenty-four hours after the milk was received.

The only explanation of its development that can at present be given is, that the cans used for obtaining the milk had not been thoroughly scoured with boiling water, and that a little old milk remaining on the inside edges of the can had undergone a peculiar fermentation, and had caused the development of a sufficient amount of tyrotoxicon, during the twenty-four hours it had remained in a cool place, to produce the poisonous action.

Professor Kinnicutt describes thus fully the above case, as up to this time almost nothing is known as to the cause of the formation of tyrotoxicon in milk. He has, he thinks, pointed out one way in which it may be developed, namely, the use of cans which have not been kept perfectly clean; but it is only by the careful examination of a number of cases that it will be possible to decide whether the formation of the poison is due solely to such causes.

THE PASTEUR INSTITUTE. — The Paris correspondent of the *New York Medical Record* contributes to that journal an interesting letter describing the opening of the Pasteur Institute, which occurred Nov. 14, in the presence of a large assembly presided over by the President of the Republic. The proceedings were opened by M. Bertrand, permanent secretary of the Academy of Sciences, who made a eulogistic speech on M. Pasteur and his numerous scientific researches. Dr. Grancher, M. Pasteur's principal assistant, then read a report of the work done in antirabic inoculations since the middle of 1885, when the first two human beings were inoculated. He stated that the number of persons treated at Paris in the Rue d'Ulm and the Rue Vauquelin during the years 1886–87 to July 31, 1888, was 5,384. The rate of mortality had been 1.34 per cent for 1886, for 1887 it was 1.12, and for 1888 it was 0.77 per cent. This rate of mortality comprises the deaths of persons who were affected with rabies the day after inoculation; but, remarked Dr. Grancher, even these figures are very striking, as the estimated mortality previous to the discovery of this method of treatment was 15.90 per cent as given by the reporter of the Council of Hygiene of Paris. Dr. Grancher informed his hearers that twenty laboratories for antirabic inoculations have been established in different parts of the world, — seven in Russia, five in Italy, and one each in Roumania, Austria, Brazil, Cuba, and the Argentine Republic, — while two more will shortly be opened at Chicago and Malta. The staff of the new institute are disposed of as follows: Dr. Grancher, with the assistance of Drs. Chantemesse, Charrin, and Terrillon, will attend to the department of the treatment of rabies; M. Duclaux, one of M. Pasteur's most ancient pupils, and now professor of biological chemistry at the Faculty of Sciences, will direct the laboratory of general microbiology; M. Chamberland is charged with microbiology in its relations with hygiene; Dr. Roux will teach the microbian methods in their applications to medicine; Drs. Metchnikoff and Gamaleïa of Russia will study the morphology of inferior organisms and comparative microbia. The new institute will thus, as expressed by M. Pasteur, serve as a dispensary for the treatment of rabies, and will at the same time constitute a centre of researches for infectious maladies, as well as a centre of instruction for the study of microbiology, and will be open to medical men of all nationalities.

IS THE RACE DEGENERATING? — An English newspaper has been making a collective investigation regarding the questions given below: "1. Does your experience suggest to you that the race of Englishmen is degenerating physically? 2. Do you think that the great advance in the healing art is responsible for keeping alive much weak life that will in time affect the whole race injuriously? 3. Do you think that the increased indulgence in physical sports has, on the whole, a good influence on health? 4. Has it ever struck you that probably the great attention paid to health in these days may be producing an anxiety about bodily ailments which is a disease in itself?" Answers have been received from a long array of practitioners, among whom are the names of eminent London physicians. The general view taken, according to the *Medical Record*, is that Englishmen are not degenerating, but that, on the whole, the race is improving in vigor.

TO INVESTIGATE DISEASES OF SWINE. — The commissioner of agriculture has appointed a commission, consisting of Professor William H. Welch of Johns Hopkins University, Dr. E. O. Shakespeare of Philadelphia, and Professor T. J. Burrill of the University of Illinois, to investigate the subject of swine-diseases in the United States, and the methods of their treatment and prevention.

MENTAL SCIENCE.

A Statistical Study of Sleep and Dreams.

THE application of general scientific methods to the problems of mental action has everywhere brought results of interest and value, and especially pleasing has been the success attending the study of the statistics of mental phenomena. Observations in themselves trivial, apparently accidental even, when intelligently grouped together, bring to light truths only dimly suspected and poorly understood. The errors of individuals in part disappear in the average, and results obtained by one method are controllable by others. A very striking innovation, with the help of the statistical method, into an obscure region of mental action, is attempted in a recent study coming from the University of Dorpat, Russia.[1] A series of questions were drawn up, and five hundred copies distributed. Of these, over four hundred were returned filled out; and it is upon these answers, which the author declares unexpectedly clear and accurate, that the conclusions of this paper are based.

Each observer, after stating his name, age, sex, and occupation, set himself to answering the following questions regarding his sleep and dreams. The persons were divided into three classes: 1. Students (151 in number); 2. Other males (113); 3. Females (142).

I.—Dreams.

1. Do you dream every night, frequently, seldom, never? "Nearly every night" was grouped with "every night," making 99 such answers; "frequently," "very frequently," etc., were reported 133 times; "seldom," etc., 153 times; and "hardly ever," or "never," 15 times; 6 were undecided.

2. Are your dreams vivid? This was answered affirmatively 216 times; negatively, 175; undecided, 15.

3. Can you well remember your dreams upon awakening? "Yes," 194; "no," 203; "undecided," 9.

II.—Sleep.

1. When do you go to bed?

2. When do you rise?

3. Are you tired in the morning upon awakening? Do you become tired early in the evening? 38 were tired both morning and evening, 104 in the morning only, 95 in the evening only, 169 at neither time.

4. How long does it take you to fall asleep? This question is difficult to answer, and the general tendency will be to overestimate the time; and this was partly taken into account.

5. Do you sleep through the night without awakening? "Yes," 261; "no," 143; "undecided," 2.

6. Is your sleep deep, or light? Is it easy, or difficult, to wake you? "Light," 202; "deep," 166; and 26 reported "deep sleep, but easy to wake."

7. Can you go to sleep at day-time when desired? "Yes," 103; "no," 294; "undecided," 9.

8. Are you accustomed to sleep at day? When and how long? This question was used with Nos. 1 and 2 to obtain the duration of sleep per twenty-four hours.

[1] Statistische Untersuchungen über Traüme und Schlaf, von Friederich Heerwagen, in Philosophische Studien, v. 2, 1888.