and in a series of tables he brings out the fact that the number of colonies does not by any means correspond with the number of species, though in some cases it undoubtedly does so. This is, in fact, an exceedingly variable quantity. It also comes out that putrefactive bacteria are almost invariably absent from spring water; that they are most frequently found where the number of species is great, and where the number of colonies is between 1,000 and 10,000 per cubic centimetre; that they also occur where the number of germs is below fifty per cubic centimetre, but very seldom where the number is over 10,000.

Dr. L. Schmelk, who recently (*Centralbl. f. Bakt. und Parasitenk.*, Bd. IV., No. 7, p. 195) pointed out that there is a great increase in the number of bacteria in the water supply of Christiania during the period that the upland snows are melting most actively, now (*Centralbl. f. Bakt. und Parasitenk.*, Bd., VII., No. 4, p. 102) gives further evidence collected during the last three years in proof of his theory. The numbers he finds for those years were ten or fifteen per cubic centimetre in March to 2,500 in April, 1888; 1,100 in 1889, and on March 28, 1890, 5,000; the breaking up of the winter snows having occurred this year much earlier than usual. This is the period during which the winter snows are melting, and after this is completed there is no marked increase in the number of bacteria in the lake water until the reappearance of the winter snows, some of the earlier falls of which during October, November, and December melt and disappear. In December the number of bacteria per cubic centimetre sometimes reaches 600, the highest point recorded during the year except in March. Dr. Schmelk thinks that the increase is due to the action of frost in breaking up the earth's surface, from which the contained organisms may be set free as soon as a thaw occurs and then washed away along with the surface soil, just as during great rain-storms. He also points out that the masses of ice projecting into a river may form "collecting" points for the particles suspended in the flowing water, as more bacteria are always found in the water obtained from such ice when melted than in the river water itself. He verified this by repeated experiments. He found, however, that when floating ice was melting in water, though it contained a few more organisms than water collected near the surface, it held far fewer than water taken from a considerable depth. In the Christiania water-supply he found some thirty species of bacteria, some of which occurred very seldom, some at certain periods of the year only, and a few all the year round. The amount of solids in the water varies from time to time, between 0.92 and 0.94 grammes per litre, and traces of ammonia can usually be found in water during the time that it contains most bacteria.

THE CHINOOK JARGON.

DURING my visits to the north Pacific coast I became familiar with the Chinook Jargon as spoken in various districts. The jargon is used nowadays most extensively on Puget Sound and in British Columbia, while its use on Columbia River and in the neighboring parts of Oregon and Washington is rather restricted. It has spread as far north as Chilcat and as far south as northern California. The Jargon, as spoken on Puget Sound and farther north, contains a much smaller number of words than the printed vocabularies, a great number of the Chinook words being dropped.

On Columbia River and Shoalwater Bay I found a few additional words belonging to the same dialect of the jargon which was recorded by Horatio Hale and George Gibbs. In recording these words I made use of the same phonetic spelling which has been used in the reports to the British Association for the Advancement of Science on the North-western Tribes of Canada: To accompany, *ā'ɛc* bone of fish, *pēk'*; to call, *tɛō'lak*; to carry on back, *tō'itc*; to dream, *mō'sum nā'nitc*; to give food, *ō'ma* (Chihalish); to give present, *k'oē'ɛn*; grandchild, *kōī'm* (Chihalish); last, *ubō't* (= French au bout?); let us, *hau'ansē*; to make, *qē'lɛmitl*.

Mamook has acquired an obscene meaning, and is no longer in use on the Columbia River. Muskrat, *tsini'stsinis*; fire is out, *tcqup*; to pursue, *mē'tl'ɛn*, or *tɛ'k·s'ɛn*: to put aside, up, *t'ō'ɛn*; to rest, *alē'm*; to roast, *p'ɛ'nis*; robin, *pil k'outē'n* (= red-belly); to sew, *kyē'pot*; soup, *bō'yō* (French); to stop, *k'a* (Chinook); tail, *tēl* (English); to vomit, *ō'ɛ*.

One expression which is not found in the published vocabularies, and which is unknown on Columbia River, was obtained on the Siletz Reservation, Oregon: at that time, *kōpa k·oā'ɛt*. In a few cases the meaning of the words differed somewhat from that given in the vocabularies: to sew, *mamook tipshin* (Hale, "The Oregon Trade Language," p. 60); it means, on Shoalwater Bay and in Clatsop, to mend. To lose the way, *tseepie wayhut* (Hale, p. 60), is not used on Shoalwater Bay, *tseepie* meaning only, to miss an aim. To vomit, *wagh* (Hale, p. 52), not in use in the same region. To tear, *kluh* (Hale, p. 45), means also, to fall.

A number of words which were considered as the sole and original property of the jargon prove to be of Chinook origin: *anah*, exclamation of pain or displeasure; *heehee*, to laugh; *humm*, stinking; *kwehkweh*, mallard duck; *lala*, long time; *liplip*, to boil; *na*, interrogative particle; *nah*, interjection: ho! look here!; *poh*, a puff of breath; *toto*, to shake.

I believe almost all onomatopoëtic words of the jargon are derived from the Chinook. The word *kwaddis*, whale, which is given as a jargon word, is of Tillamook origin. A few other words, the origin of which could not be traced, belong to the lower Chinook: *ekkeh*, brother-in-law; *kelapi*, to turn; *tukwilla*, nuts. Two words, which have been derived from English, are more probably of Chinook origin: *till*, tired (*tɛl* in Chinook); *spose*, if, which is generally derived from "suppose," but is more frequently pronounced *pōs* on Columbia River. *Pōs* means in Chinook, if; so that *spose* may be explained as due to folk-etymology on the part of the traders, or *pōs* as folk-etymology on the part of the Chinook.

It is of interest to note that two Nootka words which are found in the jargon have very close analoga in Chinook: *chuck*, water (*tltcuk* in Chinook); *wawa*, to speak (*awā'wa* in Chinook). A number of Chinook terms which have been embodied in the jargon have become extinct in Chinook proper. This is due to the fact that they have been dropped after the death of persons whose names resembled these words: *tmē'maluct* (jargon, *mimaloose*) is now *tɛmēuwa'lɛma*; *it'amā'noac* (jargon, *tamahnowus*) is now *iō'tlema*.

FRANZ BOAS.

Worcester, Mass., February.

NOTES AND NEWS.

EXPERIMENTAL psychology can count four new laboratories among its acquisitions during the present academic year, those that have been or are about to be established at Heidelberg (Germany), Geneva (Switzerland), Cornell (New York), and the Catholic University (Washington).

— The Oriental Club of Philadelphia was organized in 1888 with Professor Herman V. Hilfrecht as president, Professor M. W. Easton, treasurer, and Stuart Culin, secretary. It has held regular monthly meetings since that time, at which formal papers were read and discussed. The membership of the club is limited to thirty, and now numbers twenty-five, including Professor Paul Haupt and Dr. Cyrus Adler of Johns Hopkins University, Professors Barton, Hopkins, and Collitz of Bryn Mawr College; Professors Jastrow, Easton, Hilfrecht, Brinton, and Peters of the University of Pennsylvania, the Rev. Dr. Morris Jastrow, and others, it being strictly confined to oriental scholars.

— At the February meeting of the Oriental Club of Philadelphia, Mrs. Cornelius Stevenson read a paper on "Two Ancient Forms of Religious Symbolism, the Stone Axe and the Flying Sun-Disc." "The stone axe," the speaker said, "is the weapon of the power

above. It is the bolt flung from heaven in the lightning, and which was thought to contain a spark of the heavenly fire. In pre-historic archæology, the wielder of the bolt is generally represented under the shape of a bird, which, according to the development of the people, is either the embodiment or the messenger of the ruling spirit of heaven. In Egypt, with the development of sun-worship, the Halvk of Horus, the embodiment of the upper space, in the course of time was represented as entering the sun, which is spoken of as the 'body' in which the divine spirit dwells, and which, in the form of the Horus of Edfu, as the flying sun-disc, becomes the 'heavenly Striker.'"

— The Museum of Archæology and Palæontology of the University of Pennsylvania has been reorganized as a department of the university by the trustees, under the direction of a Board of Managers, of whom thirty are appointed by the University Archæological Association, and six by the trustees of the university. This action has been found necessary through the rapid extension of the collections and increased interest in the work. The museum is divided into four sections, American, Babylonian, Egyptian, and Oriental, each in charge of a special curator. The University Archæological Association, by whose efforts the collections were brought together, defrays all expenses. It now numbers about three hundred contributing members. Mr. Charlemagne Lowe is president of the department, and Dr. William Pepper, the provost, is president of the association.

— In his Shattuck lecture Dr. Cowles sums up the symptoms and the treatment of neurasthenia as follows: the central fundamental fact is nervous weakness, manifested primarily in two ways: (1) by an exactly parallel weakness of mental inhibitory control through voluntary attention, and (2) by the central motive element of a lowered emotional tone, from a sense of ill-being. The first of these indications may be concealed, even from the patient himself, by intensified interest and increase of effort; the second he feels and soon betrays. The complex auxiliary conditions of changes in the sensations, irritability and hyperæsthesia, languor and anæsthesia, and their causes, are manifested a little later than the primary mental effects. The point of attack in the treatment is the central emotional tone. There are two ways of approach to it: (1) through the body, restoring its strength and well-being, mental comfort and control follow; (2) through attracted attention and suggested ideas we reach the emotional tone, — healthful feeling and interest attend upon wholesome ideas.

— The Museum of Archæology of the University of Pennsylvania has just received from the Egypt Exploration Fund a colossal statue of Rameses II , which has been set up in the hall of the Library Building. The statue, which is eight feet in height, was found among the ruins of the Great Temple at Har-shefi (Hanls), the herakleopolis of the Greeks, during the excavations undertaken by the Egypt Exploration Fund, under the supervision of Mr. E. Naville in the winter of 1891. Hanls was the seat of government during the ninth and tenth dynasties of Mantheo (fourth millennium B.C.), as shown by the corroborative evidence of inscriptions found in contemporary tombs at Siût. Unfortunately, no remains of the older buildings were found, and the earliest dated fragments uncovered date from the twelfth dynasty, and even these were few. The temple was rebuilt by Rameses II., and this monument formed part of this later edifice (Ca. B.C. 1330). According to the curator, Mrs. Cornelius Stevenson, the hieroglyphs cut in the back and sides of the royal seat give the king's name and titles: the crowned "Horus," the "Mighty Bull," "Beloved of Amon," or "Maat," or "Ptah," or "Ra," or "Knum;" "Son of Rā," "Ramessu Meri Amon," "Chosen by Rā," "Lord of the two Sands," "Lord of Diadems," "Giving Life like Rā," etc.

— The committee appointed last September by the American Association for the Advancement of Science to raise the sum of five hundred dollars for the continuance, during the year 1892, of the American table at the Naples station, take pleasure in announcing to the American scientists that through the liberality of the American Association, the University of Indiana, the Association of American Naturalists, Professor C. O Whitman of Clark University, and Major Alexander Henry Davis of Syracuse, N.Y., the necessary sum of money has been subscribed, and the table is now at the disposal of the American biologists. Applications for the privilege of working at the station should be addressed to the committee, care of C. W. Stiles, Ph.D., Bureau of Animal Industry, United States Department of Agriculture, Washington, D.C.; or, should any American biologist in Europe not have time to communicate with the committee, application may be made to Geheimrath A. Dohrn, director of the zoological station, Naples, Italy. Scientific journals throughout the United States please copy.

— *The American Journal of Psychology* is about to make a slight change in its editorship; beginning with the next number E. W. Scripture, Ph.D. (Leipzig) is to be associated with President Hall.

— The experiment station of Cornell University has conducted three experiments carried through as many seasons, for the purpose of determining whether it is profitable to feed grain to cows when on good pasture. The first two experiments were made at the station, on lots of three cows each, the cows being in good condition and running on good pasture. As some objection was raised against this test on the ground that the pastures used were too rich and the cows too well fed to show the best results from grain feeding in the summer time, the experiment of 1891 was transferred to a herd of sixteen Jerseys and Jersey grades, belonging to Messrs. C. M. and W. L. Bean of McGrawville, N.Y. This herd had been accustomed to only a moderate grain ration in winter and never had any grain in summer. This herd was divided into two lots of eight cows each, the division being made by the station on the basis of weight, length of time in milk, length of time in calf, yield of milk per day and per cent of fat in milk, and was indorsed by the owners of the herd in the opinion that "the cows were as evenly divided as it was possible for them to be." The experiment continued from May 23 to Oct. 23, or twenty-two weeks. One lot of cows received each day four quarts of a mixture of two parts corn meal, one part bran, and one part cotton-seed meal by weight, fed in two feeds, night and morning, when the cows were brought in to be milked. The general results of the three years' experiments are summarized as follows: In 1889, in a season in which the pasturage was very luxuriant throughout the whole summer, with three cows in each lot, the grain-fed lot gave considerably less milk, which was so much richer in butter fat, that the total butter production was practically the same in the two lots. In this experiment the grain feeding was commenced about a month after the cows had gone to pasture. In 1890, in a season in which the pasturage was luxuriant, except for a short time in the middle of the summer, with three cows in each lot, the total amount of butter-fat produced was almost exactly the same in both lots. In this experiment the grain-fed lot continued to receive the same ration on pasture that they have been receiving during the winter on dry feed. In 1890, in an experiment on soiling with grass alone, with grass and grain, just about enough more butter was produced by the grain feed to pay for the increased cost of the grain ration. In 1891, in a season in which at no time the pasture was very luxuriant, with eight cows in each lot, the grain-fed lot produced just enough more milk and butter to pay for the increased cost of the grain ration. In this experiment the grain feeding was begun about two weeks after the cows went to pasture.

— The first lecture, on the religions of Egypt, in the University of Pennsylvania Lecture Association's course on "Ancient Religions," was delivered by Mrs. Cornelius Stevenson, at Association Hall, on the afternoon of Feb. 25. The title of this introductory lecture was "Primitive Egypt and its Relation to the Stone Age." It was prefaced with a general geographical description of the country, special notice being taken of the changes it has undergone since the opening of the historical period. The lecturer dwelt at length on the various theories concerning Egyptian origins, and on the originality of Egyptian culture, whose earliest seat was in Upper Egypt. Among the interesting survivals from prehistoric times are the stone implements, from which can be derived a notion of primeval ideas and customs. The first traces of religious awakening are betrayed in the cave-burial and the care of the departed. The problem of his present life and its mysterious cessa-

tion with death first made man think of spiritual things, and, from the sense of immortality which he felt in himself, led him to conclude upon a certain immortality of the soul, or survival of the spirit. Hence the various food-offerings to the dead, because the spirit was supposed to revisit the body as long as it was not decayed, and the tomb was looked upon as the habitation of the dead. Similar ideas are found among the oldest vestiges of man in western Europe, in the caves of the neolithic period.

— Dr. A. Woeikof of St. Petersburg, who is engaged on an investigation into the cause of the famine in Russia, says *Nature*, writes that it is chiefly due to drought from August to October, 1890, which injured the winter crops; to partial and insufficient snow, which melted early in the spring, and was followed by frost in April; and lastly to droughts and hot winds from May to July, 1891. In the southern portion of the Government of Samara the prospects up to June 10 were excellent, but the harvest was destroyed by two days of hot winds, on June 14 and 15. And in the southern central provinces also, where the winter crops had greatly suffered, a moderate harvest was hoped for after the middle of July, but four hot days, from July 13 to 16, quite destroyed the crops.

— The number of persons who approve of cremation seems to be steadily increasing, according to *Nature*. From the report of the Cremation Society of England for 1891, we learn that in 1885, the first year the crematorium at Woking was used, only 3 bodies were sent there; in 1886 the number was 10; in 1887, 13; in 1888, 28; in 1889, 46; in 1890, 54; and during the past year, 99. Crematoria are being built in various parts of the country. At Manchester a crematorium is in course of erection, and will, it is thought, be completed and opened for use during the coming spring. A company has also been formed, and is making rapid progress, with the same object at Liverpool; and the City of London Commission of Sewers is taking steps to obtain powers to erect a crematorium at their cemetery at Ilford. The Cremation Society at Darlington, and other associations, are moving in the same direction.

— The Journal of the Scottish Meteorological Society (third series, No. 8) contains a very interesting paper on silver thaw at Ben Nevis Observatory, by R. C. Mossman. The phenomenon is somewhat common at that observatory, and occurs during an inversion of the ordinary temperature conditions, the temperature being considerably lower at the surface than at higher altitudes, causing the rain to congeal as it falls. In the six years 1885–90, 198 cases of silver thaw were observed, with a mean duration of 4½ hours in each case, and they nearly all occurred between November and March, during times of perfectly developed cyclones and anticyclones. An examination of the weather charts of the Meteorological Office showed that for the 198 days on which the phenomenon was observed the distribution of pressure was cyclonic on 137 days, and anticyclonic on 61 days. In anticyclonic conditions there was a cyclonic area central off the north-west coast of Norway, while the centre of the anticyclone was over the south of the British Isles. In cyclonic cases, an anticyclone lay to the south, over the Iberian Peninsula. The lowest temperature at which the phenomenon took place was 18°, and was rarely below 27°. Fully 90 per cent of the cases occurred when the thermometer was between 28° and 31.9°, so that the greater number of cases occurred just before a thaw. The most common type of cloud which preceded both cyclonic and anticyclonic cases of silver thaw was cirro-cumulus, frequently accompanied by cirrus and cirro stratus; and the changes showed that the higher strata of the atmosphere came first under the influence of the moist current, which took from three to eight hours to descend to the height at which cumulo-stratus forms. An examination of a series of storm charts prepared by Dr. Buchan disclosed the somewhat remarkable fact that 73 per cent of the cyclonic and 63 per cent of the anticyclonic cases of silver thaw on Ben Nevis were followed or preceded by gales on our northern and north-western coasts; and it would appear from the wind conditions that the barometric gradient at the height of Ben Nevis (4,407 feet) must be totally different from what obtained at sea-level during the occurrence of silver thaw on the hill-top, says *Nature*.

— There has been much talk in Germany about Dr. Peters's discovery of saltpetre in the Kilima Njaro district. This discovery accords with statements which were already well known. Dr. Fischer, after an examination of the Donjongai volcano, reported that in the neighborhood of the crater there were a series of curiously-shaped veins of a white substance which he took to be either saltpetre or soda. In 1879 Herr Jarler asserted that large quantities of sulphur would probably be found in the crater. The Berlin correspondent of the *Times*, by whom these facts are noted, adds that not far from the volcano there lie great swamps from which soda is obtained. It is expected that an expedition for the exploration of the district will soon be sent out by the German East Africa Company.

— It is well known that yellow-fever never develops in a cold or temperate climate, and several attempts have been made at various times to apply this fact to the treatment of the disease in tropical climates by artificially cooling the patient. Thus some thirty-five years ago trials were made with a cold chamber, the air of which was charged with oxygen, but without appreciable success. Quite recently Dr. Garcia has reintroduced a somewhat similar plan, an iced chamber being constructed so that the air within should be maintained at a temperature varying from 32° to 50° F., and nearly saturated with moisture. A fair trial was made with this at the works of the Juragua Iron Company in Cuba, where an epidemic of yellow-fever had broken out, seventeen well-marked cases, in all of which black vomit was present, being treated by means of the "polar chamber." Eleven of them recovered, the mortality consequently being at the rate of 35.3 per cent, or about the same as the usual rate of mortality at the mines under other methods of treatment. The course of duration of the disease did not appear to be in any way modified by the low temperature; the urine, though in some cases considerably increased, was not altered qualitatively. The phenomena depending on acholia occurred in the same manner and at the same period as in cases treated in the ordinary way. The same may be said of the gastric hæmorrhage. The cost of a patient's treatment by cold was found to amount to about $100, says *Lancet*.

— The sixteenth annual commencement of Meharry Medical Department of Central Tennessee College was held at Nashville, Tenn., Feb. 18. Twenty-five young men received the degree of M.D., one that of D.D.S , and three were awarded diplomas for having completed the course in pharmacy. G. W. Miller of South Carolina delivered the salutatory address, on "Practical Bacteriology." He gave an account of the different kinds of bacteria, how they could be cultivated, stained, and examined, and how one variety could be distinguished from another. The pharmaceutical class was represented by Robert Tyler of Mississippi, who gave an address on "The Relations between Physicians and Pharmacists." The valedictory address was given by J. W. Holmes of Texas, his subject being "The Advance of Modern Surgery." The speaker referred to the early history of surgery, especially that practised by the Egyptians and Grecians. He spoke of the reforms in surgery and the leaders in these reforms, the principal operations of importance from the sixteenth to the present century inclusive, and of some of the appliances which had accomplished much for surgery, such as an anæsthetics and antiseptics. He also gave elaborate descriptions of cranial and abdominal surgery, mentioning some of the most hazardous operations performed in these cavities, and also paid a high tribute to the modern surgeon for the achievements accomplished by him. The past year has been the most successful and encouraging ever known in the history of this school, the number of students and graduates being about fifty per cent greater than that of any previous session, one hundred and eighteen medical, and seven dental and nine pharmaceutical students being enrolled. The record of the alumni of Meharry Medical College has been most gratifying. Of those who have graduated within the past six years only two have failed to pass the required examination before the "Boards of Medical Examiners," standing equal with the white applicants from the different medical colleges of the South, with whom they were examined at the same time, and have been well received by the white physicians.