must be said that he was the first to study in so scientific and severe a manner, and with such persevering patience, the subject treated of in 'Die Seele des Kindes.'

A book on animal magnetism, by MM. Binet and Féré, has recently appeared. It is really a book on hypnotism, as most phenomena ascribed to animal magnetism are of an hypnotic nature. The book is a good one. After some preliminary chapters devoted to the experiments of Mesmer and others, the authors speak of modern hypnotism, of the different methods of inducing hypnotic sleep, and of the symptoms and degrees of this sleep. They then give a theory of hypnotic suggestion, with a long review of the phenomena produced under its influence. A specially good chapter treats of the therapeutic and pedagogic applications of hypnotic suggestion. The book treats the subject fairly and fully, and will prove useful. Another new book, on hygienic dietetics, is from the pen of Prof. G. Sée. It begins with an exhibit of the comparative nutritive powers of different foods and a physiological study of the alimentary process. The rest of the book is devoted to the practical treatment of diseases by a judicious choice of foods. M. Sée is well informed upon the subject, and his book is consequently valuable, although it does not contain much original matter. V.

Paris, Jan. 13.

NOTES AND NEWS.

THE first annual convention of the Society for the prevention of the adulteration of foods, drugs, and medicines met in Washington last week. The object of this society is the establishment of a certain fixed standard for every article of food, drink, and medicine, with the requirement that all articles not up to the standard shall be so marked by a label. About one hundred and twenty-five delegates were present from all parts of the country. Mr. H. Wharton Amberling of Philadelphia was elected president, and Mr. Elisha Winter, secretary. The president read his annual address, in which he spoke of the want of proper legislation on the subject of adulterated food, the sale of which, he claimed, produced nearly all the cases of kidney-trouble in the land.

— The secretary of the treasury has transmitted to congress the estimates of deficiencies in appropriations for salaries and expenses of the National board of health during the present fiscal year, amounting to $7,500. In a letter accompanying the estimates, the secretary of the board earnestly urges the importance of making the appropriation requested, but says, in case it is deemed undesirable to continue the work which has for its object the preservation and improvement of the health of the people, the laws devolving such duties upon the board should be repealed.

— The fine, large, gold medal given to General Grant for distinguished services in the Mexican war, now at the national museum, is bogus, having a specific gravity of only seven instead of sixteen.

— A memorial has been presented to congress, signed by prominent literary and scientific men and representatives of several historial societies, setting forth the great value and importance of a full and accurate digest and catalogue of the numerous documents found in public and private archives of Europe relating to the early history of the United States, and especially to the treaty of Paris in 1763, and the treaty of peace between the United States and Great Britain in 1783. Most of these documents are unknown to the American student, and but few of them have ever been copied, owing to their inaccessibility. Mr. Benjamin Franklin Stevens of London has, after many years' labor, prepared a descriptive catalogue of over 95,000 separate papers found in the archives of different European countries. The secretary of state recommends to congress the purchase of this descriptive catalogue, and adds, "Without its favorable action, not only will the completion of the work be doubtful if not impossible, but the fragment now prepared would probably remain practically valueless." Mr. Stevens, in a letter to the secretary of state, says that the work has become too great for any individual to undertake alone, unless a man of wealth, and that when complete the index will probably comprise 150,000 documents, and fill 20,000 royal octavo printed pages.

— Lieutenant Pillsbury, commanding the Blake, has started south for the season's work, and will run several lines of current observations from Cuba to Yucatan, and from Cuba to Florida Reef, and thence northward to San Antonia. This is a continuation of the work of last year, which was so successful. The connection between the velocity of the Gulf Stream and the advent of the tidal wave on our coast has been accurately determined, and the credit for this important discovery is due to Lieutenant Pillsbury. Appendix No. 13 to the coast-survey report, 'On the harmonic analysis of the tides at Governor's Island, New York harbor,' by William Ferrel, shows the results of tidal observations. The report states that the tides at Governor's Island and at Sandy Hook are very similar. The epochs at Governor's Island are somewhat greater, and the tides are thus

twenty-nine minutes later, than at Sandy Hook. The tides are not affected by waves coming through Hell Gate from the tides in the Sound above. The results of Mr. Ferrel's analysis show that it is not necessary to make separate tide-predictions for both Sandy Hook and Governor's Island, since the latter may be obtained from the former by simply adding twenty-nine minutes to the times. Other important appendices to the coast-survey report for 1885 are, 'The geographical distribution and secular variation of the magnetic dip and intensity in the United States,' C. A. Schott; 'A plea for a light on St. George's Bank,' Henry Mitchell; 'On geodetic reconnaissance,' C. O. Boutelle; 'Note on a device for abbreviating time-reductions,' C. S. Peirce.

— The coast-survey steamer Patterson, which has been laid up since last October at the Mare Island navy-yard, is being overhauled and painted, to return to survey work on the Alaska coast early in the coming spring.

— Lieut. William H. Emory, who commanded the Bear on the Greely relief expedition, has been ordered to the Thetis, and will shortly sail for Alaska. He will investigate the seal-fisheries, and has received special instructions regarding the boundary-line between Alaska and the British possessions.

— The will of the late Isaac Lea was admitted to probate Jan. 22. The document is a voluminous one, and contains twenty codicils. The will bears date of execution May 25, 1878, and the final codicil July 30, 1885. The petition, which was filed by the executor with the document, places the value of the estate left by the decedent at about three hundred thousand dollars. He bequeathed his collection of fresh-water shells, marine and land shells, minerals, fossils, and geological specimens to the Academy of natural sciences of Philadelphia; but in a codicil dated Feb. 28, 1880, he says, "I revoke that part of my will which gives to the Academy of natural sciences at Philadelphia my collection of natural history, and I give them all to the national museum at Washington, D.C., on condition that the national museum shall devote a room exclusively for the Unionida, Stremopatida, Physaida, Paludinaida, Pulmonifera, and others, the Unionida to be put in the exact order in which they now are, with their labels as I have placed them; the whole to be called 'The Isaac Lea collection;' the Muscovite collection to be placed in this room likewise." A codicil executed on Oct. 1, 1884, reads, "Believing it important to the early history of the development of the fluviatile and terrestrial Mollusca of the United States to have some of my correspondence published, as well, also, some other subjects, I desire my executors to devote a thousand dollars to the object, provided they may agree with me in that opinion."

— A recent bulletin of the New England meteorological society states that the records of a meteor seen from many points in New England on the evening of September 6 were submitted to Prof. H. A. Newton of Yale college, who reported as follows: the meteor had an altitude of about 90 miles when first visible, over latitude 44° 15′, longitude 73° 8′; and an altitude of 25 miles when it disappeared, over latitude 43° 20′, longitude 71°. One of its explosions occurred near the middle of the path, the other near the end. The meteor was going away from the sun, having had a perihelion distance of about three-quarters of the earth-orbit radius. An extract is added from one of Professor Newton's earlier papers. The altitudes of 78 meteors observed on Nov. 13–14, 1863, were calculated as follows: mean altitude at first appearance, 96.2 miles; at disappearance, 60.8 miles; at middle path, 78.5 miles. Twenty-nine of these meteors became visible at greater height than a hundred miles, and seven disappeared before descending to this height. For 39 meteors observed on Aug. 10–11, 1863, the corresponding mean altitudes are 69.9, 56.0, and 62.9 miles (*Amer. journ. sc.*, xi., 1865). It is desired that observers should report the position of bright meteors, noting their paths among the stars with as much accuracy and detail as possible. The drift of the trail left by the meteor should be closely observed, as it indicates the direction of upper winds. The simple record that a meteor was seen is of very little value alone.

— The use of salicylic acid has become so prevalent to prevent fermentation in food-products, that a committee of the Académie de médecine has had the matter under consideration, and, in a report recently made on the subject, says, "It being well established by medical observation that feeble and prolonged daily doses of salicylic acid and its derivatives can cause considerable trouble to the health of certain persons who are sensitive to those forms of drugs, particularly old people and in those whose venal or digestive functions are no longer in perfect order, therefore the addition of the salicylates to liquid and solid aliments will not be permitted."

— The agricultural appropriation bill reported last week from the committee on agriculture carries the following amounts for the support of this service during the next year: experiments with southern cane, $32,000; experiments in silk-culture, $15,000; slaughtering cattle, $100,000; cattle quarantine, $20,000. The total amount recom-

mended in the bill is $563,730. The committee also recommend that the statistician of the department be sent to Europe to attend the international agricultural convention, and that $15,000 be appropriated therefor.

— The report of Mr. J. R. Dodge, statistician of the U. S. agricultural department, on the sugar-production of the world, contains some interesting data. According to the figures presented, the amount of beet-root sugar produced in the season of 1886–87 exceeds the cane-sugar by 162,000 metric tons, thus showing that more than half the sugar used in commerce is extracted from the beet. The manufacture of beet-sugar is entirely a European industry. Mr. Dodge states that its success in Europe is largely due to the 'beet-stock' plan, where each shareholder in the stock of a beet-sugar factory is required to furnish so many beets per share. The farmers are therefore, in reality, the manufacturers, and, since they obtain the profits of the manufacture, they are the most interested in raising good beets at a nominal price. The total consumption of sugar in this country in 1885 was 1,245,574 tons, of which only 40,000 tons (or about three per cent) were produced here. There is only one beet-sugar factory in this country, and that is in California, which produces sugar at five cents per pound, and has to compete with free sugar from the Sandwich Islands. The report further states that our sugar-consumption amounts to about one-fourth of all the sugar reported from the countries of principal production, and that within twenty-five years more than 2,000,000 tons will be required, almost sufficient to swallow up the present production of beet-sugar, or the whole of the present cane-sugar of commerce. The report concludes as follows: "At a time when labor is in excess of demand, and corn and wheat and cotton, and other old staples of a primitive agriculture, exceed the wants of domestic and foreign markets, we scour the world for food-products costing more than $200,000,000 per annum, the larger portion of which should be produced in the United States. This primitive and unenterprising situation must be surmounted by a more skilful, scientific, and inventive agriculture."

— The first number of the *Centralblatt für bacteriologie und parasitenkunde*, edited by Dr. Oscar Uhlworm of Cassel, is announced for the beginning of the present year. Professor Leuckart of Leipzig, and Dr. Loeffler of Berlin, are associated with Dr. Uhlworm. At the urgent request of the editor, Dr. George M. Sternberg, U.S.A., has consented to act as a collaborator in the United States. As its title implies, this publication is to be devoted to bacteriology in all its branches and to animal parasites which affect man, the lower animals, and plants. The editor is especially desirous of securing all original American papers relating to this field of investigation, whether recording experimental work or improvements in technique. Authors of such papers are kindly requested to send reprints to Dr. Sternberg, in care of Johns Hopkins university, Baltimore, Md.

— The new chemical laboratory of the University of Nebraska was dedicated Jan. 14.

— *Gaillard's medical journal* states that Dr. Valentine Mott has been making a series of preventive inoculations in the case of two sons and an office-boy of Dr. Foster of Yazoo county, Miss., who were bitten by a rabid dog in November. The process has been completed, and the children are all in good condition.

— Small-pox, which has been so notably absent from New York City, has now made its appearance there, eighteen cases having been reported during the week ending Jan. 22, of which two were fatal. 651 cases of measles with 86 deaths, and 130 cases of diphtheria with 38 deaths, are reported for the same period.

— Three new comets are announced. The first was discovered by Thome, Dr. Gould's successor at the Cordoba observatory in South America, on Jan. 18, in the constellation Grus. The despatch states that it resembles the great southern comet of 1880, and is likely to become a brilliant object. The second comet was discovered by Brooks on Jan. 22, in the constellation Draco, and in this latitude is now visible, with the help of a telescope, throughout the night. The third was discovered by Barnard on Jan. 23, and is in Vulpecula; it is also telescopic, setting in the early evening.

— Dr. F. V. Hayden, formerly director of the U.S. geological and geographical survey of the territories, has resigned from the position that he has held for several years in the present U.S. geological survey.

— Indianapolis, Ind., has been considerably excited of late over an instance of remarkable preservation of the human body after death. A lady died in that city some thirty years ago, and her body, incased in an iron coffin, was placed in a vault. A recent examination showed that the body was in a wonderful state of preservation. The *Indiana pharmacist* says that even the color of her eyes, a deep blue, could be recognized. The hair had grown to a length of two feet. It was supposed by the sexton to have turned to stone,

but further investigation showed it to have become changed into that peculiar substance known as adipocere. Adipocere (*adeps*, 'fat,' and *cera*, 'wax') has somewhat the appearance and consistence of cheese, and is a compound of oleic and margaric acids with an alkali. It has usually been formed in bodies that are buried in the earth, and moisture has been supposed to be essential in its formation. In the instance just referred to, the body was in a dry vault. There seems to be no fixed time necessary for this change to take place. One instance is reported of an infant which had been but three months in a cesspool, in which adipocere had formed, while in other cases years seem to have been necessary.

LETTERS TO THE EDITOR.

***Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

National prosperity.

IN Mr. Atkinson's paper in the January *Century* there are some uses made of statistics which seem to a layman at least a little queer.

He gives us a table of enormous percentages to show how greatly the United States have increased in productiveness and wealth.

Since 1865 we are told the yield of hay has increased 106 per cent; of cotton, 194 per cent; of grain, i.e., wheat, corn, oats, barley, rye, and buckwheat, 256 per cent; railway mileage, 280 per cent; insurance against fire, 310 per cent; output of pig-iron, 386 per cent; and population, 69 per cent. The ratios are seemingly wonderful, but in some cases very deceptive, most so in cotton. In 1865 the number of bales was 2,228,951, and in 1885, 6,550,215, a gain in twenty years of 194 per cent. Will it be surprising to be told that the gain is not 194 per cent, but only 22 per cent? Here it is.

In 1860 the number of bales recorded was 5,387,052, on which the gain in 1885 is but 22 per cent. Why does the statistician take the phenomenally low year of 1865, which was behind 1850 even? We have merely regained the position of 1860, and advanced 22 per cent.

And as to increase, the gain from 1850 to 1860 with slave-labor was 118 per cent, in ten years, — an average of $11\frac{8}{10}$ per cent per year, which, compared with the free-labor rate, $9\frac{7}{10}$ per cent per year, shows that the increased production under free labor is somewhat of a myth. At the slave-labor rate of increase, the twenty years from 1865 to 1885 would have culminated in a crop of 7,489,275 bales. In what, pray, does the superiority of free labor make itself manifest?

Population, we are told, has increased 69 per cent since 1865; from 1860 to 1870 the increase was 23 per cent, $2\frac{3}{10}$ per cent per year; from 1870 to 1880 it was 30 per cent, or 3 per cent per year; from 1880 to 1885 we find a gain of 14 per cent, or $2\frac{4}{5}$ per cent per year.

Now, from 1850 to 1860 the increase was 36 per cent, or $3\frac{6}{10}$ per cent per year, a higher rate than that of any decade since then. Had we increased from 1865 to 1885 at the rate of the decade before the war, we should now number over 61,000,000 instead of 56,975,000.

256 per cent, we are told, has our grain-crop increased from 1865 to 1885. The grain-crop of 1865 was over 100,000,000 bushels less than that of 1860. By decades we find that the increase between the years 1860 and 1870 was 32 per cent; 1870 to 1880, 50 per cent; and from 1880 to 1885, 23 per cent, or $3\frac{2}{10}$ per cent, 5 per cent, and $4\frac{6}{10}$ per cent per year respectively. The gain from 1850 to 1860 was 43 per cent, or $4\frac{3}{10}$ per cent per year; and if we calculate from 1860 to 1885 at the same rate, 43 per cent per decade, we find due us a crop of 3,060,428,664 bushels as against 3,014,063,984; and the marvellous gain of 256 per cent over 1865 appears less than was to be expected from what we were doing before the war. The hay-crop of 1882 would have amounted to about 600,000 tons more, if it had been the result of an increase as from 1850 to 1860. Since 1882 the hay-crop jumped from 38,000,000 tons to 48,000,000 in two years, a truly phenomenal increase.

Railway mileage has increased 280 per cent since 1865; but, if we are to talk of per cents, let this gain of twenty years be compared with 217 per cent, ten years' gain from 1850 to 1860. In miles the gain has been from 1850 to 1860, 21,500; 1860 to 1870, 22,400; 1870 to 1880, 40,700; 1880 to 1885, 32,000.

It would be of interest to see if the net income has increased *pro rata*.

For progress in wealth we are shown a table of fire-insurance risks, and an increase therein of 310 per cent since 1865. Why not take the assessed value of all real and personal property? This was, in 1850, $7,000,000,000; in 1860, $13,000,000,000; and in 1880, $17,000,000,000. Of course, there is an increase since 1865, but in per cent it does not compare with that from 1850 to 1860.

As to pig-iron and its 386 per cent increase since 1865, it will take a pretty stiff-necked protectionist to understand how, under the conditions of its production, it stands for 386 per cent increase of wealth to the people who have to use it and pay for it.

And now, if, to make the showing a little more comprehensive, we look at the number of acres of improved land, we find that it increased 44 per cent from 1850 to 1860, 16 per cent from 1860 to 1870, and fifty per cent from 1870 to 1880, — an average of $3\frac{2}{5}$ per cent per year, — very close to the increase in population. The value of agricultural implements increases, from 1850 to 1860, 62 per cent; 1860 to 1870, 37 per cent; 1870 to 1880, 2 per cent; annual average, 4 per cent.

Rice production has fallen from 215,000,000 pounds in 1850 to 110,000,000 in 1880. Tobacco, which gave an increase of 117 per cent from 1850 to 1860, and in 1860 had 434,000,000 pounds, has but 472,000,000 in 1880.

Irish potatoes increase 69 per cent, 29 per cent, 18 per cent, respectively for the three decades, or the average of $3\frac{8}{10}$ per cent per year.

Sweet-potatoes fall from 38,000,000 bushels in 1850 to 33,000,000 in 1880. Cheese, also, which was at 105,000,000 pounds in 1850, is in 1880 only 27,000,000 pounds. Butter rises 46 per cent, 12 per cent, and 21 per cent through the three decades, an average of 2.6 per cent per year. Live-stock gains 100 per cent from 1850 to 1860, 40 per cent from 1860 to 1870, and falls off 6 per cent between 1870 and 1880, an average rate of increase of $4\frac{3}{4}$ per cent.

And while our public debt has been decreased by $876,970,833 between 1865 and 1880, we find on hand in 1880 a state, county, and town debt of