known, that, during the process of boiling, certain gases are given off; and the behavior of the fluid afterwards, under certain reagents, is different from that in its original state. If rennet be added to boiled milk at the temperature of the body, no change occurs for some hours; while, if added to raw milk, coagulation takes place rapidly. If diluted acid be added to boiled milk, it produces immediate coagulation; but, if mixed with the raw fluid, coagulation takes place much less rapidly. If alkali be added to the former, cream arises with rapidity and completeness, while no marked change occurs when it is added to the latter. Observations made, of forty-six specimens of gastric contents obtained from six men fed on milk, established the fact that unboiled milk had slightly the advantage as a nutrient, being somewhat more digestible than when boiled. Peptone was found to be present at all stages of digestion. His observations on the effect of rennet confirmed those of Schreiner, published some time ago in Munich. —— A communication was read from Miss S. G. Foulke on the structure and habits of Manayunkia speciosa, the fresh-water worm recently described by Professor Leidy. Miss Foulke has had an opportunity of studying mature specimens, and has consequently been able to make important additions to Dr. Leidy's account of the species, which was based on young specimens.

NOTES AND NEWS.

A GENERAL meeting of the American forestry congress will be held at Washington, D.C., on May 7. Time and place have been chosen contrary to precedent, in order to find an opportunity of calling attention to the society's active work, and impressing upon Congress, then assembled, the needs and requirements of forestry in this country. It is therefore desirable that such meeting should be well attended; and no individual efforts should be spared by the members and friends of this association to make the same particularly interesting and effective. The following subjects have been selected as leading topics of discussion, referees having been appointed to prepare papers in regard to them: Value of American timber-lands; Management of timber-lands and timber in Canada, and legislation thereon; Value and management of government timber-lands; Best method of planting trees on unoccupied government lands; Influence of forests on climate and health; Insects injurious to trees, causes and dangers of their excessive multiplication, and how to meet them in their wholesale ravages; Growing forests from seed by farmers; Preservation of forests on head waters of streams; Planting of trees by railroad companies; Irrigation in connection with tree-planting; Experiment-stations and forest-schools; How can we best promote the interest in, and knowledge of, forestry among all classes of this country?

— The yearly meeting of the Russian geographical society was, as usual, largely taken up by the report of the secretary about the yearly work. Nothing of special interest, not yet known, was included. In the yearly award of the medals which followed, the greatest gift of the society, the Constantine medal, was given to N. A. Sewertzow, the celebrated zoölogist and explorer of central Asia, for his lifelong work. The great gold medals of the sections of ethnography and statistics were not awarded this time. The Lütke medal was given to H. A. Wild for meteorological works. Four gold medals and a considerable number of silver and bronze ones were also awarded.

At the February meeting of the society a communication was received from Bukharow, Russian consul at Hammerfest, Norway, about his extensive travels in the Lapland peninsula in the fall of 1883. The fourth number of the society's *Izviestiya* has been issued. It contains, besides matter mentioned here, Konshin's account of the Kara-Kum sands in central Asia, and Vasenew's travels into western Mongolia.

— At a meeting of railroad engineers in Moscow in December, 1883, the establishment of meteorological stations at the railroad-stations, and of weather-telegrams sent by the railway-wires to Moscow, so as to be able to get information about the state of the weather, and predictions of events of interest to railroads (as snow-storms, heavy rains, and sudden thaws), was proposed. A meeting of the railroad boards, held soon after, agreed to this proposal; and so it is to be hoped Russia may soon have a system of observations by properly paid and controlled men, instead of relying entirely, as now, on unpaid and voluntary observers.

— A call has been issued for a meeting of inventors and persons interested in the perpetuation of the present system of U. S. patent-laws, to be held at Music Hall, Cincinnati, March 25, 26, and 27. The call is signed by gentlemen from twenty states, and delegates are expected from thirty-two states. Arrangements are being perfected for a probable attendance of three thousand.

The first object of this meeting is to effect a permanent organization for the purpose of protecting the rights of inventors and patentees. Over two hundred and fifty thousand patents have been issued by the United States, from which it is clear that very large interests are at stake in any changes of the patent-laws such as are now pending before Congress. Twenty-eight bills have been introduced in the present Congress, which interfere more or less directly with patents or their owners, and diminish in one way or another the protection afforded to inventors. One bill provides that no damages can be recovered for infringements prior to written notice served on the infringed by the patentee, thus rewarding the secret manufacture of patented articles. Another bill is to prevent the recovery of damages in cases where the amount involved is less than twenty dollars; and another bill fixes this amount at fifty dollars.

— On the 11th of February died John Hutton Balfour, for many years professor of botany in the University of Edinburgh, director of the Royal botanic garden, and Queen's botanist for Scotland. He was born in that city on the 15th of September, 1808, and

had therefore attained a good old age. About four years ago, in failing health, he resigned his official positions, but afterwards recovered his vigor, so that he might have been expected to see his university fairly entered upon its fourth century. The end of this excellent man came suddenly, — we believe, in the same week in which his son, Isaac Bayley Balfour, was elected professor of botany at Oxford. The elder Balfour was eminent only as a teacher of botany, in which he had great success, and in the development and administration of the admirable garden and arboretum of the Scottish capital.

— A "general geologic map of the area explored and mapped by Dr. F. V. Hayden, and the surveys under his charge, 1869 to 1880," forms No. 11. of the series accompanying the twelfth and final report of the geological survey of the territories. This map was not mentioned in our notice of the report (*Science*, No. 51), as it was omitted in the earlier distributed volumes; but it is of especial value in presenting a general review, that is nowhere given in the reports, of what has been accomplished by Dr. Hayden's parties. It includes all of Colorado and Wyoming, the greater part of Montana, and half of Dakota and Nebraska. It has unfortunately no topographic shading; and there is no distinction made in the coloring of those parts that have been examined with satisfactory detail, and others where information is derived from reconnoissance, or even from hearsay. Still, the more notable features of the region are well shown, — the broad monotony of the plains, the inconstant variety of the irregular mountain uplifts, the long-continued paleozoic and mesozoic conformity, and the absence or insignificant representation of the Devonian in the Rocky Mountains proper, and the unconformable overlap of the tertiary. Of more local peculiarity, there may be mentioned the isolated uplift of the Black Hills, here well shown in its relation to the ranges farther west; the abrupt change from a north and south to an east and west trend in the Laramie range; the appearance of narrow and parallel Great Basin ranges at the western margin of Wyoming; and the crescentic form of the Big Horn range. Concerning this last and the more northern part of the map, further exploration may require considerable changes.

— Mr. Paul Bert read to the Paris academy, at a recent meeting, the latest results of his researches into the effects of anaesthetics. He believes that the use of chloroform in surgical cases, where the patient suffers from weakness of the heart, may be made comparatively, if not entirely, safe. Mr. Bert is of opinion that the quantity of an anaesthetic is less important to observe than the tension of the vapor inhaled, and the proportion of air with which it is mixed. He has constructed an apparatus with which he administers a proportion of eight grams of chloroform to a hundred litres of air. Experiments which he has made with this have shown, that not only is a saving of chloroform effected, but the danger is considerably lessened. The pulse of the patient inhaling the mixture is calm, and the temperature of the body is not sensibly lowered; while in only four cases out of twenty-two was the slightest appearance of nausea produced.

To this proposition of Bert's, Gosselin objected that the use of a cumbersome piece of apparatus, in place of the convenient sponge or handkerchief, ought to be considered; and that by Bert's method a uniform amount of chloroform must needs be administered to all patients, regardless of their susceptibility to its effects.

Bert rejoined, that with the sponge there was great danger of exceeding the safe tension of the vapor. His experiments with dogs showed, that, with six grams of chloroform to a hundred litres of air, a dog could be rendered insensible; with ten grams, the insensibility comes on in a few minutes, and can be allowed to continue for an hour and a half with safety; while, with twenty-four grams, the dog was dead in forty-five minutes.

— The petroleum industry of Baku still continues to attract attention. Messrs. Hobel, whose work there has been of such importance to the development of the trade, have published a pamphlet on the capabilities of the province, and the commerce of the Black Sea; while a book is announced in the literary journals, dealing with the working of petroleum since classical times. The title is 'Petrolia;' and it is by Mr. Charles Marvin, of Khiva fame.

— The *Centralblatt für textil industrie* recently published an article on the increase in manufacturing industry in Livonia, Esthonia, Courland, and the Polish provinces of Russia. The first three provinces contain 1,329 factories, the annual production of which now represents a total value of more than £12,000,000, this sum being nearly double the amount for 1873. In Courland the main industry is the distillation of spirits, which in 1882 attained a value of nearly £1,000,000. The development of Polish industry took place, for the most part, during the years 1877–80. In the year 1881 Poland contained 19,000 factories, which produced wares of the total value of about £30,000,000. The greatest progress has been in the textile industries. One factor in the industrial activity of Poland has been the steady demand for yarn from factories in the interior of Russia. The cotton industry is the most important: in 1881 it employed about 20,000 work-people, its out-turn representing a value of £5,000,000. Next comes the woollen industry, with 15,000 work-people, and a yearly production of £3,500,000 in value. In the linen branch 10,000 work-people are engaged, and the production represents about £1,000,000 per annum. The raw material is, for the most part, obtained from the interior of Russia, only a small quantity being imported. Moscow, Charkoff, and St. Petersburg are the principal markets.

— The *Engineer* states that the world's average product of sulphur is about 280,000 tons, of an average value of 109.20 lire per ton = 30,793,000 lire, or over £1,200,000 sterling. Of this total, Sicily produces 242,000 tons. There is an export duty of 11 lire per ton on sulphur, and the average export is 216,000 tons. The Sicilian sulphur is mostly exported raw,

as it comes from the kilns. It is of seven qualities, the values varying from 101 to 115 lire per ton. Except in the better-worked 'solfare,' the separation of the sulphur from the earths in which it is contained is still conducted in Sicily by means of kilns (calcuroni), which do not require any additional fuel, but which entail the consumption and loss of about one-third of the sulphur itself. About 18,000 hands are employed in the Sicilian 'solfare,' of whom about 14,000 work in the interior of the mines, including those employed in the transport of the ore to the surface. The sulphur in many mines is still carried to the surface on the backs of boys called 'carusi,' of whom there are about 3,500.

— Prof. F. H. Snow writes to the *Topeka daily capital* as follows: —

The climate of eastern Kansas is not the climate of western Kansas. Any discussion of this subject will be entirely inadequate which fails to recognize the fact that Kansas is meteorologically divided into two distinct regions, separated from each other by an intermediate area, whose climate exhibits a gradual transition between the eastern and the western sections. The inclusion of two such widely differing regions in one civil commonwealth has its disadvantages as well as its advantages. The striking adaptability of western Kansas to sustain the immense cattle interests of that section adds an important element of prosperity to the state; but the fact that thousands of new-comers, from ignorance of the climate, have attempted to introduce ordinary agricultural operations upon the so-called 'plains,' and have disastrously failed in the attempt, has placed an undeserved stigma upon the good name of Kansas in many far distant communities, and has undoubtedly somewhat retarded immigration during the past few years. It is time for the general recognition of the fact, that, except in the exceedingly limited area where irrigation is possible, the western third of Kansas is beyond the limit of successful agriculture. Yet this portion of Kansas, upon the basis of one individual to each ten acres, has the capacity to continuously sustain an aggregate of nearly two million head of cattle. The last biennal report of the State board of agriculture represents the total number of cattle in the entire state as less than one and a half millions, which is considerably below the number which might be supported by the western third of the state alone.

The average direction of the winds in eastern Kansas is from the south-west. The average velocity of the wind at Lawrence is a little more than fifteen and a half miles an hour. This is sufficiently high to assist materially the proper ventilation of our houses and our clothing, but does not justify the common expression in other parts of the country, that the Kansan lives in a continual gale. For the sake of comparison, it may be mentioned that the average hourly velocity of the wind in Philadelphia is eleven, at Toronto nine miles, and at Liverpool thirteen miles. The greatest velocity recorded at Lawrence was at the rate of eighty miles per hour, from 3.35 to 3.45 A.M., April 18, 1880. The average annual distance travelled by the wind at Lawrence is a little more than a hundred and thirty-eight thousand miles. March and April are the two windiest months, the velocity rising to nearly twenty miles an hour. July and August are the two calmest months, the rate subsiding to less than twelve miles an hour.

— The *Canadian naturalist*, which was discontinued last June, has re-appeared as the *Canadian record of natural history and geology*, published by the natural history society of Montreal. The former journal was published for the society by Messrs. Dawson Brothers. We regret the unnecessary change of title, when the scope of the journal is precisely the same as before, and it remains the organ of the same society.

— The belief of the Hawaiians, that the Achatinellae emit musical sounds, is an old one; and these pretty little mollusks were sometimes called 'singing-snails.' The Rev. H. G. Barnacle, M.A., of the Transit of Venus expedition in 1874, heard the music, which he compares to the sound of many aeolian harps. Hitherto the native story has not found credence among conchologists; but this gentleman succeeded in determining that the sound was due to the friction of the shells upon the bark of the trees, over which they are dragged by their inhabitants. As most of the species are arboreal, and they exist in millions, it is conceivable that the sound should be distinctly audible; yet that it should be in any way musical is singular.

— Miss Fannie M. Hele has recently observed the effect of food on a lemon-colored variety of Helix aspersa. A diet of lettuce reduced them to a dirty-brown yellow; and the more lettuce given to them, the darker and dingier the color of the shell became. A reversed specimen was bred from, in the hope of securing additional specimens of this rare variety; but to no purpose: the eggs, when hatched, produced only normal individuals.

— During the past year, four new additions were made to the group of small planets between Mars and Jupiter, making the number two hundred and thirty-five in all. No. 232, named Russia, was discovered the 31st of January, 1883, by Palisa, at Vienna: its magnitude is the twelfth, and the elements of its orbit exhibit no peculiarities. No. 233, not yet named, was discovered by Borelly, at Marseilles: its magnitude is the eleventh, and the elements of its orbit are as yet undetermined. No. 234, named Barbara, was discovered the 12th of August, 1883, by Peters, at Clinton: its magnitude is the ninth, and the elements of its orbit exhibit no peculiarities. No. 235, named Carolina, was discovered the 21st of November, 1883, by Palisa, at Vienna: its magnitude is the twelfth, and the elements of its orbit are as yet undetermined. The twelve small planets immediately preceding the above have received names as follows: —

220, Stephania.	224, Oceana.	228, Agathe.
221, Eos.	225, Henrietta.	229, Adelinda.
222, Lucia.	226, Weringia.	230, Athamantis.
223, Rosa.	227, Philosophia.	231, Vindobona.