was a defence of the last decision of the supreme court against the criticism of George Bancroft. Dr. A. B. Hart of Harvard read an amusing 'Biography of a river and harbor bill,' in which he traced the history of this bill for 1887 as an illustration of congressional methods and financial legislation. The paper by Col. Carroll D. Wright, on the 'Study of statistics in colleges,' was by many considered the most valuable of the meeting, and we are glad to learn that it will shortly appear in pamphlet form. Colonel Wright showed what Europe was doing in statistical studies, and paid a deserved compliment to Prof. Richmond M. Smith of Columbia for his work in this field. He pointed out the difficulty of applying statistics properly, and insisted on the necessity for trained statisticians. He would arrange the teaching of statistical science in three grand divisions: 1. The basis of statistical science, or, as it has been generally termed in college-work, the theory of statistics; 2. The practice of statistics, which involves the preparation of inquiries, the collection and examination of the information sought, and the tabulation and presentation of results; 3. The analytical treatment of the results secured. He remarked that our census could be more scientifically taken, could more of the subordinate workers be men who had had a statistical training.

The active work of both associations closed Tuesday evening. The closing papers before the Historical society were, 'The government of London,' by Prof. Arthur M. Wheeler of Yale university; 'Religious liberty in Virginia, and Patrick Henry,' by Charles J. Stillé, LL.D., of Philadelphia; 'The American church in history,' by Dr. Philip Schaff of Union theological seminary, New York; 'Brief report on historical studies in Canada,' by George Stewart, jun., president of the Historical society, Quebec. The following committee was appointed to urge congress to establish a national commission to collect and care for the manuscripts and documents relating to U. S. history: Justin Winsor, George F. Hoar, John Jay, Andrew D. White, Rutherford B. Hayes, Ainsworth R. Spofford, and President Dwight of Yale. The officers elected for the ensuing year were as follows: president, William F. Poole, Chicago public library; vice-presidents, President Charles K. Adams of Cornell, John Jay of New York; secretary, Prof. H. B. Adams, Johns Hopkins university; treasurer, Clarence W. Bowen, New York City; executive committee, Rutherford B. Hayes of Ohio, Prof. John W. Burgess of Columbia, Prof. Arthur M. Wheeler of Yale, and William Wirt Henry of Richmond.

The principal paper at the closing session of the Economic association was by Prof. Frank J. Goodnow of Columbia, and was on the 'Administrative aspect of municipal franchises and finance in Europe and America.' The paper was an able study in comparative administrative law, and commanded the closest attention. It was discussed by Professor Johnston of Princeton, Professor James of Philadelphia, Mr. Giddings of Springfield, Mass., and others. Professor Ely read his report, which spoke most encouragingly of the society's prospects. The total membership is now over three hundred, and much interest is shown in the work, even in England.

Pres. Francis A. Walker of Boston, and Dr. Nicholas Murray Butler of Columbia, were appointed a special committee to report on the economic effects of industrial and technical education in the United States. The officers elected were as follows: president, Francis A. Walker; vice-presidents, Prof. Henry C. Adams, Prof. E. J. James, Prof. J. B. Clark; secretary, Prof. R. T. Ely; treasurer, Dr. E. R. A. Seligman. On Wednesday, the 25th, both associations made an excursion to Plymouth, and dined together at the Samoset house. The meeting was a most successful one, and the officers of the Institute of technology and of Harvard university did every thing in their power to render it enjoyable. It is proposed to hold the next meeting at Columbus, O., in September, 1888.

NEW ZEALAND LETTER.

THAT portion of the year which extends from May to October inclusive, is the busiest in this part of the world for politicians, university men, and members of scientific and literary societies.

In matters political, the question upon which public opinion in the colony is being most exercised, and around which parties are gradually crystallizing, is that of free trade *v.* protection. This also is the question which will probably prove the one of chief interest outside our own borders; and those who have borne their part in the long-continued struggle still being fought out in the states, will naturally feel more or less interest as they see these small but growing Australasian communities entering upon the same struggle. We have two noted examples before us in Victoria and New South Wales: the latter — free trade to the backbone — is apparently far outstripping its rivals in the race for wealth and progress. One aspect of the question, on which, however, it is pre-eminently difficult to frame an opinion, is as to which of the two communities enjoys the greatest amount of social peace and harmony, and in which is there the least amount

of misery arising out of their commercial relations. In this colony the majority of the manufacturers are already heavily protected by the customs duties — amounting in most cases to about sixteen per cent *ad valorem* — which it has been found necessary to levy for revenue purposes. Without such duties, many of the manufactures now established, notably those of cloth, blankets, woodware, etc., would be quite unable to exist. But those directly interested are by no means satisfied with the measure of protection already enjoyed, and are clamoring for more. The coming parliamentary session will probably be marked by a determined attempt to commit New Zealand to a protectionist policy.

The university colleges, of which three are now well established at Dunedin, Christchurch, and Auckland, with a fourth about to be started in Wellington, open their sessions for the year either this or next month. The Canterbury (Christchurch) and Auckland colleges hold two sessions of a little over three months each, with a break of a month between; while the University of Otago (Dunedin) has only one six-months' session, the classes adjourning for a fortnight's necessary rest in the middle. The idea in the latter, which is founded on the lines of the Scotch universities, was to enable the students to teach six months, and study six months. It is found that but few can avail themselves of this plan, and an attempt has recently been made to assimilate all the colleges to one plan; but for the present this has not met with success. The present premier, who is also minister of education, Sir Robert Stout, is endeavoring to specialize the work of the different colleges, in order to prevent too much rivalry and clashing of interests. Thus Otago already possesses a complete faculty of medicine with a full staff of professors and lecturers, and is authorized to grant degrees of M.B. and C.M. Last session there were medical students, and the number is increasing yearly. As the university of Edinburgh accepts work done in Dunedin as equivalent to that done by their own extra-mural teachers, it has hitherto been usual for the Otago students to take two or three years' study here, and then go to Edinburgh for their degree. Now, however, that the medical staff is complete, the number who graduate here will steadily increase.

Otago also possesses a school of mines in connection with her university; but this Sir R. Stout wishes to transfer to Christchurch, which already has in Sir Julius von Haast of the Canterbury museum, and Prof. F. W. Hutton, two men widely known for their geological researches.

The University of New Zealand, to which these colleges and a few of the larger secondary schools are affiliated, is a somewhat anomalous body. It consists of a senate and convocation, endowed with powers to grant degrees and to manage their own internal affairs, and supported by a small annual grant from the government. But like the University of London, whose example it intended to follow, it has no teaching staff in direct connection with it, and, to suit the geographical conditions of the country, it is peripatetic, holding its annual session in one or other of the larger towns. Its headquarters for the time being will always be where its chancellor resides; and as that honorable position is held at present by Dr. Hector, the chief scientific adviser of the government, the seat of administration is in Wellington.

A vigorous effort has been put forth for the last two years to establish schools of mines in the principal mining-centres of the colony. Dr. J. G. Black, professor of chemistry in Otago university, is the leading spirit in this movement, which has been warmly supported by the government. Whether the attempt to popularize chemistry is altogether a wise one, in the way at any rate in which it has been done here, is a matter of opinion. Mere test-tubing, taught in a dozen lessons, will not convert a rough gold-miner into an expert mineralogist, yet this is too much the kind of thing which has been resorted to. In every mining-centre, large or small, testing-classes have been started, where hundreds of novices, destitute of the most elementary knowledge of chemical principles, are introduced to the art of the qualitative analysis of minerals. Whatever they learn, they don't get any scientific training. It is impossible, however, to deny that Dr. Black has exhibited immense enthusiasm and zeal in carrying out his plans; and if these result, as he hopes they will, in the ultimate establishment of properly equipped schools of mining, he will have achieved a noble work, in the success of which the earlier crude efforts will be forgotten.

There is immense room for improvement in methods of alluvial mining, and especially in the utilization of the fine gold of which so much is now lost. In the Laurence district of Otago, the famous Blue Spur cement, after being crushed and treated for gold, has been repeatedly washed; yet at the present day a considerable number of Chinese miners are still engaged turning it over and washing it, probably for the tenth time, and they make from eight to ten shillings a day, or more, at it.

An attempt to open up the West Coast sounds country this last summer has not been very successful. The dense forest vegetation and the generally inaccessible nature of the country have proved such difficulties that prospecting has been

greatly delayed. Until tracks fit for a horse to travel in have been cut through the bush, it will not be possible to open up this district, which in parts teems with mineral wealth. The excessive rainfall — which, however, has never been measured — makes life in that district rather miserable; while the hordes of bloodthirsty sandflies, which occur everywhere in the open country, tend at times to make it unendurable. G. M. T.

Dunedin, N.Z., April 20.

HEALTH MATTERS.

Ladies' health protective association.

THE Ladies' health protective association of New York, which was incorporated in 1884, has published its report for the years 1885 and 1886. The particular business and object of this society are stated in the certificate of incorporation to be the protection of the health of the people of the city of New York by taking such action from time to time as may secure the enforcement of existing sanitary laws and regulations, by calling the attention of the proper authorities to any violations thereof, and to procure the amendment of said laws and regulations when they shall be found inefficient for the prevention of acts injurious to the public health. Any lady residing in the city may become a member of the association, and any gentleman may be admitted as an advisory member. One of the first nuisances attacked by the association was the manure-yard of Michael Kane at the foot of East 46th Street, in which large quantities of stable-manure were accumulated. Kane had been indicted four years before, but the nuisance still continued. Another complaint was made to the grand jury, and three ladies of the association were summoned before that body to testify. He was again indicted, and subsequently tried and convicted, and the manure entirely removed. During one of the visits of a committee, its members were attacked by a mob, which necessitated police escort in their future investigations. The attention of the association was next directed to the slaughter-houses of the city. In the annual report it is stated that three interviews were had with the board of health to obtain the co-operation of that body in an effort to remove the slaughter-houses from the city limits, or else to compel them to conform to proper sanitary regulations. Meeting with no encouragement, a bill was prepared and submitted to the legislature, providing for better regulations for the slaughter-houses. A public meeting was held to sustain this movement, at which Hon. Noah Davis, chief justice of the supreme court, presided. The bill did not pass the legislature, but the efforts put forth by the association aroused the public attention and interest. In the following year the nuisance from accumulated manure again demanded interference. A bill was presented to the legislature, establishing a permanent dumping-ground between 95th and 97th streets and 1st Avenue and East River. Through the efforts of this association, the measure was defeated. The report states that the removal of stable-refuse, and its transportation through the city, are still subjects of annoyance and complaint, and that the ordinances limiting the hours and the manner of removal are continually disregarded. Efforts are being made to persuade railroad companies and others to bale the manure, and thus diminish the nuisance. The association has been informed by one of the large slaughterers of the city that he will build an *abattoir* which will be a model in every respect, and this is looked forward to as one method of lessening the nuisances connected with this business. The gas-works, and a section of the city known as 'Little Italy' between 5th and Madison avenues, east of Central park, have also engaged the attention of the members of the association. Examinations have also been made of numerous tenement-houses and schools. The association has demonstrated that a few determined persons, actuated by the public good, can accomplish a great deal in the way of reform, and we wish the association success in its work.

TYPHOID BACILLUS. — Dr. Sternberg has recently conducted some experiments as to the thermal death-point of the bacillus of typhoid-fever. A fresh culture of the organism was introduced into capillary glass tubes, which, after being hermetically sealed, were placed in a vessel containing water, and exposed to a constant temperature for ten minutes. At the end of this time the contents of these tubes are introduced into sterile flesh-peptone-gelatine contained in test-tubes. These are in turn placed in an incubating-oven, and exposed to a temperature of 20° to 22° C. If at the end of a week the organism has not developed, it may be taken for granted that it has been destroyed by the heat. After eight experiments of this kind, it was found that in no instance did the bacillus develop after it had been exposed to a temperature of 56° C., while in one experiment growth occurred after exposure to 55°. The thermal death-point of this bacillus may be safely placed at 56° C. (132.8° F.).

YELLOW-FEVER INOCULATION. — In 1885 and 1886, 6,524 persons submitted themselves to protective vaccination against yellow-fever in Rio