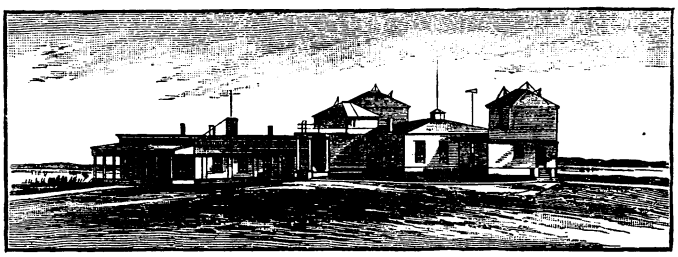
complement to Argelander's 'Uranometria nova' of the northern sky, was undertaken, and carried well toward completion, and published with star-charts in 1879, giving the estimated brightness of all southern stars, visible without telescopic aid, in about seventy grades of brilliancy. The observations for this work were made by the naked eye, or with ordinary binocular field-glasses, and entirely by the assistants; Dr. Gould's near-sightedness preventing his sharing immediately in the work, although he directed and overlooked its execution with the most minute carefulness. The zone observations, by which astronomers understand the determination of the position of stars observed in successive belts around the sky, every star being noted as it crosses the field of a meridian-circle telescope, were begun in August, 1872, and completed in 1875. In these, every one of the original telescopic observations was made by Dr. Gould; and they numbered over 105,000. Since 1875 the work of computation, revision, and publication, has occupied eight years, until now the finished catalogue is before us; and Dr. Gould may proudly feel his ambition satisfied in ending so well the work begun in outline by Lacaille with his little telescope at the Cape of Good Hope over one hundred years ago.



DR. GOULD'S OBSERVATORY AT CORDOBA.

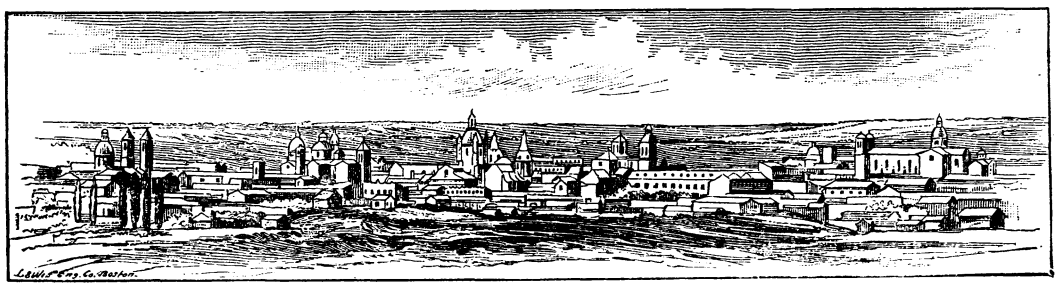
Among the younger men who have shared in Dr. Gould's labors at Cordoba, only one has remained with him through the many years since its beginning. We feel sure from the frequent mention, in the annals of the observatory, of the faithful services of Mr. John M. Thome, that the director will gladly see the name of this assistant associated with his own in our brief notice of the work they have accomplished together.

The first of the accompanying cuts, reproduced from sketches by a former assistant, shows the observatory and the director's house on the *barranca*, from which the second view, of Cordoba in the valley of the Rio Primero, is taken. The overshadowing of the town by the churches is characteristic of the place.

NOTES AND NEWS.

IN ACCORDANCE with a recommendation of the recent geodetic conference, a series of observations for latitude is to be made at the U. S. naval observatory, which, taken in connection with a similar series made elsewhere, and compared with observations made after an interval of some years, will assist in determining whether there are any slow changes taking place in latitudes upon the earth. Lisbon, which is very near the same parallel as Washington, is expected to co-operate with the naval observatory. The observations will be made with the prime vertical instrument; and at Washington a line-officer of the navy will be detailed for the work, which will probably require several years.

—Prof. F. H. Snow of the University of Kansas reports that only two Decembers (in 1872 and 1876) in the past seventeen years were colder than that just passed. It was the cloudiest December upon record, and the precipitation of rain and snow was more than fifty per cent above the average. Ice formed upon the Kaw River to the thickness of thirteen inches.



VIEW OF CORDOBA FROM DR. GOULD'S OBSERVATORY.

—The fifteenth annual meeting of the Wisconsin academy of sciences, held at Madison from Dec. 29 to Dec. 31, was unusually well attended. The academy expects to have suitable rooms assigned it in the capitol, on the completion of the additions to that building, in which its library and collections can be properly placed. The latter has become doubly valuable since the destruction of the scientific collections of the

state university, as it contains the only complete set of the Wisconsin rocks and fossils collected by the State geological survey. The sixth volume of the Transactions of the academy is nearly through the press, and will soon be distributed.

— The 'stately procession' of quarto volumes issuing from the census office has recently been increased by the addition of vols. ix. and x. The former consists of the report of Prof. C. S. Sargent upon the forests of North America (exclusive of Mexico). The six hundred and twelve pages of the report are divided into three parts. Part i., relating to forest-trees, sketches the general distribution of forests and of arborescent species and genera, while the great bulk of the chapter is devoted to an exhaustive descriptive catalogue of the forest-trees of the region. Part ii. treats of the economic qualities of the principal woods, their specific gravity, fuel value, strength, etc. Part iii. is devoted to the lumber industry, treating incidentally, also, of many minor points connected more or less directly therewith, such as forest-fires, the pasturage of woodlands, etc. The maps in the report, of which there are no less than thirty-nine, illustrate the different degrees of density of the distribution of woodland, the distribution of merchantable timber, and the areas deforested, the extent of forest-fires during the census year, and the character of the fuel used in various parts of the country. The report is accompanied by an atlas of cumbrous size, containing thirteen maps of the United States and of North America, illustrating the distribution of forests in general, and of a number of genera of forest-trees; showing the position of forest, prairie, and treeless regions, and the natural divisions of the North-American forests. Vol. x. contains three monographs bound together: 1°, 'On the production, technology, and uses of petroleum and its products,' by Prof. S. F. Peckham; 2°, 'The manufacture of coke,' by J. D. Weeks; and, 3°, 'Building-stones of the United States, and statistics of the quarry industry,' by George W. Hawes *et al.* The report upon petroleum is exceedingly full, comprising three hundred and one pages, illustrated by numerous cuts and maps. It is divided into three parts, the first of which relates to the history of the subject, the geology, geography, and chemistry of petroleum, and contains the statistics of production. The second is devoted to the technology of petroleum, and the third to its products and uses. The report upon coke (a hundred and fourteen pages) opens with the statistics of the industry, followed by descriptive matter relating to its extent and importance in the United States and in foreign countries, and closes with the chemistry and technology of the subject. The report is illustrated by numerous cuts. The report upon quarries and building-stones (four hundred and ten pages) opens with a discussion of general matters pertaining to the subject, followed by chapters upon microscopic structure and chemical composition of building-stones, and the methods used in quarrying. The statistics of the industry follow, accompanied by detailed descriptions of quarry regions. The succeeding chapter is devoted to the extent of stone-construction in the leading cities, in the course of which is found an admirable article upon stone-construction in New-York City, by Prof. A. A. Julien. This well-known authority makes a further contribution to the report in the form of a chapter upon the durability of building-stones in New-York City. The work is illustrated with eighteen heliotype plates from microscopic photographs of rock-slides, and thirty-two chromo-lithographs (by Bien & Co.) of polished rock-surfaces. These are among the finest specimens of the lithographic art which have yet been produced in this country.

— The bark Helen Isabel recently arrived at St. John, N.F. While in latitude 38° 51′ north, longitude 29° 55′ west, Dec. 18, a terrific earthquake was experienced, lasting fifteen minutes. The submarine roaring was appalling, and the vessel was shaken in every fibre. The weather was calm and fine at the time. This is of interest in connection with the recent earthquakes in Spain.

— The commander of the British steamship Bulgarian reports that on Dec. 29, in latitude 49° north, longitude 34° 30′ west, at two P.M., while the sea was smooth and the wind moderate from south and west, he ran through a regular bore. The water boiled and seethed. The surface of the bore was about two feet above the general level of the ocean, and its extent about six miles long and from three to five miles wide, moving to the north-east. This is a very unusual phenomenon for such a place.

— In a report by the committee on the metric system of weights and measures, of the Boston society of civil engineers, attention is called to a number of instances in which the metric system is now used in this country. A number of makers of surveyors' tapes now graduate them on the metric system, as well as in feet and inches. About the only case reported of the introduction of the system for trade purposes is that of the Minneapolis flour-mills, which put up flour in bags containing fifty and a hundred kilos, for export to Europe.

— A *Journal of mycology* is announced by W. A. Kellerman of Manhattan, Kan., under the charge of J. B. Ellis of Newfield, N.J., and W. A. Kellerman, as editors. It is proposed to make the journal a monthly of from twelve to fifteen pages. It is to be hoped that the undertaking may prove successful; but it is very doubtful whether there can be need for so special a journal, when we consider that it will be supported solely by American students.

— We have received a copy of an interesting statistical pamphlet, "Die stundenpläne für gymnasien, realgymnasien und lateinlose realschulen in den bedeutendsten staaten Deutschlands, zusammengestellt von G. Uhlig" (Heidelberg, *Winter*, 1884). The tabular views of each group of schools are first separately given; summaries compare in tables the number of hours given to each topic in the schools of the various states of the German empire; and seventeen closely printed pages of *resultate* discuss these statistics with great completeness, and yet with great condensation. It will be seen that we have here an

excellent means for finding what topics German schools of the various classes actually teach, and how much they teach of each topic to pupils of any given age. The accuracy of the pamphlet is vouched for by competent authority; and the whole may be warmly commended to every one who is engaged in the study of problems connected with elementary education. The general reader, also, will be interested in the suggestions that he can get at a glance from these tables concerning the character of German elementary education. Quotation is, on the whole, hardly possible where a book is already a model of condensation, and we shall not attempt it. But let no one pretend hereafter to pass judgment on the work of German schools without using the elementary facts as they are here presented.

— The Anthropological society of Washington has adopted the plan of so arranging its programme as to devote an entire evening to a single subject, or to subjects closely related. This adds much to the interest of meetings. The place of meeting in Columbian university building is convenient, and the attendance has lately been larger than ever before in the history of the society. On Jan. 20 is the annual election of officers.

— Sir William Thomson's lectures on molecular dynamics are now ready for delivery to subscribers. An edition of three hundred copies has been printed, and of these only seventy-five remain for sale. The volume contains three hundred and thirty-six pages in all. Sir William Thomson has sent, since his return to Europe, several pages of additional matter, which is given with the lectures. An index and bibliographical note have also been added.

— In a speech before the African conference at Berlin last November, Mr. Stanley, according to *Le mouvement géographique*, said, "The Kongo is, with one exception, the greatest river in the world, with the most extensive valley. No region, either equatorial or tropical, can rival it in fertility. There are great empires of natives, and republics, such as Uganda, Ruanda, Unyoro; a country of broad plains for the grazing of cattle, as the Masai Land. There are numerous deposits of gold and silver, and rich mines of copper and of iron. There are beautiful forests which produce woods of an inestimable value, India-rubber in inexhaustible quantities, gums, and precious spices. There pepper and coffee are grown. There are tribes susceptible of appreciating the advantages of civilization, provided they are protected against the attacks of brigands and the ambuscade of the slave-trader. In my opinion, these facts are sufficient to justify my proposition to define, by means of the easily ascertained limits I have proposed, the frontiers of the free commercial territory of equatorial Africa, and to guarantee the freest possible access as well from the east as from the west."

— The advice to explore the high peaks and little-known parts of the Caucasus, given to experienced Alpine travellers in the early part of the year, by D. W. Freshfield, in the *Alpine journal*, has already borne some fruit. The well-known Hungarian mountaineer, Moritz v. Déchey, was the first on the ground. On the 24th of July, he, in company with two Swiss guides, made the first ascent of the 15,500-feet-high peak of Adni Choch, after overcoming great difficulties. On the 23d of August followed the ascent of the highest western peak of the Elbrus, which had been previously accomplished but once, — by Grove in 1874. During the journey, which led from the Arden valley, over the high passes of the Elbrus, photographs and measures of elevation, which have hitherto been entirely wanting from the central Caucasus, were taken.

— Dr. Brieger of Berlin has made a special study of the ptomaines; i.e., the chemical poisons resulting from the action of bacteria upon animal substances. By digestion of albuminous bodies in gastric juice, he obtained a toxic substance, to which he has given the name peptotoxin. From putrid flesh he obtained two bodies, — one a diamin of the composition $C_5H_{14}N_2$, a body which he calls neuridin, which, when pure, is devoid of toxic action; and, as the second product, neurin, a substance with decided poisonous properties, antagonized by atropin. By the putrefaction of fish-flesh, another diamin was discovered, ethylendiamin, — $C_2H_4(NH_2)_2H_2O$, — a powerful poison; also muscarin, and a body which Brieger provisionally calls gadinin ($C_7H_{17}NO_2$). It is interesting to note that the character of the ptomaines formed, depends somewhat upon the character of the material used: thus, neurin is found only in the putrefaction of flesh; while muscarin, ethylendiamin, gadinin, and triethylamin are specific products of fish putrefaction, and dimethylamin of gelatin putrefaction. His work also indicates that the ptomaines should be divided into the poisonous and non-poisonous.

— The *Journal of the Society for psychical research* for November (for circulation among members only) contains an interesting account of Professor Barrett's visit to America, and the steps which led to the formation of an American society of similar name. Professors Bowditch, Fullerton, Stanley Hall, James, Carvill Lewis, and Pickering have been chosen corresponding members of the London society.

— Among recent deaths we note the following: Hermann Kolbe, professor of chemistry at Leipzig, Nov. 26, at the age of sixty-six; Dr. Heinrich Bodinus, director of the Berlin zoölogical gardens, at Berlin, Nov. 23, at the age of seventy-one; Dr. Karl von Vierordt, at Tübingen, Nov. 22, at the age of sixty-seven; Henri Lortique; A. W. Thienemann at Zangenberg, Nov. 5, at the age of fifty-four; Alfred Brehm, at Renthendorf, Nov. 11, at the age of fifty-five; Professor Edmund Tömösvary, at Deva, Aug. 18; Charles Tulasne, at Hyères, Aug. 21, at the age of sixty-eight; Richard Townsend, professor of mathematics at Dublin university; Arthur Henninger, chemist, at Paris, in November; Dr. Thomas Wright, at Cheltenham, Nov. 17; Dr. W. von Wittich of the University of Konigsberg, Nov. 21; Henry Lawrence Eustis, professor of engineering at Cambridge, Mass., Jan. 11, in his sixty-sixth year.