ergetic campaign against the consular inquiries. They have to admit, however, that the reports of the American Consuls are most valuable, and they regret that German Consuls do not show the same enterprise. Naturally the German manufacturers are the first people to take exception to the splendid work which our Consuls are doing, for we are rapidly competing with Germany in many markets which she formerly held as her own. We hope that our Consuls will be able to continue to carry out their good work and that the value of their reports will not be impaired by refusals to give information.

These reports have become so far recognized as being of great value to our manufacturers that we publish the shorter and more important of these reports weekly in the SUPPLEMENT of the SCIENTIFIC AMERICAN, and we also publish a weekly index giving a complete list of all the reports issued by our Consuls.

AMERICAN MACHINE TOOLS IN ENGLAND.

Our esteemed contemporary, Industries and Iron, of London, has this to say regarding the increasing importation of American machine tools into England, and the causes therefor:

"It is in one sense gratifying, though not in another, that such a brisk trade is being done in this country with the United States in the importation of automatic machine tools. This trade is increasing day by day, since each machine acts as a kind of advertisement for another. Standard patterns and tools that do the most work in the least time, and at the least expense, are mainly accountable for the inroads which have recently been made to the prejudice of the engineering trades of this country. The recognized superiority of America in class tools is unreservedly recognized, though hypotheses vary as to the causes which have brought about this distinction. The general, though as we think erroneous, impression is that these highly elaborated machines have been brought to their present state of perfection through the absence in the States of what is commonly termed "cheap labor.". We do not accept this as a tenable theory. Owing to circumstances, the inventive faculty is far more strongly developed in the United States than in this country. In America an inventive idea is regarded as a kind of marketable commodity, while in Great Britain the troubles of the inventor in getting his invention, however meritorious, into commercial form, are proverbial. For this the patent laws of this country are largely accountable. In both the United States and Germany the granting of a patent is a serious process, and one exercised with the greatest possible discrimination. Here anyone may obtain a patent for almost anything, so long as the fees are paid. The consequence is, that while both an American and a German patent are possessed of a certain, though doubtless undetermined, value, owing to the fact that their substance matter has been examined and judged patentable, in England the value of a patent is practically nothing."

It must be admitted that the above estimate of the situation is in the main correct, although there is one important particular to which we must take exception. While the average English patent has no such value as the American or German patent, an exception must be made in the case of the American inventor who, having secured the allowance of his United States patent, proceeds to take out a patent on the same invention in England.

An American patent is only granted after a thorough and painstaking search, not merely of American but all foreign records, has been made and the element of novelty has been clearly established. Hence an American inventor who applies for an English patent stands in the advantageous position of knowing that the novelty of his invention has already been well established, the claims having been drawn to avoid interference with prior English patents. It is obvious, therefore, that when our contemporary says, "in England the value of a patent is practically nothing," it says too much, the English patent of an American patentee having a special value due to the research and care with which the claims have been drawn.

THE HEAVENS IN MAY.

BY GARRETT P. SERVISS.

At 9 o'clock P. M. in the middle of May, the observer of the heavens will notice, directly in the south, a somewhat conspicuous quadrilateral figure among the stars. It is the constellation Corvus. Just above it Virgo appears, with her head upon the meridian and her feet far off toward the east, while her brightest star, Spica, glittering near her girdle, is clearly outshone by the planet Jupiter, which seems to be following from the east. Almost in the zenith a sprinkle of small stars indicates the presence there of Berenice's Hair, while between the zenith and the Pole Star the Great Dipper is balanced across the meridian, the handle to the east and the bowl to the west. Following the arch of the Zodiac westward appear Leo, Cancer, and Gemini, the latter near its setting point. East of Berenice's Hair and north of Jupiter is the great star Arcturus, with the circlet of the Northern Crown not far away toward the northeast. Below the Northern Crown, the eye, glancing toward the left hand, catches the brilliant rays of Vega in the constellation Lyra. The quadrilateral figure between the Northern Crown and Vega is the central part of the constellation Hercules, and the famous "Great Cluster" of Hercules is between the two stars of the quadrilateral next to the Crown, and nearest to the northern one. A small telescope will show it, on a moonless night, like a round twinkling nebula. Low in the southeast the reddish star Aldebaran has just risen.

THE PLANETS.

Mercury is a morning star, best seen about the 9th or 10th, an hour before sunrise. It is not, however, well placed for observation, and, being near aphelion, its brilliancy is diminished. It is in the constellation Pisces.

Venus is also a morning star, in Pisces, further west than Mercury, and, of course, more conspicuous. It is slowly overtaking the sun in its eastward motion.

Mars is in the constellation Cancer, between the stars Gamma and Delta, and does not set until late in the evening. The last opposition of Mars seems to have yielded little information to the astronomers. The distance between it and the earth is still rapidly increasing.

Jupiter, in Virgo, rises before sunset and crosses the meridian before midnight at the beginning of the month. Some remarkable changes in the appearance and arrangement of its belts have occurred, and the possessor of a four to six inch telescope will be repaid for any study he may devote to it. On the 5th, at 9:55 P. M., Eastern time, the shadow of Satellite I will appear on the planet. On the 6th, at 9 h. 21 m. 35 s., Satellite I will reappear from eclipse, close to the planet on the east side, a phenomenon worth witnessing, and readily visible with a small telescope. On the 13th the shadow of Satellite II will be seen on the planet after about 7:45 P. M., while Satellite I will be occulted at 8:40. On the 20th, after 10:30 o'clock, the shadows of both Satellites II and III will be seen on the planet, the former in advance and passing off a few minutes after 11 o'clock. On the 29th Satellite I will reappear from eclipse at 9 h. 32 m. 21 s., and Satellite II at 9 h. 52 m. 05 s.

Saturn, in Ophiuchus, just north of Scorpio, rises about 8 o'clock P. M. in the middle of the month. It will come into better position for observation in June.

Uranus is an hour ahead of Saturn in rising, but is also in the constellation Ophiuchus, north of the star Antares. It is in opposition to the sun on the 27th.

Neptune is in Taurus about a degree northerly from the star Zeta.

THE MOON.

New moon occurs on the 9th about noon, first quarter on the 17th about noon, full moon on the 24th about midnight, and last quarter on the 2d about noon.

The lunar conjunctions with the planets take place on the following dates: Venus, 7th; Mercury, 7th; Neptune, 12th; Mars, 16th; Jupiter, 22d; Uranus, 25th; Saturn, 26th.

The moon is in perigee on the 1st, and in apogee on the 16th.

NATIONAL ACADEMY OF SCIENCES.

BY MARCUS BENJAMIN, PH.D.

The regular annual session of the National Academy of Sciences began its meetings in Washington on April 18. The place of meeting was the auditorium of Columbian University. This organization, as is well known, holds an advisory character to the government, and by law is required to meet on the third Tuesday in April of each year at the capital. Its membership, which is limited to 100, includes only the most distinguished representatives in the various branches of science.

The special interest that is attached to the spring meeting is the business that is transacted, and on the present occasion the various matters discussed made the meeting an important one. The presiding officer was Dr. Wolcott Gibbs, of Newport, R. I., who is now one of the three surviving original founders of the academy. It is not possible to discuss the various papers that were presented before the academy, and we must therefore content ourselves with simply mentioning their names. This action is almost necessary for the reason that many of the distinguished speakers content themselves with simply announcing the papers that they have prepared by title, while others whose papers are more lengthy describe them to the academy in a short extempore summary of their contents. It may be said, however, that the papers by Mr. Charles D. Walcott, Superintendent of the United States Geological Survey, and that by Mr. Henry S. Pritchett, Superintendent of the Coast and Geodetic Survey, and also that by Prof. Newcomb, were essentially descriptive of the work accomplished by the offices under their supervision.

"On the Diamond and Gold Mines of South Africa," "On the Tawner Deep Sea Tow Net," by Alexander Agassiz; "On the Acalephs of the East Coast of the United States," by Alexander Agassiz and A. G. Mayer; "On the Limestones of Fiji," by E. C. Andrews; and "On the Bololo of Fiji and Samoa," by W. McM. Woodworth, both of which were communicated by Alexander Agassiz; "On the Development by Selection of Supernumerary Mammæ in Sheep," and a discussion "On Kites with Radial Wings," by Alexander Graham Bell; "Ophiura Brevispina," by William K. Brooks and Caswell Grave; "The Shadow of a Planet," by Asaph Hall; "Remarks on the Work of the Nautical Almanac Office During the Years 1877-98 in the Field of Theoretical Astronomy," by Simon Newcomb; "The Resulting Differences Between the Astronomic and Geodetic Latitudes and Longitudes in the Triangulation along the Thirty-ninth Parallel," by Henry S. Pritchett; and "Progress in Surveying and Protection of the United States Forest Reserves," by Charles D. Walcott.

Of the public business transacted by the academy the following may be mentioned: The six members of the council that were elected were as follows: Prof. Simon Newcomb, Dr. Samuel P. Langley, Mr. Arnold Hague, Prof. George J. Brush, Prof. Henry P. Bowditch, and Dr. John S. Billings. The society has received by bequest on several occasions sums of money which have been invested so as to produce an income for the purpose of conferring medals upon men who have achieved special eminence in certain directions, and the Watson medal, founded by the widow of Prof. James C. Watson, which is of this character, was awarded to Mr. David Gill, the official astronomer of Great Britain at the Cape of Good Hope. The special work for which it was conferred was the perfection of the application of the heliometer to astronomical measurements.

An important feature of the spring meeting is the election of new members, and for the first time in several years the full quota of five, which is the limit imposed by the constitution, was elected. The successful candidates were as follows: Charles Emerson Beecher, who is connected with the paleontological department of Yale University, and who was for many years an assistant of the late Prof. Othniel C. Marsh; Prof. George C. Comstock, the astronomer who holds the office of director of Washburn Observatory in Madison, Wis.; Prof. Theodore William Richards, who is assistant professor of chemistry in Harvard University and the successor of the late Prof. Josiah P. Cooke. Prof. Richards' work on atomic weights has gained for him a more than national reputation; Edgar F. Smith, professor of chemistry in the University of Pennsylvania, whose specialty is the electrolytic deposition of metals; and Edmund B. Wilson, the biologist, who is connected with Columbia University, in New York city.

The Washington Academy of Sciences, a body that has recently been organized, tendered the National Academy a reception, at which a lecture was given by Prof. R. W. Wood, on the subject of photography of sound waves and color photography—arts in which this gentleman has done much that is new within the past few months. His remarks on photographing sound waves were of unusual interest, because they were accompanied by stereopticon slides portraying sound waves in motion, and were, it is claimed, the first ever produced in which the original and reflected waves were both represented on the plates. His exhibition of color photography was equally interesting, and his method of producing directly from nature photographs in the natural colors seems to promise success.

The usual social entertainment on this occasion was given by Prof. Alexander Graham Bell.

A PARISIAN EGG FORGER.

An egg forger has been recently exposed in Paris. Eggs are about the last thing that one would expect to be forged, but it should be remembered that there are many collectors of birds' eggs who are willing to pay a high price for rare birds' eggs. A visitor saw this clever forger make a penguin egg which could not be distinguished from the real one that served him for a model. He made the egg of plaster of Paris which he burnt and glazed. The egg was intended for a man who furnished eggs for a foreign scientific collection. It is not very difficult to impose on even experienced scientists, for among the real eggs of most species there are so many varieties that even the most practiced expert could not readily distinguish all of them. The eggs of the common fly catcher are very cheap and by chemical treatment they acquire a bluish, green, shiny color, and are then sold at high prices as the eggs of the silk tail. From common ducks' eggs are fabricated eggs of a falcon, being given a silver green color for the purpose. The pigeon and wood pigeon eggs are also transformed into rarer products of birds. Nightingales' eggs are difficult to procure and are therefore rare. They are successfully imitated by coloring larks' eggs brown. For a long time the egg forger was an assistant in a natural history museum in the provinces. There have been other cases of forgery of very rare birds' eggs, but these were only made of excessively rare eggs, and their manufacture did not constitute a permanent means of livelihood.