destructive effect upon the surrounding country. The water is drawn off by artificial canals and spreads quietly over the adjacent country. The Mississippi on the oth r hand works far more harm in many of the inundated districts than any richness it may impart to the soil can compensate. If the velocity of the overflow waters exceeds a certain rate, it begins to exercise a loosening and cutting effect upon the soil, carrying away the rich loam and laying bare the coarser gravel and rocks. Moreover, the seasons are too brief to permit the bottom lands of the Mississippi to lie so long under water. By the time the waters have receded, and the lakes and large pools left in the hollows have dried up, the season is too far advanced for the crops to be put in to good advantage. The equable climate of the Nile valley, on the other hand, presents no difficulties due to the shortness of the seasons.

THE HEAVENS FOR JUNE.

BY WILLIAM R. BROOKS, M.A., F.R.A.S.

THE SUN.

The sun's right ascension on the first of the month is 4 h. 39 m. 25 s.; and its declination north 22 deg. 9 m. 43 s.

On the last day of the month its right ascension is 6 h. 39 m. 34 s.; and its declination north 23 deg. 8 m. 31 s.

On the twentieth day of June the sun reaches its greatest northern declination, 23 deg. 27 m. 12 s., and entering Cancer, summer commences.

MERCURY.

Mercury is morning star. On June 2 it is stationary. On June 15 Mercury reaches its greatest elongation west of the sun, 23 deg. 4 m., and this will be the most favorable time to see Mercury, either with the naked eye or telescope, as morning star. On the same date that this planet reaches its greatest elongation from the sun, but five hours later, it is at its greatest heliocentric latitude south. On June 28, at 7 h. 26 m., Mercury is in conjunction with the moon, when Mercury will be 5 deg. 11 m. south of the moon. On June 29 Mercury is in conjunction with Neptune, when Mercury will be only 14 minutes of arc south of Neptune, or less than half the apparent diameter of the moon.

The right ascension of Mercury on the first of the month is 3 h. 38 m. 0 s.; and its declination north 15 deg. 29 m. 18 s. On the last day of the month its right ascension is 5 h. 34 m. 57 s.; and its declination north 22 deg. 37 m. 24 s.

VENUS.

Venus is now morning star and is at its greatest brilliancy on June 3. Throughout the month it will be found to be the same gorgeous object as morning star that it was for so many weeks as evening star.

Venus will be so bright during June as to be easily seen with the naked eye in the daytime if its position be even approximately ascertained. On June 15 Venus will be on the meridian or due south at 9 o'clock A. M. at an altitude of 12 deg. 38 m. above the celestial equator. This, for the latitude of the middle States, would be from 12 deg. to 15 deg. above the half way point from the horizon to the zenith. These directions will apply with sufficient accuracy for several days before and after the above named date.

On June 25, at 3 h., Venus is in aphelion, or in that part of its orbit farthest removed from the sun. On June 26, at 1 h. 4 m., Venus is in conjunction with the moon, when the planet will be 8 deg. 38 m. south of the moon.

On the first of the month Venus rises at 2 h. 47 m. A. M., and crosses the meridian at 9 h. 25 m. A. M. On the last day of the month Venus rises at 2 o'clock A.M. and crosses the meridian at 8 h. 52 m. A. M.

The right ascension of Venus on the fifteenth day of the month is 2 h. 42 m. 18 s.; and its declination north 12 deg. 37 m. 53 s.

MARS.

Mars is evening star, and in the constellation Cancer, about half way up the western sky at dusk. Its orbital motion is plainly marked from night to night, with reference to the two bright stars Castor and Pollux in Gemini, and the little cluster called the Bee Hive, in Cancer, toward which Mars is now moving.

On June 5, at 6 h. 10 m., Mars is in conjunction with the moon, when Mars will be 1 deg. 49 m. north of the moon.

On June 1 Mars crosses the meridian at 4 P. M., and sets at 11 h. 15 m. P. M. On June 30 Mars crosses the meridian at 3 h. 15 m. P. M., and sets at 10 h. 5 m. P. M.

The right ascension of Mars on June 15 is 10 h. 20 m. 36 s.; and its declination north 11 deg. 45 m. 48 s.

JUPITER.

Jupiter is evening star, and in excellent position for telescopic scrutiny in the early evening hours. After remaining apparently stationary for several days within two degrees to the eastward of Regulus, Jupiter is now moving slowly away from the star and toward the east, thus affording another interesting illustration of a planet's orbital motion among the stars.

The following are some of the interesting phenomena of Jupiter's satellites:

On June 5, at 8 h. 16 m., the shadow of satellite I will enter upon the disk. At 9 h. 4 m. satellite IV will disappear in occultation. At 9 h. 20 m. satellite I will leave the disk of the planet, and at 10 h. 35 m. the egress of the shadow of satellite I will follow.

On June 12, at 8 h. 58 m., satellite I will enter in transit; and at 10 h. 11 m. the shadow of satellite I will enter in transit.

On June 19, at 8 h. 0 m., satellite II will pass off the disk; and at 10 h. 15 m. the shadow of satellite II will leave the disk.

On June 26, at 7 h. 52 m., satellite II will enter upon the disk in transit; and at 10 h. 14 m. the ingress of the shadow of satellite II will occur.

On June 7, at 1 h. 30 m., Jupiter will be in conjunction with the moon, when the planet will be 3 deg. 43 m. north of the moon.

On the first of the month Jupiter crosses the meridian at 5 h. 35 m. P. M., and sets at 20 m. after midnight.

On the last of the month Jupiter crosses the meridian at 3 h. 55 m., and sets at 10 h. 30 m. P. M.

The right ascension of Jupiter on June 15 is 10 h. 24 m. 19 s.; and its declination north 11 deg. 10 m. 58 s.

SATURN.

Saturn is in the southeastern evening sky, and good telescopic observations may be made after 9 o'clock, although its southern declination is an unfavorable feature.

On the first of the month Saturn is on the meridian at 10 h. 55 m. P. M., and this would be the best hour to observe this interesting planet.

On June 12, at 9 h. 31 m., Saturn is in conjunction with the moon, when the planet will be 7 deg. 15 m. north of the moon. The right ascension of Saturn on the fifteenth of the month is 15 h. 34 m. 43 s., and its declination south 16 deg. 58 m. 38 s.

URANUS AND NEPTUNE.

Uranus is also in the southeastern evening sky just below Saturn. On June 18, at 8 P. M., Saturn and Uranus are in conjunction, when Uranus will be 2 deg. 3 m. south of Saturn, a most favorable opportunity to identify this far-away world.

Neptune comes into conjunction with the sun on June 10 and hence is invisible.

Smith Observatory, Geneva, N. Y.

JOHN M. THATCHER.

Ex-Commissioner of Patents John M. Thatcher died recently at Proctor, Vt. He was born at Barre, Vt., in 1836, and received a common school education, and finally graduated at the University of Vermont. He fought in the civil war. After being mustered out of service he engaged in teaching. He received an appointment as a clerk in the Patent Office in 1864 and was assigned to duty in the examining corps. He seemed exactly suited to the business, and in less than twelve years he was at the head of the Patent Office as Commissioner, passing through each one of the intermediate grades in turn. During this time he studied law and was admitted to the bar in 1870. In 1875 he resigned the office of Commissioner and became the law partner of L. L. Coburn. Mr. Thatcher was, with one exception, the only person who ever rose from the grade of clerk in the Patent Office to that of Commissioner. As Commissioner his decisions evinced the most painstaking and thorough study of the cases.

In 1871 he was appointed a member of the Civil Service Sub-Commission of the Interior Department. He exercised a controlling influence in carrying into effect reforms in the appointments and promotions in the executive departments in Washington. He was an excellent illustration of the possibility open to the youth of America who is possessed with an indomitable will, patience and intellectual ability.

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS.

The annual business meeting of the Institute was held on May 18, at 12 West Thirty-first Street, New York City, and was called to order by President Duncan at 4 P. M. The counting of the ballots by Mr. Hamilton and Dr. Pupin, who were appointed tellers, resulted in the announcement of the election of the council ticket as follows:

For President, Dr. Francis B. Crocker, of New York City; for Vice Presidents, Dr. A. E. Kennelly, of Philadelphia, Pa., Mr. Chas. S. Bradley, of New York City, Prof. Dugald C. Jackson, of Madison, Wis.

The announcement by the tellers of the election of Dr. Crocker was greeted with hearty applause, and the President-elect was escorted to the chair and briefly acknowledged his appreciation of the honor bestowed upon him.

The report of the committee on a new design for the Institute badge, which had been referred to this meeting by the Executive Committee, was taken up and thoroughly discussed, resulting finally in the adoption of the new design recommended by the committee. Arrangements for the withdrawal of the old design and substitution of the new one will be made at an early date.

The paper on "The Synchronograph," presented April 21 by Dr. Crehore and Lieut. Squier, was then taken up for discussion. Mr. F. W. Jones opened the discussion, which was participated in by Dr. Kennelly and Mr. Delany. A paper on "The Application of Hyperbolic Analysis to the Discharge of a Condenser" was presented by Dr. Macfarlane. Owing to lack of time, discussion was postponed until the general meeting, July 26.

A 7 P. M. the meeting adjourned and the members reassembled at the "Arena," 41 West Thirty-first Street, where arrangements had been made for the annual dinner under the direction of Mr. Herbert Laws Webb, chairman of the Committee on Papers and Meetings, and Mr. T. C. Martin. Although a sudden increase of about fifty per cent in the number of guests necessitated the laying of ninety-three covers, the overflow was provided for, and the event passed off pleasantly under the skillful guidance of Toastmaster Martin. Toasts were responded to by Dr. F. B. Crocker, Mr. F. W. Jones, Dr. M. I. Pupin, Dr. C. E. Emery. Dr A. E. Kennelly, Mr. Ralph W. Pope, Mr. J. W. Lieb, Jr., Mr. Herbert Laws Webb, Mr. Nelson W. Perry and Mr. Joseph Sachs.

The exercises were interspersed with instrumental and vocal music by Mr. George Hali Guy and Mr. Charles McL. Paine. Mr. Guy played a waltz of his own composition, which he dedicated to the American Institute of Electrical Engineers.

SUNDAY FEEDING.

Under the heading of the "Sunday Penalty of Irregular Feeding" the Medical Record points out that in our progress from barbarism we have evolved a people with whom regularity in eating is absolutely necessary to good health. As a result of this artificial existence, the secretions are poured out and ready for action with the monotony of clockwork. If this custom is neglected, the violator not only suffers bodily discomfort, but an actual injury is done to the digestive apparatus, which has been so educated that it requires a definite amount of exercise and positive promptness in feeding that requirement. The stomach having poured out its secretions, as customary, waits only a short time before allowing them to be absorbed without the accompanying nutrition which goes to the formation of more secretions. After a few such experiences, the secretions become less in amount and activity, and indigestion ensues. Dyspeptics are ordered to eat at inflexibly regular intervals. Normal stomachs are by no means many, yet this rule, so imperative to sufferers, is regularly disregarded by the well. Once a week, the three regular daily meals are replaced by late rising and abstinence, followed by gluttony. The gastric juices know nothing of a seventh day of "rest," and the result is discomfort, stupidity and loss of appetite on Monday.

ST. PETERSBURG-PEKIN RAIL ROUTE.

The British Trade Journal says: "Speculations are being made as to the effect of railway communication between St. Petersburg and Pekin. It is pointed out that when such a line of railway is in working order St. Petersburg would be only five days and London only eight days from the Chinese capital. It is asked, what would be the effect upon British trade with China? That all depends upon the cost of sea as compared with railway carriage. Estimating the railway rates at the low average of seven miles for 1d., which prevails to a large extent in the United States, the cost of sending goods from St. Petersburg to Pekin at the same rate would mean a total charge of about 50s. per ton—a figure which does not compare favorably with the present rates of transport by sea, so that the Russo-Chinese line would not have much effect upon the trade between British ports and Hong-Kong. Yet if Russia develops her manufacturing enterprises, it would ultimately lead to severe competition. In the event of such a Russian state line carrying goods to China at a nominal rate, we would find our trade with Chinese ports being affected in the same way by low railway rates as our trade with southeastern Europe, where the Germans and Austrians are able to send goods very cheaply compared with the cost of sea carriage from London."

JUDGE GREELEY, ASSISTANT COMMISSIONER OF PATENTS.

We are pleased to note that Judge Greeley, heretofore one of the Examiners in Chief at the United States Patent Office, in Washington, has been made Assistant Commissioner of Patents, Examiner Steward succeeding Judge Greeley in the Board of Examiners. It will be remembered that Judge Greeley was one of the judges to pass on the SCIENTIFIC AMERICAN prize essay contest, for our fiftieth anniversary number, last year. Judge Greeley is a graduate of Dartmouth College, and a lawyer by profession. He entered the Patent Office as a fourth assistant examiner in 1884. He has served in the practical work of the office in many divisions, and has had under his own personal consideration and examination nearly every important art represented in the Patent Office. The promotion is eminently proper and well deserved.