to them for publication, and asked for an appropriation of *three hundred dollars*, for publication purposes, which was granted.

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*Stated Meeting, April 2.*

Present, twenty-one members.

Dr. Franklin Bache, Vice-President, in the Chair.

Letters were read:—

From the Imperial Society of Naturalists of Moscow, dated 1—15 Sept. 1851; and from Wilhelm Braumüller, on behalf of the Imperial Academy of Sciences of Vienna, dated Vienna, 24th October, 1851, announcing the transmission of donations for the Library of the Society:—

From the Royal Society of London, dated Somerset House, Feb. 15, 1852, returning thanks for No. 46 of the Proceedings of this Society:—

From the Smithsonian Institution, dated Washington, March 24, 1852;—and from the Lyceum of Natural History, dated New York, March 24, 1852, acknowledging the receipt of the Proceedings, No. 47: and—

From Mr. George Parish, dated Ogdensburg, N. York, 24th March, 1852, in answer to a letter addressed to him by the Secretary of this Society, as directed at the meeting on 6th of February last.

The following donations were announced:—

FOR THE LIBRARY.

Philosophical Transactions of the Royal Society of London, for the year 1851. Part 2.

Proceedings of the Royal Society. Vol. V. No. 76. Vol. VI. Nos. 78 to 82.

List of Officers and Fellows of the Royal Society, 30th Nov. 1851. London. 4to.—*From the Society.*

Memoirs of the Royal Astronomical Society: Vol. XX., being the Quarto Half Volume for the Session of 1850–51. London. 4to.—*From the Society.*

Monthly Notices of the Royal Astronomical Society, containing Papers, Abstracts of Papers, and Reports of Proceedings of the Society, from November, 1850, to June, 1851. Vol. XI. London. 8vo.—*From the same.*

Journal of the Royal Geographical Society. Vol. XXI. 1851. London. 8vo.—*From the Society.*

Astronomical and Magnetical and Meteorological Observations, made at the Royal Observatory, Greenwich, in the year 1850, under the direction of Geo. Biddell Airy, Esq., M. A., Astronomer Royal, &c. London, 1852. 4to.—*From the Royal Society.*

Journal Asiatique. IV. Série. Tome XVIII. Paris, 1851. 8vo.—*From the Asiatic Society of Paris.*

Annales des Mines. IV. Série. Tome XX. 4 livraison de 1851. Paris. 8vo.—*From the Engineers of l'Ecole des Mines.*

Bulletin de la Société Impériale des Naturalistes de Moscou. Année 1851. No. 2. Moscou. 8vo.—*From the Society.*

Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. Phil. Hist. Classe. Jahrgang, 1851. VI. Band, 1, 2, 3, 4, 5 Heft. VII. Band, 1 Heft. Vienna. 8vo.—*From the Imperial Academy of Sciences, Vienna.*

Archiv für Kunde Oesterreichischer Geschichts—Quellen. Jahrgang, 1850. II Band, 3, 4 Heft. 1851. I Band, 1, 2, 3, 4 Heft. Vienna. 8vo.—*From the same.*

Fontes Rerum Austriacarum.—Oesterreichischer Geschichts—Quellen. Zweite Abtheilung. Diplomataria et Acta. IV. Band. Vienna, 1851. 8vo.—*From the same.*

Notizenblatt. Beilage zum Archiv für Kunde österreichischer Geschichtsquellen, &c. Nos. 2—18.—*From the same.*

Archæologische Analecten. Tafeln zu den Sitzungsberichten der Phil. Historische Classe der K. Acad. der Wissenschaften. Band VI. Heft. 1, 2. 3. 1850. Von Joseph Arneth. Vienna. Folio.—*From the same.*

Die Alterthümer vom Hallstätter Salzberg und dessen umgébung. Von Friedrich Simony. Beilage zu den Sitzungsberichte der Philos. Histor. Classe der Kais. Acad. der Wissenschaften. Band IV. 1850. Vienna. Folio.—*From the same.*

Uranus.—Synchronistisch geordnete 'Ephemeride aller Himmelserscheinungen des Jahres, 1849, 3 and 4 Quartal: 1850, erstes Quartal: 1851, zweites Semester: 1852, erstes semester. Herausgegeben von der Königl. Universitäts—Sternwarte zu Bres-

lau. Breslau. 8vo.—*From the Observatory at Breslau. Dr. J. G. Galle.*

Memorie della Reale Academia delle Scienze di Torino. Serie Seconda. Tomo XI. Torino. 1851. 4to.—*From the Royal Academy of Sciences, Turin.*

Collections of the New York Historical Society. Second Series. Vol. II. Parts 1, 2. 1848, 1849. N. York. 8vo.—*From the Society.*

Report of the Secretary of War, communicating Reports in reference to the Inundations of the Mississippi river. Washington, Jan. 21, 1852. 8vo.—*From Hon. James Cooper.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M. D., &c. &c. No. XLVI. New Series. April, 1852. Philada. 8vo.—*From the Editor.*

The Medical News and Library. Vol. X. No. 112. April, 1852. Philada. 8vo.—*From Blanchard & Lea.*

Proceedings of the Academy of Natural Sciences of Philadelphia. Vol. VI. No. 1. Philada. 8vo.—*From the Academy.*

The Committee appointed to examine the collection of wools presented by the King of Saxony to Peter A. Browne, Esq., presented their report, and were, on motion, discharged.

The Committee appointed at the meeting of the American Philosophical Society on the 20th of February last, to examine and report upon a collection of fine wools, presented by the king of Saxony to Peter A. Browne, Esq. of this city:—

*Report*, That they have attended to the duty imposed upon them by their appointment, and have received, from the kind politeness of Mr. Browne, much aid and information in relation to the subject of their inquiries. It is already known to the Society that the attention of this gentleman has been for some time directed to the minute and critical investigation of hair and wool, and that by means of assiduous microscopic and micrometric examination of these bodies he has been enabled to arrive at results, some of which appear to have been before unknown, and others, if known, very little noticed. Among these, he claims the following:—

That he was the first to point out the exact difference between *hair* and *wool*; and that he originated the division of sheep into two *species*, viz: the hairy and the woolly.

That by the application of the well known laws of hybridism, he

was the first to show that by crossing these two species, a self-supplying, permanent race of animals cannot be produced.

That he was the first to demonstrate, by actual measurement, that as fine wool can be grown in the United States, as in any country in the world.

From the results of his examination of a great number of specimens of wool from various parts of this country, he claims to have discovered that by drawing a diagonal line across the United States, corresponding somewhat with the line of tidewater, one may point out the respective districts where the woolly and the hairy sheep may, and may not, be bred with success.

The Committee do not propose to enter into a critical investigation of the theories of Mr. Browne, in relation to hair and wool; but from the laborious and earnest attention which he has given to the subject, they are inclined to regard his opinions and conclusions as being well worthy of considerate attention from the naturalist, the agriculturist, and the manufacturer of fabrics, in which wool forms an entire or a component part. If, as he asserts, the hairy and the woolly sheep are of different species, and that by their breeding together a degenerate race is produced, yielding a mixed fleece of hair and wool, and inferior in other respects; it is surely important that the fact should be known, and claim serious attention wherever sheep are bred, that the two varieties or races may be kept separate, as appears to be the case in the best sheep-folds in Saxony.

The collection of wools presented by the king of Saxony to Mr. Browne, consists of upwards of six hundred specimens, very neatly put up and labelled, embracing varieties from the principal districts in that country where the growing of wool is pursued as a branch of agricultural economy. These specimens exhibit the quality of wool taken from different parts of the same animal, as well as the varieties from the different breeds of sheep, and the various districts in which they are produced.

In relation to this collection of Saxony wools, and illustrative of the subject of sheep breeding and wool growing, Mr. Browne has favoured the Committee with a communication, which is appended to this report.

CHAS. B. TREGO,
A. L. ELWYN,
G. M. JUSTICE.

To Charles B. Trego, Alfred L. Elwyn, and George M. Justice, Esquires, Committee of the American Philosophical Society, appointed to examine the wools presented by His Majesty, the King of Saxony, to Peter A. Browne, of Philadelphia.

Gentlemen.—The Kingdom of Saxony is divided into four circuits, and fourteen counties, and the specimens I now exhibit to you, (numbering 628) represent the animals belonging to the principal stock sheep-folds in all the circuits, and in nearly all the counties; so that the cabinet may be considered as presenting a fair view of the existing state of sheep husbandry in Saxony.

Saxony is the smallest kingdom in Europe; containing, according to some writers, 5300, and according to others, 5640, square miles; having, for its area, about one-eighth that of Pennsylvania, and about one-eleventh that of Virginia, yet it is said to maintain 25,000,000 of sheep. They export annually an immense quantity of wool, and their own manufactories of that article employ 25,000 people.

To be perfectly satisfied that their sheep are of a very superior kind and that their wool is of the finest sort, you have only to examine these specimens, and compare them with the samples of fine wools brought by Mr. Fleishman, from most parts of Europe, at the instance of the Federal Government.

How did Saxony become possessed of this inestimable treasure?

According to the celebrated agriculturalist, M. Thaër, Germany, before the introduction of the merinos, had three varieties of sheep; neither of which were held in high estimation. In 1765, Augustus Frederick, then elector of Saxony, procured from Spain, 200 merinos, which he placed at Stolpgen, in the County of Hayn, and Circuit of Dresden. Against this innovation, popular prejudice at first ran high, but it gradually subsided with the progress of experiment; and, in 1777, so much had these sheep risen in public estimation, that the Elector determined to import 300 more. The agent sent to Spain could procure only 110, and of these many died during and soon after the transportation; but they, like those previously obtained, were selected from the best Spanish flocks; and then commenced the celebrated establishments of Rennersdorf, in the County and Circuit of Bautzen and of Lochmule, in the County of Niederforchheim, in the Circuit of Zwickau. It was upon this comparatively slender foundation that the art of sheep breeding was erected in Saxony. But it could never have attained its present great celebrity, but for the rigid

observance of the rule, in breeding, to keep these merinos entirely separate from all other sheep; their blood was, by this means, preserved pure; no mixture of them with either of the pre-existing races being allowed, on any pretence whatever. And to this day, the Saxon sheep breeder will not permit one to lose sight of this important fact, in proof of which, I call your attention to this clause in the letter of Mr. V. Kirchen, the farmer of the stock sheep-fold of the Duke of Parma, in the county of Dresden, called "Weistropp," which accompanies these 16 beautiful specimens,—"*these sheep are the descendants of the original importation from Spain, of* 1778."

I consider this collection of specimens of Saxony wool as a practical illustration of my theory of sheep breeding and fine wool growing, verifying the rule which I laid down, long before I saw these specimens, that to insure a pure and perfect breed of fine woolled sheep, it is absolutely necessary *to preserve the two species of these animals entirely separate*, and not to mix the merinos with the common sheep of the country, as is too often done in the United States.

If any American sheep breeder still entertains a latent doubt as to the soundness of this rule, he is invited to inspect this collection, to have passed, separately, in review, the specimens from the various sheepfolds, and particularly to notice that this is not a collection of *picked locks*, from those parts of the animal where the wool is usually the finest; but that in order to afford the greatest facility of judging of the sheep from the wool, samples are given from all parts of the body, the shoulders, the withers, the back, from under the belly, the tail and the legs: let these be carefully examined, and they will be found to be *all wool;* not a *hair* to be found upon those parts of the sheep where the impure race commence showing hair.

I consider this uniformity and entirety of fibre as an unerring test of *purity of blood;* and therefore cannot but regard Saxony as an example, upon a large scale, and worthy of being followed, of the *perfection of sheep husbandry.*

It will be recollected that I have heretofore shown, by actual admeasurements with the microscope and micrometer, that as fine wool can be produced in the United States, as in any part of the world; there is therefore no deficiency in *climate* or *soil;* all that the American agriculturist requires is to procure a pure breed, and to preserve them uncontaminated by spurious crossings. To obtain the former, I proffer free inspection of my cabinet, where there will be found samples of all the varieties, with references to the sheep-fold

from which they can be supplied, and even the number of the sheep whose wool is there exposed to view.

In connexion with this part of the exposé I ask particular attention to this suite of specimens from the Manor of Obermylaw, near Rechenbach. It will be recollected that the principal objection to the Saxo-merino sheep has heretofore been, that the staple is short, and consequently that the clip must be light; but these specimens, while they exhibit the maximum fineness, have a staple so long as to obviate entirely this objection. This variety of Saxon wool has not, so far as I know and believe, been before brought to this country, nor have the sheep from which it was taken, made their appearance in the United States; but it must be borne in mind, that as they are only a variety of the merino, the American planter and farmer may, by proper care and attention, produce it here, or he may import these very sheep, and by due management preserve the integrity of their fleece.

Upon the whole, therefore, I submit to you, gentlemen, that his Majesty the king of Saxony has conferred a singular favour upon the United States, in sending hither these specimens, and that he is entitled to the thanks of all good citizens who take an interest in this important branch of industry.

I am, gentlemen,

Your obedient servant,

P. A. BROWNE.

Mr. Lea presented a paper "On the Fossil Footmarks of the Red Sandstone, at Pottsville, Pennsylvania," which was referred to a Committee consisting of Dr. Hays, Dr. Leidy, and Dr. Ruschenberger.

Dr. Leidy called the attention of the members to certain mammalian remains belonging to the Society;—the principal one being an almost entire scull of an animal allied to the Peccary; but of a distinct genus. He also noticed one side of the lower jaw of a fossil tiger, enveloped in oxide of iron, the crowns of the canine and molar teeth being exposed. The proportions of this jaw indicate an animal of greater size than any specimen heretofore described, of the "fossil cave tiger," which was the largest known animal of the genus *Felis*. For this animal, Dr. Leidy proposes the name of "*Felis atrox*."

He intends to describe these remains more fully hereafter, in a communication for the Transactions of this Society.

Mr. Justice informed the members that he had received from Professor Boyé, specimens of the "*Protococcus nivalis*," brought by Dr. Kane from the arctic regions, and read a microscopical description of the plant.

The perfect type of the Protococcus Nivalis, is a globular cyst, varying in size from the $\frac{1}{2500}$ of an inch to the $\frac{1}{1000}$ of an inch in diameter; each cell or cyst having an opening, whose smallest diameter measures only the $\frac{1}{5000}$ part of an inch. This opening is surrounded by marked serrated or indented lines, as though by the expansion and gradual growth of the cell, the opening had also been irregularly expanded. The plant, when perfect, greatly resembles the red currant of our gardens; as it decays the red colouring matter is lost, being gradually superseded by a deep orange, which finally appears to change into a brown, or the cell becomes transparent. In this transparent state, when the cell is broken, the thickness of the enveloping cuticle may be measured, this does not exceed the $\frac{1}{20000}$ part of one inch; and, where the opening is preserved, the interior of it becomes of a delicate green colour. Many of the cells exhibit the hexagonal figure instead of being globular; but this is the result of compression, where masses of them have been thrown together. Mingled with the protococcus are fragments of a tissue of reticulated and cellular formation, much resembling some of the infusorial polycystina. So minute are the openings in these that they do not exceed the $\frac{1}{10000}$ part of an inch in diameter.

Pending nominations, Nos. 271 to 282, were read:—

Mr. Lea offered the following preamble and resolution:—

Whereas, the appropriation of the interest of the "Extra Magellanic Fund," made to the Committee of Publication, having been withdrawn by the appropriation of most of the principal, to the payment of the debts of the Society:

*Resolved*, That the same be now restored, according to the original intention, out of any fund not otherwise ordered by the Society, until it shall be equal to the amount at the time of its withdrawal; and that the interest received from said fund be semi-annually paid to the Publication Committee from this time.

On motion of Mr. Fraley, the above resolution was referred to the Committee of Finance.