

Babylonia! This Jensen, by his wonderful analysis (would that I could completely follow it in its marvellous philological twistings, pp. 73-81) puts beyond question, and clinches the argument by showing that our "tropic of Capricorn" of to-day, the goat still represented on our globes of to-day with a fish's tail! was called by the Babylonians "the path followed by Ia" or in relation to Ia.

The myth, then, has to do with the fact that the winter sun worship of Eridu was conquered by the spring sun worship of the north.

If we accept this we can compare the Egyptian and Babylonian myths from the astronomical point of view in the following manner, and a wonderful difference in the astronomical observations made as well as in the form, though not in the basis, of astronomical mythology in Egypt and Babylonia is before our eyes.

Astronomically in both countries we are dealing with the dawn preceding sunrise on new year's day, and the accompanying extinction of the stars.

But which stars? In Egypt there is no question that the stars thus fading were thought of as being chiefly represented by the stars which never set, that is the circumpolar ones, and among them the Hippopotamus chiefly.

The southern cult had conquered the northern one, the southern Horus had conquered Set.

We now learn that in Babylonia the chief change had been in the sun-god. Here the northern cult had conquered. The exotic worship of the winter constellations had been abolished, and they were pictured as destroyed under the form of Tiamat,¹ although they were once as prominent as Set in Egypt.

Now I believe that it is generally recognised that Marduk was relatively a late intruder into the Babylonian pantheon. If he were a god brought from the north by a conquering race (whether conquering by craft or kraft does not matter), and his worship replaced that of Ia, have we not *mutatis mutandis* the exact counterpart of the Egyptian myth of Horus? In the one case we have a southern sun-worshipping race ousting north-star worshippers, in the other a northern equinoctial sun-worshipping race ousting the cult of the winter solstitial sun. In the one case we have Horus, the rising sun of every day slaying the Hippopotamus (that is the modern Draco) the regent of night; in the other Marduk, the Spring sun-god slaying the animals of Tiamat, that is apparently the origins of the Scorpion, Capricornus, and Pisces, the constellations of the winter months which formed a belt across the sky from east to west at the vernal equinox.

J. NORMAN LOCKYER.

(To be continued.)

THE BRITISH ASSOCIATION.

NOTTINGHAM, SEPTEMBER 22.

THE bright and pleasant weather universally hoped for, but very generally unexpected, has favoured the meeting of the Association after all; it had been the one uncertain element for which the local committee could make no provision. The fine weather has made the success of the gathering complete. By midday on Monday, the 11th, the reception room was in readiness for the multifarious purposes to which it had been applied, and shortly after that time the booking clerks were kept fully employed for some hours in enrolling local members. The arrival of members was less noticeable on Tuesday, but throughout Wednesday the booking

¹ There seems to be no question that Sit, Tiamat, and the "Great Dragon" of the Apocalypse, represent the same idea. See Sayce, p. 102.

clerks, lodging and hotel clerks, the postal department, and the various excursion, garden party, and recreation counters were constantly besieged. The admirable writing-room also came largely into use, while the ladies found their way to their own special suite of elegantly furnished apartments. Later on the ladies obtained the privilege of entertaining gentlemen to afternoon tea in their capacious drawing-room, a privilege which became rapidly so popular that the accommodation was inadequate to the demand.

Following the strictly business meetings in the early part of the day, came the first general meeting in the Albert Hall, to hear the President's address. The large hall was comfortably filled with an attentive audience, the decorations consisting of little else than the long series of banners bearing the name, coat-of-arms, and year of service of each of the distinguished Presidents who has passed the chair during the sixty-two years of the Association's existence, the banner of this year's President being suspended in front of his reading-desk. The President's address, which was easily heard throughout the hall, was received with applause, the Mayor of Nottingham and the Bishop of Southwell, respectively, proposing and seconding the vote of thanks at its conclusion.

On Thursday (14th) sectional business began in earnest by the delivery of the presidential addresses in the different sections, followed by the reading of papers and reports. The workers of the Association easily found their appointed quarters, and reached them in every case in a few minutes after leaving the reception room, since all the sectional rooms were within easy distance. Five sections met in the University College itself; one in the Poor Law Offices, opposite the College; another in the Central Hall, nearly facing the college; while the geographers had only to pass from the large hall of the Mechanics' Institution (the reception room) to the lecture hall of the same institution. Each of these sectional rooms was completely fitted with all that was requisite to illustrate the papers which were communicated, the equipment ranging from the blackboard and chalk only, to the supply of dark blinds, and lantern supplemented by large diagram frames, electric current, gas, water, compressed gases, and the many other requisites for the experimental sciences. Bearing in mind the difficulty which hard-working members have found at previous meetings in staving off starvation at the luncheon hour, a large luncheon buffet had been provided in the University College; this was accessible to all members, and entailed only a few minutes' absence for luncheon from the business of any section. In the afternoon, Sir John Turner, a local vice-president of the Association, entertained a large party of visitors, with their hosts, in his beautiful grounds at Mapperley; and in the evening the Mayor received the members in the Castle Museum building, where the extensive galleries had been hung with a specially selected series of pictures, and music and refreshments were provided.

Friday (15th) was perhaps specially noticeable for the brilliant demonstration given in Section B by Dr. Meslans, assistant to M. Moissan. The section was crowded, and the audience included a considerable number of the leading British chemists. Dr. Meslans, who had carefully rehearsed his experiments in the laboratory on the previous day, proceeded to prepare gaseous fluorine, and amidst the greatest enthusiasm, both of the experimenter and of his audience, sulphur, phosphorus, silicon, and charcoal were ignited in the stream of the element. Several chemists who entered the room sceptical of the true isolation having been effected, rose and gave their entire assent, and at the suggestion of Sir Henry Roscoe, the President, immediately dispatched a congratulatory telegram to M. Moissan, who had been detained in Paris by indisposition. In the afternoon one party of members

was entertained in the beautiful grounds of Clifton Hall, by Mr. and Mrs. H. R. Clifton; another party was similarly entertained by Mr. and Mrs. Leavers, and inspected the carefully protected rock-dwellings in the grounds. Members met once more in the evening in the Albert Hall, to listen to Prof. Smithell's description of his recent researches on "Flame," and to witness the beautiful experimental demonstration of his views. The audience, at the invitation of Dr. Emerson Reynolds and of Prof. H. B. Dixon, heartily expressed their appreciation of the eloquent discourse, and of the uniformly successful and admirably contrived experiments.

Saturday was in most Sections a *dies non*, as far as scientific work was concerned. Full advantage, however, was taken of the excursions which had been organised for the recreation of the visitors. Sherwood Forest, Haddon Hall, Buxton, Burleigh, Southwell, Minster, Lincoln, Belvoir Castle, and Donington Park were visited in gloriously fine weather; and the list of the places of interest visited was only reduced by one—Wollaton Colliery—this omission being rendered necessary by the strike of the colliers. It may be mentioned that some slight inconvenience had been caused by this lamentable occurrence. Visitors to the town found the military quartered in the neighbourhood of the Guildhall, and learned to their dismay that country houses in which they were to be entertained as guests were filled with billets of police. The railway companies had also been compelled to take off some of their trains; but the inconvenience was scarcely felt—town houses were thrown open to the would-be country guests; trains which would not affect the travelling of members were those selected for removal; and the military parading the streets added a picturesque and entirely peaceful element to the ordinary population of the town. No trouble arose from the miners themselves, although they occasionally solicited alms and food; and it may be stated with truth that visitors to the meeting suffered no more serious loss and inconvenience than that arising from the withdrawal of the permission to descend the colliery. In the evening Prof. Vivian Lewes lectured upon "Spontaneous Combustion," in "The Tabernacle," to an audience of over a thousand working men, who took it into their own hands to accord him a hearty and well-deserved vote of thanks; a similar compliment to the chairman, Dr. Burdon-Sanderson, brought the meeting to a close. Meanwhile a brilliant and crowded audience was listening in the Albert Hall to the concert given by the Sacred Harmonic Society.

"Association Sunday" was marked by the pulpits in many places of worship in the town being occupied by distinguished preachers; amongst these may be mentioned the Bishop of Southwell, Dr. Bonney, Dr. Clifford, Rev. C. Gore, and the Rev. R. F. Horton. By many members the day was, however, spent in the country, or devoted to small social gatherings.

Monday saw the recommencement of serious work in all the sections, relieved later in the day by a garden party at Wollaton Hall, the seat of Lord Middleton, and by an entertainment provided at their Basford Gas Works by the Gas Committee of the Corporation of Nottingham. In the afternoon the General Committee of the Association decided on meeting at Ipswich in 1895. Bournemouth had also applied for the honour of receiving the Association, and announced their intention of renewing their application year by year until they met with success. Application from Toronto was favourably viewed, and it was considered probable that it would be accepted for a future year. The Marquis of Salisbury was elected as President for the meeting at Oxford next year, commencing on August 8, and the other officers of the Association were re-elected. In the evening the Mayor entertained the President, Sectional Presidents, Secretaries, and Treasurer of the Association, together

with a few friends, at the Exchange, to dinner; the evening concluded by the lecture given by Prof. Victor Horsley, on "The Discovery of the Physiology of the Nervous System." The lecture was illustrated by a series of original lantern-slides, and was well received by a large and somewhat professional audience, who expressed their thanks, at the suggestion of Prof. Schäfer and Sir Robert Ball.

Tuesday was the only day of the meeting which opened with doubtful weather, inclined to being cold and showery. The unfortunate change culminated in the afternoon at the time of the large garden party in the Arboretum, and had the effect of thinning the attendance to some extent. Those who were present, however, found shelter from slight passing showers in the large tent which covered in the show of the Horticultural Society, and in the capacious refreshment-room; from both of these places the admirable music of the Royal Artillery band could be distinctly heard. The Committee of Recommendations, at their meeting in the afternoon, found it necessary to be economical in the grants made for research; the enrolment of 1661 members had produced only £1653, and this sum was less than that usually received. The list of money grants, however, which were recommended and were finally approved by the General Committee on the following day represent a total of £705. A reception at the Castle Museum brought the day to a close. Mr. Alderman Goldschmidt and Mr. Joseph Bright, as chairman and vice-chairman, respectively, of the Executive Local Committee, received the company. Entertainment was afforded by the string band of the Royal Artillery, and a series of interesting scientific objects were on exhibition. A special feature was the glass-blowing by Herr Zitzmann, of Wiesbaden, who had throughout the week displayed his skill in imitating old Venetian glass-work and in making glass scientific apparatus to large audiences in the chemical theatre of the University College.

The comfort of those attending the *conversazioni* and other general gatherings was secured in great measure by the membership being only an average one, and not unduly large. A larger membership would not only have added to the difficulties of the stewards, but also to the discomfort of those who attended the meetings. It may be safely asserted that the success of the work of the Association in no way suffered by the numbers not being large; whilst those who were playing the part of hosts in the town could the more readily cope with the demand on their kindly services. The number of official and other important members of the Association privately entertained reached nearly 400; and there remained some room both in private houses and in lodgings and hotels, so that the overcrowding frequently complained of in these gatherings was absent.

Of distinguished scientific men from different parts of our own country there was a good attendance; and amongst eminent foreigners who accepted the invitation to attend were the following:—Baron von Reinach; Dr. Meslans, Paris; Prof. Iddings, Chicago; Mons. A. Gobert, Brussels; Prof. Heger, Brussels; Mons. Gilson, Belgium; Dr. Brögger, Norway; Dr. Bock and Dr. Bohr, Copenhagen; Dr. Hertwig, Munich; Dr. Hildebrand, Stockholm; Dr. W. Einthoven, Leyden; Dr. Rothpletz, Munich; Dr. Mandello, Budapest; Dr. Renard, Gand; Mr. Cope Whitehouse, New York; M. de Liegeard, Paris.

On Wednesday little sectional business was transacted, except by the energetic geologists of Section C. In the afternoon the General Committee passed the awards of money towards scientific research, a list of which was given last week.

The business of the meeting was then brought to an end at the concluding meeting by the usual votes of thanks.

In the evening over a thousand members were entertained by the local committee in the Theatre Royal, and witnessed Mr. Wilson Barrett's company in the new play *Pharaoh*.

The concluding day, Thursday, was devoted to whole day excursions to "The Dukeries" (Sherwood Forest, Welbeck, Clumber, Thoresby, &c.), the Midland Railway Works at Derby, Chatsworth and Haddon, Charnwood Forest, Dovedale, Castleton, Matlock and Miller's Dale. The weather was all that could be desired, and the complete organisation led to everything passing off punctually and without a hitch.

The generally expressed opinion of the departing guests was that no meeting was comparable to the present one for enjoyment except that at Montreal. The workers seemed to be generally of opinion that in no direction had the gathering been so useful as in the discussions initiated in several of the sections, to which reference has been made in recent numbers of NATURE. Undoubtedly one of the greatest advantages derived by the annual gathering is the meeting of "researchers" from all parts for the interchange of ideas, and the making and renewal of acquaintance one with another. The impression apparently made on all who have been concerned in the meeting is that the British Association is by no means in a declining condition. It is instinct with life, and those of the inhabitants of Nottingham who have felt the vivifying effect of being brought into contact with many of the scientific pioneers of our time, will wish that the Association, which has stimulated their scientific ardour by its presence, may live to benefit other important centres for many years to come.

FRANK CLOWES.

NOTES.

It is announced that the bust of the late Prof. John Marshall, which has been subscribed for as a memorial to him, will be handed over to the Council of University College on the occasion of the introductory lecture, by Mr. Bilton Pollard, at the opening of the session on Monday, October 2.

M. JANSSEN, writing to M. Bischoffsheim from the summit of Mount Blanc, on September 12, says that the Observatory has been fixed in its place, and all that now remains is to fit up the interior. It is hoped that observations will be commenced this autumn.

WITH much regret we record the death of Mr. Thomas Hawksley, the well-known civil engineer, on Saturday, September 23. Mr. Hawksley had for some years been at the head of that branch of his profession which deals with gas and water supply. It is said that more than 150 waterworks were constructed under his direction, besides a large number of important gasworks. He was born in 1807, and elected a Fellow of the Royal Society in 1878. In 1871 he was chosen as President of the Institution of Civil Engineers, and held that office for two years. The Institution of Mechanical Engineers elected him President in 1876-7, and he was the first President of the Gas Institute. In addition to these distinctions Mr. Hawksley possessed a number of decorations conferred upon him by various Sovereigns for services to science and to themselves. At the ripe old age of eighty-eight he passed away, leaving behind him a name which will be honoured for many years to come.

THE Right Hon. Lord Thring will, on Tue-day, October 3, distribute the prizes to the successful students of the Medical School of St. Thomas's Hospital. The distribution will take place at three o'clock, in the Governors' Hall.

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At a meeting of the Committee of the Sunday Society, at the Prince's Hall, on Tuesday, the date of Museum Sunday this year was fixed for November 26, when, as in November last, addresses are to be delivered in support of the Society's object, viz. the opening of museums, art galleries, and libraries on Sundays.

PROF. H. A. NICHOLSON will commence the Swiney Lectures on Geology on Monday, October 2, at the South Kensington Museum. His subject is "The Bearings of Geology on the Distribution of Animals and Plants."

THE Gilchrist trustees have granted the delivery of a course of science lectures at the Great Assembly Hall, Mile End Road, on alternate Thursdays, beginning this evening, when Prof. V. B. Lewes will discourse on "Our Atmosphere and its Relation to Life." The other lecturers will be Sir Robert Ball, Prof. Fleming, Rev. Dr. Dallinger, Dr. R. D. Roberts, and Dr. Andrew Wilson. The course will be in connection with the Bethnal Green Free Library.

A COURSE of twelve educational lectures on the principles of Commercial Geography applied to the British Empire will be delivered by Dr. H. R. Mill, at the London Institution, on Tuesday evenings, commencing on October 3. At the opening lecture, which is free, the plan of the course will be explained. Mr. H. J. Mackinder will follow Dr. Mill with a course on the relations between History and Geography.

THE following lectures will be delivered at the Royal Victoria Hall, Waterloo Bridge Road, during October:—"The Life and Work of Sir Richard Owen," by A. Smith Woodward; "A Total Eclipse of the Sun," by Prof. Thorpe; "Electrical Fishes," by Dr. W. D. Halliburton; and "The Compass in Iron Ships," by Prof. Reinold.

THE Dublin Water Committee has recently been carrying out experiments in rain-making. On the 20th inst. three dozen distress signals and one dozen rockets were fired into the air, and ten pounds of tonite were exploded on the ground. A copious fall of rain occurred shortly afterwards, especially on that part of the watershed between the Djouce and the Sugar Loaf Mountains. Whether the precipitation was directly caused by the fireworks is, however, a matter of opinion.

THE weather in these islands has recently undergone considerable change, owing principally to a deep depression which for several days lay between the Shetlands and Norway, causing northerly gales in Scotland, and snow in the northern parts of the kingdom. Frosts have occurred at night over Scotland and the central parts of England and Ireland, while in many places the daily maxima have fallen below 50°. Rainfall exceeding an inch in the twenty-four hours has occurred at several stations in Scotland, but in the midland and southern parts of England the weather generally has continued very dry. From the commencement of the year there is a deficiency in the amount of rain in all districts, amounting to nearly seven inches in the midland counties and south-west of England, and to more than nine inches in the west of Scotland.

THE Rev. S. Chevalier, S.J., Director of the Zi-Ka-Wei Observatory, has recently read a paper before the Shanghai Meteorological Society on the *Bokhara* typhoon which occurred in October, 1892. The typhoon originated on the 7th of October to the east of Luzon, and on the 10th passed very near to the south Cape of Formosa and, whilst crossing that island, wrecked in one night the Norwegian steamer *Normand* and the Peninsular and Oriental steamship *Bokhara*. Observations have been collected and collated for the whole area which came under the influence of the storm, and diagrams are given for selected stations to show the action of the