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diffusion only rises about 20%<sup>1)</sup>) and the velocity of fermentation 150—200%, it is to be expected that at higher temperatures the velocity of fermentation will remain considerably under the theoretical values, in consequence of the diffusion not proceeding quickly enough.

Finally, the possibility must be considered that also in alcoholic fermentation the favourable influence of higher temperatures first makes itself felt as a function of time, in the same way as was the case in this inquiry at 30° C., and that hence also there the theoretical values according to VAN 'T HOFF's law have no real existence. For if it takes a certain time for the reaction velocity to reach the value belonging to that temperature then this value will never be reached, because, before that happens the harmful influence of the high temperature will already have made its action felt.

The values obtained for the reaction velocity at high temperatures will then, especially after a short time of previous warming, be lower than ought to be the case according to BLACKMAN's theory. The values when extrapolated for time 0 will also be found too low.

Summarising our results, we can therefore say that BLACKMAN's theory in the investigation of the influence of temperature on the presentation-time in geotropism is in the main confirmed, while the investigations which have hitherto taken this theory into account, give no reason to reject it.

On the contrary, in this investigation it is clear, that also in the field of the pure physiology of stimulus the laws of physical chemistry hold.

For the perception of the stimulus of gravitation it follows from this investigation that, with reference to temperature, perception behaves as a chemical process.

**Geophysica.** — “*On the volcanic eruption in the island of Tëon (Tjron) in 1659*”. By Prof. ARTH. WICHMANN.

(Communicated in the meeting of Sept. 24, 1910).

In his criticism of RUMPHIUS and VALENTIJN as historiographers of Ambon F. DE HAAN says: “We do not intend to express by this the desirability of publishing before long the History of Ambon (by RUMPHIUS). VALENTIJN has plundered it in such a degree, that only a scanty gleaning of details of little importance is left for a later

<sup>1)</sup> E. COHEN, Vorträge für Aerzte über Physikalische Chemie. 2e Aufl. Leipzig. ENGELMANN. 1907, p. 126.

“investigator”<sup>1)</sup>. Now when a few weeks ago the manuscript in question was published by the Koninklijk Instituut voor de Taal-, Land- en Volkenkunde, it was immediately evident that on a great number of details it affords information which had hitherto been looked for in vain. What follows may serve as an instance, how it is the details that are of the greatest consequence.

Only a comparatively short time ago the attention was directed to the fact that VALENTIJN describes a volcanic eruption in the island of Téor (Tior or Tjor)<sup>2)</sup> in the following terms: “A little S. E. of Koerekofe lies the little island of Tewel, situated 35 or 36 miles to the East of Banda<sup>3)</sup>. It is very mountainous 2 miles in circumference and full of cocoa-trees yielding much oil. Here is likewise a high burning mountain which burst asunder with great violence in the year 1659”<sup>4)</sup>. Though VALENTIJN distinctly indicates the situation, and the map added to his work (vide fig. 2) neither admits of the least doubt that the island of Téor (Tior or Tjor) was meant P. A. LEUPÉ started, as early as 1871, the question, whether the mentioned report could not have related to the island of Téon, belonging likewise to the South-Western Islands, but situated at a quite different place<sup>5)</sup>. Attention was moreover attracted by the fact that, whilst the range of islands, constituting the inner girdle by which the Banda Sea is bounded on the East, consists entirely of islands of volcanic origin, we find in the following range, running parallel with the former, only two to which a similar origin is ascribed viz. Moa and Téor<sup>6)</sup>. This pretended fact even suggested to E. SUSS<sup>7)</sup> the idea of a Northern continuation of the volcanic range of the South-Western Islands (Roma to Nusa Manuk) towards New-Guinea between which consequently Téor was to serve as a link (vide fig. 3).

1) RUMPHIUS-Gedenkboek. Amsterdam, 1902, blz. 25

2) This report was known to JUNGHUEN but, by mistake, he has set down this eruption to the island of Koerkaf (Java. III. Leipzig 1854, page 834). Though 5 eruptions are known of Téon, as will appear hereafter, this island is not mentioned in any of the volcanic catalogues.

3) The distance is in reality 27 geographical miles (200 km)

4) Oud en Nieuw Oost Indien. III. 2. Dordrecht—Amsterdam 1726, page 38. (ed. S. KEIJZER. III. 's-Gravonhage 1858, page 32).

5) Téor (highest mountain) is situated 4°45' S. Lat., 131°44' E. Longt Téon 7°1' S. Lat. 129°9' E. L.

6) Gesteine von Timor und einiger angrenzender Inseln. Beiträge zur Geologie Ostasiens. II. Leiden 1882—87, page 200. — Der Wawani auf Amboina und seine angeblichen Ausbrüche. Tijdschr. K. Nederl. Aandr. Gen. (2) XVI. 1899, page 136.

7) Das Antlitz der Erde. II. Wien 1888, blz. 208.



in the island of Téon, or to the appearance of a new island between Tajando and Kaimeer in 1649<sup>1)</sup>.

RUMPHIUS gives an answer to this question. "On the 11<sup>th</sup> of November "[1659] in Banda a noise was heard like the detonation of cannon "and muskets which were continually and regularly fired, this made "all the people crowd on the walls, supposing, that some ships were "fighting at sea, as they usually heard such a noise on Amboina "[sic!]; on the same day the water began to rise and to fall so "rapidly that it was like a miracle, and people could hardly escape, "afterwards they understood that at the same time the island of "Teeuw consisting chiefly of a high mountain had sprung up amidst "great noise and a dreadful creaking which had been the cause of "those false cannon shots, the islanders (having been warned two "days previously by subterranean rumbling and trembling of the "earth) having fled to the nearest islands Nila and Damme"<sup>2)</sup>.

VALENTIJN gathered all his information concerning earth-quakes and volcanic phenomena in the Great-East from RUMPHIUS' manuscript in so far as they took place before his arrival in Amboina. Consequently it remains unexplicable how he could write instead of Teeuw (read Téon) Tewer (read Téor) for, as appears from the map (see fig. 1 and 2) the difference between the two islands was also known to him. The idea of a clerical error is likewise rather inadmissible, because RUMPHIUS expressly mentions the vicinity of Damar and Nila. He excerpted perhaps incompletely during his residence in Amboina, and committed the mistake afterwards, when working out his notes. At all events we may admit as irrefutable that the eruption of 1659 took place in the island of Téon. On the other hand it is decidedly not the same as that of 1660, which was considered possible by LEUPE and VERBEEK.

Regarding the eruption of 1660 the Governor of Banda wrote, dated 4 May 1660, as follows: "In February last the burning mountain in "the island of Teeuw burst and exploded entirely, so that the little "villages lying in the vicinity and at the foot of the mountain were "entirely overwhelmed, nay all men, with the exception of 2 or 3 "and all the cattle were suffocated and killed under it. A most "deplorable spectacle to behold, the inhabitants of Nilla were in deep "affliction about it, as by, their marriages, many people are related

<sup>1)</sup> J. S. WURTBAIN. Vierzehnjährige Ost-Indianische Kriegs- und Oberkaufmanns-dienste. Nürnberg 1686, p. 62.

<sup>2)</sup> De Ambonsche Historie behelsende een kort verhaal der gedenkwaardigste geschiedenissen . . . . door GEORGIUS EVERHARDUS RUMPHIUS. Tweede deel. Bijdr. t. de T. L. en Vk. (7) X. 1910, p. 131—132.

“to them”<sup>1)</sup>. Whereas in November 1659 the inhabitants, warned by trembling of the ground, could fly in due time to Nila and Damar, they were in February 1660 unexpectedly overtaken by the eruption, so that nearly all of them lost their lives.

During the seventeenth century two more eruptions follow. About the first, that of 18<sup>th</sup> January 1660 the then governor of Banda JOHAN VAN DAM reported only briefly that Teeuw was “blown up”<sup>2)</sup>.

The second in 1693 was likewise reported only incidentally by NICOLAAS WITSEN who, in addition to a report of an eruption in the island of Serua, says: “others have begun to open themselves and to cast out Fire, as in the Isle Chiaus”<sup>3)</sup>.

It is true that LEOPOLD VON BUCH was of opinion that this report must refer to the island of Siau [Sijau]<sup>4)</sup> belonging to the Sangi islands. But it is evident that Tjau or Tjau (Téon) can be transcribed in English as Chau, but Siau cannot. Besides in the mentioned report there was only question of islands in the Banda Sea.

During the 18<sup>th</sup> and the 19<sup>th</sup> century nothing whatever is heard about volcanic activity of the island. Only on the 3<sup>rd</sup> of June 1904 a new eruption took place on which occasion, as the short report says, the gardens of the village of Mésah, situated on the westside were destroyed<sup>5)</sup>.

The name of the volcano of Téon is said to be Vunuweri (read Funuweri)<sup>6)</sup>.

**Physiology.** — *“The permeability of red blood-corpuscles in physiological conditions, especially to alkali- and earth-alkali metals.”*

By Dr. G. GRYNs.

(Communicated in the Meeting of September 24, 1910).

In the meeting of the Kon. Akademie van Wetenschappen of 25 June 1910 (proceedings p. 258) H. J. HAMBURGER, also in the name of F. BUBANOVIĆ, communicated about the above subject and came to the conclusion, that the red blood-corpuscles in physiological

1) P. A. LEUPE. *Uitbarsting van den brandenden berg op het eiland Teeuw* Bijdr. t. de T. L. en Vk. (3) VI. 1871, p. 231.

2) W. E. VAN DAM VAN ISSELT. *Mr. JOHAN VAN DAM, Gouverneur van Banda 1661 en van Amboina 1665. De Indische Gids. XXX. 1. Amsterdam, 1908, p. 137.*

3) *Account of the sad Misschief befallen the Inhabitants of the Isle of Sorea.* Philosoph. Transact. XIX. London, 1695, p. 51.

4) *Physicalische Beschreibung der Canarischen Inseln.* Berlin, 1825, p. 376, also *Gesammelte Schriften III.* Berlin, 1877, p. 580.

5) *Nieuwe Rotterdamsche Courant, Dinsdag 17 Januari 1905, Tweede Blad p. 3.*

6) J. G. F. RUEDEL. *De sluk- en kroesharige rassen tusschen Selebes en Papoea.* 's-Gravenhage, 1886, p. 466. — *Zeemansgids voor den Oost-Indischen Archipel V.* 's-Gravenhage, 1908, p. 14.