PROCEEDINGS
OF THE
CHEMICAL SECTION,
OF THE
FRANKLIN INSTITUTE.

[*Stated Meeting, held at the INSTITUTE, Tuesday, April 16 1889.*]

HALL OF THE FRANKLIN INSTITUTE,
PHILADELPHIA, April 16, 1889.

Mr. H. PEMBERTON, Jr., President, in the Chair.

Members present: Dr. H. W. Jayne, Dr. Wm. H. Wahl, Dr. E. F. Smith, Dr. S. C. Hooker, Dr. H. F. Keller, Dr. D. K. Tuttle, Prof. Henry Trimble, Prof. R. L. Chase, Prof. N. Wiley Thomas, Messrs. T. C. Palmer, Reuben Haines, J. H. Eastwick, W. L. Rowland, W. W. McFarlane, W. H. Bower, F. Lynwood Garrison, Lee K. Frankel, A. W. Allen, Dr. Wm. C. Day and three visitors.

The Treasurer made a brief report, stating the present condition of the finances of the Section.

The following gentlemen were nominated for membership in the Section: Dr. L. I. Morris, 2505 Oxford Street, Philadelphia; Dr. Persifor Frazer, Drexel Building, Philadelphia; Mr. Fred. E. Ives, corner of Ninth and Filbert Streets, Philadelphia; Mr. Theodore D. Rand, No. 17 South Third Street, Philadelphia.

The President called attention to the contradictory character of two of the by-laws and recommended correction; he also recommended that one member instead of two, as at present required, be sufficient to nominate a candidate for membership.

The resignation of Dr. Isaac Norris, of 1424 Walnut Street, Philadelphia, was accepted.

The President called the attention of the Section to the fact that copies of the papers read at the last meeting had been sent as advance sheets by the Secretary to various chemical journals in the United States and abroad.

Dr. Wahl recommended that the Section continue subscription to *Fittica's Jahresbericht* recently purchased by the INSTITUTE; on motion it was unanimously voted to adopt this suggestion.

Upon the recommendation of Dr. Jayne it was decided to consider Mr. Pedro G. Salom as a member of the Section from date.

Dr. S. C. Hooker then read a very interesting paper, in which he gave the results thus far obtained in a series of sanitary analyses of the hydrant water supply of Philadelphia. These analyses include determinations of chlorine, of free and albumenoid ammonia by the Wanklyn process and nitrogen in nitrates, according to the carbazol method devised by him. These analyses are to be systematically conducted at regular intervals in the future, and the results are to be embodied in future papers to be published in the *JOURNAL OF THE INSTITUTE*.

This paper called forth a very active and interesting discussion, which was participated in by many of the members present.

Mr. Haines suggested that in the investigation of the Philadelphia water supply, proposed by Dr. Hooker, special attention be directed to those districts which are affected with typhoid fever. In Germantown, in the Twenty-second Ward, typhoid fever has been unusually prevalent for more than a year past, but during the last three months it has increased to such an extent as to produce a general feeling of alarm and to call for a special investigation by the Board of Health. Unfortunately this investigation does not appear to have been as thorough and extended as the case demanded. It is believed that there have been in Germantown a larger number of cases of typhoid than in any other section of the city, except, perhaps, the district of Kensington, where this disease has prevailed for many years. By very many residents the disease is attributed to the Schuylkill water, which is supplied to Germantown from Flat Rock Dam, the uppermost of the pumping stations, by the Philadelphia Water Department. Prof. A. R. Leeds, of Stevens Institute, Hoboken, N. J., has stated in positive terms that the Schuylkill water has been the cause of typhoid fever in some cases. Very many residents of Germantown will not drink the river water unless it is boiled and filtered. There is, in consequence, a disposition to resort to well water instead of the river supply, a proceeding which is far more dangerous, for a large proportion of these wells, which are quite numerous, are undoubtedly contaminated with sewage.

A prominent physician, long a resident of Germantown, and who has had many of these typhoid cases, believes, on the other hand, that the disease cannot be attributed to the Schuylkill water.

Mr. Haines alluded to other causes to which the typhoid might be attributed, among which was the prevailing unsatisfactory condition of house drainage, especially in the older dwellings in Germantown, very many of which have not been arranged in accordance with the recent regulations of the Board of Health, not being properly trapped, and having no ventilating pipe to the soil pipe. Some of the houses built during the past few years are also believed to be in an unsafe sanitary condition, in consequence of improper or imperfect plumbing fixtures. The probability of a contaminated and adulterated milk supply being the cause of typhoid fever, was suggested by Dr. Tuttle.

Mr. Haines also alluded to the fact that Dr. Thos. M. Drown, of the Massachusetts Institute of Technology, has recently applied the Kjeldahl process for organic nitrogen to the determination of organic matter in water. The

result appears to warrant the belief that the process will be an important adjunct in water analysis.

Mr. Rowland suggested the determination of suspended matter as advisable.

In regard to the Kensington district Dr. Wahl referred to the extensive use of well water as the probable cause of much sickness.

Dr. Tuttle remarked on the advisability of analyzing the water of suspected wells.

The President called attention to a number of cases of typhoid fever which occurred in one family, and which were clearly traceable to contaminated well water and unsanitary conditions in the dwelling-house.

Dr. Samuel C. Hooker read a paper "On the Occurrence of Lapachic Acid in Bethabarra Wood," giving the results of an investigation undertaken in conjunction with Dr. Wm. H. Greene. The authors have unquestionably established the identity of the yellow principle of the Bethabarra wood with lapachic acid. A number of beautiful specimens were exhibited, both of the acid and of compounds prepared from it. One of the most interesting of these, lapachone, will be made the subject of further study, as the constitution which has been assigned to it is not in accordance with many new reactions observed. The results so far obtained point very strongly to the conclusion that lapachone is a derivative of naphto-furfuran and has the formula

The opinion was also expressed that the compound prepared by Paternò, and considered by him to be brom-lapachic acid is in reality brom-lapachone having the formula

Dr. Smith and Mr. Frañkel presented a paper on the electrolytic separation of mercury and copper, which was submitted for printing and distribution among the members, and was referred for publication.

Dr. Smith also stated that in the electrolysis of nickel and cobalt, in a solution containing potassium cyanide in excess, cobalt does not separate out, but whether these metals can be separated by this means remains to be seen.

Dr. Wahl showed some specimens of decorated glass in which the ornamentation was the result of coating a colored or flashed glass on one side with glue or gelatine, and then drying this in a current of air; the gelatine in drying contracts with sufficient force to tear away portions of the surface of the glass, thus producing striking and beautiful effects.

Adjourned.

WM. C. DAY, *Secretary*.