

known even in Russia for about two years, although several notices of its medicinal properties have been contributed to the Caucasian Medical Society. The knowledge and spreading use of this new drink in Russia dates apparently from an investigation and paper read on this new ferment product by E. Kern at the Moscow meeting of the Imperial Naturalists' Society in 1881.

Kephir is prepared by fermenting milk, either sheep's, goats', or cows' milk, with what are termed kephir-grains, the process taking place in leather bottles (*Burdinks*). These grains are the ferment proper, the leather bottle not being supposed to be absolutely necessary. During the fermentation the milk becomes very much changed, and at the same time there is a reproduction of the ferment substance or kephir-grains, which is removed after a certain stage of fermentation has been reached, and after drying in the sun may be preserved, and serves again to effect the fermentation process. Nothing is known of the origin of this peculiar ferment. An analysis of the grains dried at 100° C. gave:—

Water	...	...	...	...	11.21
Fats	...	...	...	...	3.99
Soluble pepton substances	...	...	...	...	10.98
Proteids soluble in ammonia	...	...	...	...	10.32
"    "    potash	...	...	...	...	30.39
Insoluble	...	...	...	...	33.11

The insoluble residue exhibited under the microscope an intimate mixture of yeast-cells, and the *Bacterium dispora caucasica* with a few *Leptothrix* and *Oidium lactis* possibly as accidental. This 33.11 per cent. of insoluble matter seems to be the only active part of the kephir grains. On preparing some kephir in bottles with this, the product became slightly effervescent after twenty-four hours, and contained a small amount of alcohol. After three days the amount of alcohol and carbonic acid was much increased. On making an examination of the fermented liquid after one, two, and three days respectively, the quantity of casein found was practically the same in each case. But on treating the casein so obtained with dilute ammonia and then dilute potash solution, in no case was there a complete solution. An amount of insoluble residue was obtained from the *third-day* experiment of .22 per cent. of the casein, and which consisted entirely of yeast-cells. From this is concluded that the fermentation of the milk is entirely due to *Saccharomyces mycoderma*, the *Bacterium dispora caucasica* not taking any part in the fermentation, and this seems to be further supported by the fact that the "finished" drinkable kephir will start fermentation in fresh milk in the same manner as the kephir-grains.

The *Bacterium "dispora"* which Kern noticed, and to the action of which he ascribed the peculiar properties of kephir, probably results, in quite a secondary manner, from the employment by the people in the Caucasus of the old leather of the bottles in which kephir has been fermented. In this process in leather bottles the yeast-cells are in contact with the leather, and to some extent possibly grow or extend into it, so that they become modified physically, and the rapidity of fermentation is much lessened. Any animal tissue which has become, as it were, saturated or penetrated by yeast-cells is capable of causing sugar solutions and also milk to ferment, and can therefore be used in place of these kephir-grains for the preparation of kephir.

#### HENRY WATTS, F.R.S.

WE regret to announce the death of Mr. Henry Watts, F.R.S., the well-known chemist; he died on June 30, of syncope from failure of the heart's action, after a very short illness.

Henry Watts was born in London on January 20, 1815. He was educated first at a private school in

London, and subsequently attended lectures at the University College, London. In 1841 he graduated as Bachelor of Arts in the University of London. In 1846 he entered the Birkbeck Laboratory of Chemistry, then recently established at University College, as assistant to his highly valued friend, the late Prof. Fownes, and in that capacity was engaged in directing the work of the students till the death of Prof. Fownes in 1849, and afterwards till 1857 under Prof. Williamson. In 1848 he was engaged by the Cavendish Society to prepare a translation, with additions, of the great "Handbuch der Chemie" of Leopold Gmelin, a work which extended to eighteen volumes, and occupied a large portion of his time for more than twenty years, the last volume and the index having been published in 1872.

In 1858 he began to prepare a new edition of "Ure's Dictionary of Chemistry and Mineralogy"; but finding that this book, the last edition of which appeared in 1831, had fallen too much behind the existing state of chemistry to be made the groundwork of a dictionary adapted to the requirements of the time, he undertook, with the consent of the publishers, and the assistance of a staff of contributors distinguished for their attainments in different branches of physics and chemistry, the compilation of a new "Dictionary of Chemistry and the Allied Branches of other Sciences." This work, in five large octavo volumes, was completed in 1868; but as additions were required to keep it abreast of the continual advances of science, a supplementary volume was published in 1872, a second supplement in 1875, and a third (in two parts) in 1879 and 1881.

Mr. Watts brought out three editions of "Fownes's Manual of Chemistry," viz. the tenth, published in 1868, the eleventh in 1872, and the twelfth in 1877, and also part 1 of a thirteenth, in 1883.

He held for many years the appointments of editor of the *Journal*, and librarian, to the Chemical Society, having been appointed to the former in 1850, and to the latter in 1861. He was elected a Fellow of the Chemical Society in 1847, a Fellow of the Royal Society in 1866, and a member of the Physical Society in 1879. He was also an Honorary Member of the Pharmaceutical Society, and a Life Governor of University College.

He was engaged at the time of his death in writing a new and abridged edition of the "Dictionary of Chemistry"; he was also editing, in conjunction with Mr. C. E. Groves, a re-issue of "Knapp's Technology," and the thirteenth edition of "Fownes's Manual of Chemistry," of which the second volume is left in manuscript.

#### GEOLOGY AT THE BRITISH ASSOCIATION

THE arrangements for the Geological Section of the British Association are now well advanced, and some idea may be formed of the amount of work likely to be done. Several meetings of the Organising Committee have been held in London, at some of which Principal Dawson has been present. From the list of members of the Association to whom vouchers for the meeting have been issued we learn that English geology will be represented at Montreal by six professors—those of Edinburgh; Trinity College, Dublin; University College, London; Victoria University, Manchester; and University College, Nottingham; and by Prof. T. R. Jones. The Geological Society sends sixty of its Fellows, including the President, Secretary, and six other Members of Council. Many of the leading geologists of Canada also are Fellows of that Society. The Geological Survey sends six of its members, and six or more who have at one time been on the staff.

The President of the Section is Mr. W. T. Blanford, Secretary of the Geological Society, who will afterwards represent that Society at the Philadelphia meeting of the American Association; the Vice-Presidents are Prof. T.