tion was to obtain some first-hand information concerning the blood changes in workers in lead, especially as regards the significance of the presence of basophile granules in the red corpuscles (the "erythrocytes ponctués" of French writers), and the conditions under which they occur.

The men examined were all adult males. Most of them were employed at the works of the Chloride Electrical Storage Co. at Clifton Junction, in various ways involving contact with lead. Three men were undoubted cases of lead-poisoning, not employed by the Chloride Company, but sent to the works to obtain bath treatment.

The conclusions arrived at were as follows:—

(1) The presence of basophile granules in the blood of lead workers affords very strong evidence of lead absorption, but in itself is no absolute proof of lead poisoning. It would appear wrong to exclude such cases from following their ordinary work, but they should be regarded as a special class, and kept under close observation. The knowledge of the existence of such cases in a factory would certainly facilitate the work of inspection.

(2) Blood examinations are of great value in cases where the clinical symptoms are doubtful, and in cases of suspected malingering or imaginary illness. In such cases a positive finding would at all events go to show that lead absorption had occurred. A negative result is of less significance, though it has a certain value.

Dr. S. Rideal, of London, in a paper read before the Domestic Hygiene Section of the congress, discussed the use of paper utensils in the home as a substitute for glass and china or earthenware. The argument for the use of paper plates, cups and saucers, which can be destroyed after use, was based chiefly on the fact that recent scientific investigation has proved that cups taken from schools, stores, and hotels have been found infected with several pathogenic forms of bacteria (including those of diphtheria, pneumonia, and influenza), even when supposed to be clean and ready for use. At one of the largest hospitals there is a regulation that all crockery, cutlery, glass, etc., should be rinsed in a disinfectant before being used again. In these days of typhoid and diphtheria "carriers," the public are entitled to expect the adoption of similar precautions in places of refreshment; but this, of course, involves expense and labour.

Samples of the following articles, made in paper, were exhibited at the close of the address, which aroused much interest and a keen discussion:—*Cups:* automatic dispenser; collapsing. Plates, table-covers; handkerchiefs; towels (various); blind; spitting-cup; formaldehyde generator (home-made). *Bags:* coke bag; moth bag; bags for cookery.

PALISSY AS A PIONEER OF SCIENTIFIC METHOD.

EVERYONE is familiar with the dramatic story of Bernard Palissy, the potter, and how he fired a kiln with his household furniture in order to produce sufficient heat to melt his glazes, but his scientific work is rarely mentioned. A paper on "Palissy, Bacon, and the Revival of Natural Science," by Sir T. Clifford Allbutt, published in the Proceedings of the British Academy (vol. vi.) is therefore a welcome contribution to the history of science.

Palissy shares with Galileo and Gilbert the credit of being a pioneer of modern scientific method. Born in 1519, in Périgord, he was apprenticed to the art of glass painting, and in 1539 saw the cup of glazed faïence which inspired him to produce a similar glaze upon ware. After he had succeeded, he found his way to Paris, where he wrote books on many scientific subjects; and during the years 1575–84 he exercised great influence upon society in the city. He lectured on agriculture, chemistry, mineralogy, and geology, and illustrated his lectures with demonstrations of natural objects from his museum. "Into the faces of the learned of his time he thrust his facts; he urged the might of the verified fact, the tests of practical experience, the demonstration of the senses; and these in a keen and original way." Among the physicians who attended his lectures was no less a person than Ambrose Paré.

By observation and experiment Palissy combated the prevailing notion that springs originated in the percolation of sea-water into the earth; and he showed that they were formed at the junction of permeable and impermeable strata. He collected fossils widely and understood their nature; and both Buffon and Réaumur bore testimony to the correctness of his judgments upon this and other geological subjects. At the age of eighty Palissy was thrown into the Bastille as a dangerous heretic, and he died there after enduring about a year's imprisonment.

Sir Clifford Allbutt suggests that Francis Bacon, who went to Paris in 1576, and resided there for three years, must have been influenced by Palissy's Museum or lectures, though no mention of them is found in any existing work "What is certain is that Palissy was then teaching practically the methods which a few years afterwards Bacon propounded at length; and not only so, but was teaching them, if with a far inferior literary capacity, yet with a sounder grasp of their methods."

Bacon constructed an imposing philosophical system of rules by which natural facts and phenomena were to be studied, but it was Palissy, Gilbert, and Galileo who were the real founders of the experimental method of inquiry upon which the superstructure of modern science has been built.

EXPLOSIVES.[1]

AN explosive is a body which, under the influence of heat or shock, or both, is, speaking popularly, instantaneously resolved entirely, or almost so, into gases.

Practical explosives consist either of bodies such as nitroglycerine and nitrocellulose, which are explosive in themselves, or mixtures of ingredients which separately are, or may be, non-explosive, but when intimately mixed are capable of being exploded.

Explosives are exploded either by simple ignition, as in the case of black gunpowder, or by means of a detonator containing mercury fulminate.

The molecules of an explosive may be regarded as in a state of unstable chemical equilibrium. A stable state of equilibrium is brought about by the sudden decomposition of the original compounds with the evolution of heat. An explosion is thus an extremely rapid decomposition, accompanied by the production of a large volume of gas and the development of much heat.

There are two well-defined modes of explosion which can be described as combustion and detonation. In the former case, the explosive is simply ignited and combustion takes place by transference of heat from layer to layer of the explosive. The rapidity with which the combustion proceeds depends not only on the physical form of the explosive, but also on the pressure under which the decomposition takes place. When in the form of fine grains, combustion pro-

[1] From a course of lectures delivered before the Institute of Chemistry, at King's College, London, by Mr. William Macnab, and published by the Institute