PROCEEDINGS OF SOCIETIES.

CHEMICAL SOCIETY.

Thursday, May 7th, 1874.

Dr. ODLING, F.R.S., President, in the Chair.

TER the minutes of the previous meeting had been read d confirmed, Messrs. J. A. Fleming, Robert Routledge, d W. Kellner, were formally admitted Fellows of the ociety.

The list of donations was then announced, and the following names read for the first time:—Messrs. Henry Bird, John Taylor Leighton, William M. Habinshaw, Percy Tarbutt, Robert Yates, Toraske H. Tono, and Stephen Cooke.

The gentlemen elected Fellows of the Society after their names had been duly read the third time, were—Messrs. John McLachlan Glassford, George Jarmain, Arthur Brotherton Allen, and Maurice Lichtenstein.

The first paper, "*The Action of Ammonia on Phenyl and Cresyl Chloracetamide*," was read in French by the author, Dr. D. TOMMASI. When phenyl chloracetamide is gently heated with a solution of ammonia in dilute alcohol, ammonium chloride is formed, which partly crystallises out. On removing this, and pouring the filtrate into cold water, a viscous product separates, somewhat resembling colophony in appearance, and having the formula—

$$\left.\begin{matrix} C_6H_5 \\ H \\ CH_2.OH.CO \end{matrix}\right\} N.H_2O$$

he chlorine in the phenyl chloracetamide—

$$\left.\begin{matrix} C_6H_5 \\ H \\ CH_2.Cl.CO \end{matrix}\right\} N$$

having been replaced by hydroxyl. It is therefore isomeric with phenyl glycocol. *Phenyl-hydroxyl-acetamide* is insoluble in cold water, and partly decomposed by boiling water into aniline and a new product. Alkaline solutions produce a somewhat similar decomposition. Phenyl-hydroxyl-acetamide is insoluble in hydrochloric and sulphuric acids, but soluble in glacial acetic acid. Heated with nitric acid, it dissolves, with evolution of nitrous fumes, and the addition of water to the solution produces a pale yellow precipitate. Cresyl-hydroxyl-acetamide—

$$\left.\begin{matrix} C_7H_7 \\ H \\ CH_2.OH.CO \end{matrix}\right\} N,H_2O+\tfrac{1}{2}aq$$

is obtained by a process similar to the phenyl compound, which it closely resembles in its properties and reactions. An attempt to prepare the corresponding naphthyl compound was unsuccessful.

The PRESIDENT, in thanking Dr. Tommasi in the name of the Society, remarked that an aqueous solution of ammonia usually acted on these chlorine compounds in the same way as the dry gas, replacing the chlorine by NH_2, but the action here appeared to be entirely different, and more like that with potassic or sodic hydrate, introducing hydroxyl in the place of the chlorine.

Dr. GLADSTONE then read a paper, entitled "*Researches on the Action of the Copper-Zinc Couple on Organic Bodies (Part VII., On the Chlorides of Ethylene and Ethylidene)*," by J. H. GLADSTONE, F.R.S., and A. TRIBE, F.C.S. The ethylidene chloride employed boiled at 61°, and its density at 13° was 1·201; the ethylene compound had a density of 1·272 at 14°; and the refraction equivalent of the two compounds was almost identical—namely, 34·6 and 34·5. The dry couple has but little action on either chloride; in the presence of alcohol, however, the ethylidene compound was attacked near its boiling-point, a gas being evolved, which consisted of ethyl hydride accompanied by a little ethylene, and a viscid compound formed which is zinc chlorethylate—

$$\left.\begin{matrix} C_2H_5O \\ Cl \end{matrix}\right\} Zn$$

The behaviour of ethylene chloride was very different, but little gas being given off, and no zinc chlorethylate formed.

The PRESIDENT said they were glad to receive this new contribution on the action of the copper-zinc couple, showing, as it did, such a well-defined distinction between these isomeric chlorides, although it did not seem to afford an interpretation of the difference in their constitution—that is, that in one case H_2 in one of the methyl residues is replaced by two of chlorine—

$$\begin{matrix} CHCl_2 \\ CH_3 \end{matrix}$$

whilst in the other one hydrogen in each is replaced by chlorine—

$$\begin{matrix} CH_2Cl \\ CH_2Cl \end{matrix}$$

Dr. GLADSTONE replied that as ethyl iodide gave the compound—

$$\left.\begin{matrix} C_2H_5O \\ I \end{matrix}\right\} Zn$$

so the ethylidene compound, the chlorinated ethyl chloride, gave—

$$\left.\begin{matrix} C_2H_5O \\ Cl \end{matrix}\right\} Zn$$

whilst the ethylene dichloride, when treated with zinc, split up into ethylene and chlorine.

Mr. CHARLES E. GROVES read a "*Note on the Preparation of Ethyl Chloride and its Homologues.*" The author, after having noticed the defects of the principal methods given in the chemical manuals for the preparation of ethyl chloride, gave an account of the various processes he had tried for preparing the ether in quantity. Passing hydrochloric acid into boiling alcohol, or into boiling alcoholic solutions of calcium chloride, sulphuric acid, and ferric chloride, all yield ethyl chloride, but accompanied by considerable quantities of hydrochloric acid. If, however, a solution of zinc chloride in about twice its weight of alcohol be treated in the same way, in an apparatus where the alcohol vapour is condensed and flows back again into the flask, the hydrochloric acid is completely absorbed by the boiling liquid, while pure ethyl chloride issues at the other extremity of the apparatus. This continues until the whole of the alcohol has been converted into the ether. Wood-spirit and amyl alcohol, when treated in a similar manner, furnish pure methyl and amyl chlorides. Phenol and cresol are unacted on. [The apparatus employed for the preparation of ethyl chloride by this method was exhibited in action.]

The PRESIDENT thanked the author for having communicated to the Society this elegant method of preparing ethyl chloride, and said that he should be inclined to attribute the peculiar action to the zinc chloride rather than the hydrochloric acid,—the zinc chloride acting on the alcohol, and producing ethyl chloride, water, and zinc oxide, the latter of which was again converted into zinc chloride by the hydrochloric acid—

$$ZnCl_2+2C_2H_5.HO=2C_2H_5Cl+OH_2+QZn.$$

Mr. GROVES replied that a clear solution of zinc chloride in alcohol of the strength employed in the preparation of ethyl chloride gave off none of the haloid ether whatever when heated alone.

The last paper, a "*Note on a New Mineral from New Caledonia*," by A. LIVERSIDGE, was read by the Secretary. The mineral is found in veins traversing serpentine, and associated with chrome iron ore, steatite, and other minerals commonly occurring in serpentine. It is of a beautiful apple-green colour, and, on immersion in water, flies to pieces with a crackling sound, at the same time becoming translucent. Its hardness is 2·5, and its specific