or sulphurous acid, but latterly two modes of attaining that object have been proposed. The first consists in dipping skins, for two days, in a weak solution of neutral hypochlorite of soda, washing, drying, and rubbing them with soap and and oil. The second mode is to dip glove skins into a solution of permanganate of potash, when they soon assume a brownish colour, due to the liberation of the oxygen of the permanganate of potash, and the fixation of the hydrate of sesquioxide of manganese by the skin. The skins so acted on are washed and then dipped in a solution of sulphurous acid, which becomes converted into sulphuric acid by the action of the oxygen of the sesquioxide of manganese, and the protoxide thus produced unites with the sulphuric acid which is soluble in water. The skins thus bleached when dressed are ready for market.

Gilding of Leather.—The usual mode of ornamenting leather with gold is to apply, in such parts as are desired, a thick solution of albumen, covering those parts with gold leaf, and applying a hot iron, when the albumen is coagulated and fixes the gold. This plan is objectionable when the goods are intended for shipment, and the following method, lately proposed, is far preferable: On the parts required to be gilt, a mixture, composed of five parts of copal and one of mastic, are spread; a gentle heat is applied, and when the resins are melted the gold leaf is spread upon them.

Parchment.—There are two distinct qualities of this valuable material, which has been used from time immemorial as a means of preserving records. The best quality is prepared from young lamb, kid and goat skins, and the second quality from calf, wolf, ass, and sheep skins. To make parchment the following is the process:—The skins are stretched on strong rectangular frames, limed, unhaired, fleshed very carefully, and rubbed with pumice stone, until they have acquired the proper thickness. Then are then dried very carefully in the shade.

Dialysis.—Mr. Thomas Graham, Master of the Mint, has lately drawn the attention of the scientific world to a most remarkable property possessed by organic membranes, of separating when in solution, crystallisable bodies from those which are not so. The former he names crystalloids, and the latter colloids. For instance, if a solution of sugar (crystalloid) is mixed with one of gum (colloid) and placed in the vessel, the bottom of which consists of a septum of animal or vegetable parchment, the crystalloid sugar will pass through the membrane into the surrounding water, whilst the colloid gum will remain in the vessel. Again, if solutions of iodide of potassium and albumen be mixed together, the iodide of potassium will diffuse itself through the membrane, which the albumen will not do. Also if to an alkaline solution of silicate of soda, weak hydrochloric acid be cautiously added, chloride of sodium will be produced and silica will remain in solution, and if such a solution be placed in the dialyser, the chloride of sodium (the crystalloid) will diffuse itself through the membrane, while the silica (the colloid) will remain behind. It is impossible to calculate the immense service which the discovery of these facts by Mr. Graham will render to physiology, toxicology, and to manufactures, as in fact every day new applications of it are being made in these various departments of human research. Thus, to give an example which has special reference to these lectures, I have lately seen it proposed by Mr. A. Whitlaw to place salted meat in large dialysers, when it is stated that the salt only will be removed, leaving all the nutritive properties of the meat undiminished. Mr. Whitlaw also proposes to dialyse the brine in which meat has been salted, and thus to remove the salt, leaving the juice of the meat available for use, while the salt is again in condition to be employed as before.

It will now be my agreeable duty to examine with you a few facts relating to hair and wool. It is interesting to observe that hair, wool, feathers, nails, and claws, may be all considered as prolongations of the epidermis, and present nearly the same chemical composition, as will be seen by the following table:—

	Epidermis of man.	Hide.	Man's nails	Hair.	Quill.	Horse's hoof.	Scale of reptile.
Carbon	50·51	50·89	51·09	50·14	52·43	50·40	53·60
Hydrogen	6·81	6.78	6·12	6·67	7.22	7·00	7.20
Nitrogen	17·22	17 25	16·91	17.94	17·93	16·70	16·30
Oxygen & Sulphur	25·63	25·08	25·88	25·25	22 42	25·90	22·90
	100·00	100·00	100·00	100·00	100·00	100 00	100·00

These substances have also this peculiarity, that, notwithstanding their great richness in organic matters they are extremely slow to decompose.

Hair.—The only real point of interest connected with hair appears to me to be the question as to what its various colours are to be ascribed, and I regret that here I can only give conjectures not positive facts. Vauquelin and Fourcroy, who analysed hair most carefully half a century ago, stated that hairs were hollow cylindrical tubes filled with oils of various colours; but Gmelin and others state that the coloration of hair is due to the different proportions of sulphur that they contain.

QUANTITY OF SULPHUR IN HAIR.

Brown	4.98
Black	4.85
Red	5.02
Grey	4.03

Recently Mr. Barreswil has published a paper, in which he states that the coloration of hairs is probably due to the proportion of iron in their composition, and he argues that as iron is the essential element of the colouring matter of blood, it is highly probable that it fulfils the same office with respect to hair. I may state, *en passant*, that great improvements have lately been made in dyeing human hair. Formerly the patient had to undergo most unpleasant treatment, his head being covered with a paste consisting of three parts of lime and one of litharge. An oil cap was then applied and the patient left for twelve hours, when the disagreeable operation of removing the mass and clearing the hair was proceeded with. The black dye communicated to the hair in this process was due to the sulphur of the hair combining with the lead of the litharge, and forming black sulphuret of