EFFECT OF ALCOHOL ON THE MEMBRANES.

The parts which first suffer from alcohol are those expansions of the body which the anatomists call the membranes. "The skin is a membranous envelope. Through the whole of the alimentary surface, from the lips downward, and through the bronchial passages to their minutest ramifications, extends the mucous membrane. The lungs, the heart, the liver, the kidneys are folded in delicate membranes, which can be stripped easily from these parts. If you take a portion of bone, you will find it easy to strip off from it a membranous sheath or covering; if you examine a joint, you will find both the head and the socket lined with membranes. The whole of the intestines are enveloped in a fine membrane called peritoneum . All the muscles are enveloped in membranes, and the fasciculi, or bundles and fibres of muscles, have their membranous sheathing. The brain and spinal cord are enveloped in three membranes; one nearest to themselves, a pure vascular structure, a network of blood-vessels; another, a thin serous structure; a third, a strong fibrous structure. The eyeball is a structure of colloidal humors and membranes, and of nothing else. To complete the description, the minute structures of the vital organs are enrolled in membranous matter."

These membranes are the filters of the body. "In their absence there could be no building of structure, no solidification of tissue, nor organic mechanism. Passive themselves, they, nevertheless, separate all structures into their respective positions and adaptations."

Membranous deteriorations.

In order to make perfectly clear to your mind the action and use of these membranous expansions, and the way in which alcohol deteriorates them, and obstructs their work, we quote again from Dr. Richardson:

"The animal receives from the vegetable world and from the earth the food and drink it requires for its sustenance and motion. It receives colloidal food for its muscles: combustible food for its motion; water for the solution of its various parts; salt for constructive and other physical purposes. These have all to be arranged in the body; and they are arranged by means of the membranous envelopes. Through these membranes nothing can pass that is not, for the time, in a state of aqueous solution, like water or soluble salts. Water passes freely through them, salts pass freely through them, but the constructive matter of the active parts that is colloidal does not pass; it is retained in them until it is chemically decomposed into the soluble type of matter. When we take for our food a portion of animal flesh, it is first resolved, in digestion, into a soluble

fluid before it can be absorbed; in the blood it is resolved into the fluid colloidal condition; in the solids it is laid down within the membranes into new structure, and when it has played its part, it is digested again, if I may so say, into a crystalloidal soluble substance, ready to be carried away and replaced by addition of new matter, then it is dialysed or passed through, the membranes into the blood, and is disposed of in the excretions.

"See, then, what an all-important part these membranous structures play in the animal life. Upon their integrity all the silent work of the building up of the body depends. If these membranes are rendered too porous, and let out the colloidal fluids of the blood the albumen, for example the body so circumstanced, dies; dies as if it were slowly bled to death. If, on the contrary, they become condensed or thickened, or loaded with foreign material, then they fail to allow the natural fluids to pass through them. They fail to dialyse, and the result is, either an accumulation of the fluid in a closed cavity, or contraction of the substance inclosed within the membrane, or dryness of membrane in surfaces that ought to be freely lubricated and kept apart. In old age we see the effects of modification of membrane naturally induced; we see the fixed joint, the shrunken and feeble muscle, the dimmed eye, the deaf ear, the enfeebled nervous function.

"It may possibly seem, at first sight, that I am leading immediately away from the subject of the secondary action of alcohol. It is not so. I am leading directly to it. Upon all these membranous structures alcohol exerts a direct perversion of action. It produces in them a thickening, a shrinking and an inactivity that reduces their functional power. That they may work rapidly and equally, they require to be at all times charged with water to saturation. If, into contact with them, any agent is brought that deprives them of water, then is their work interfered with; they cease to separate the saline constituents properly; and, if the evil that is thus started, be allowed to continue, they contract upon their contained matter in whatever organ it may be situated, and condense it.

"In brief, under the prolonged influence of alcohol those changes which take place from it in the blood corpuscles, extend to the other organic parts, involving them in structural deteriorations, which are always dangerous, and are often ultimately fatal."