

profession at present, and to inquire what are the circumstances under which alcohol should be used, and what the disease or particular forms of disease in which it is held to be indispensable.

In order that the line of argument which I intend to adopt may appear the more plain and simple, I will first direct attention to the effects of alcohol upon the system in a state of health; after which, knowing the abnormal changes which occur in the healthy tissues under the action of various forms of disease, it will be easy to infer whether or not alcohol is an agent calculated to increase or diminish the diseased action in the part, and at once to establish with the greatest facility whether alcohol is contra-indicated or indicated under any given circumstances.

Its action upon the healthy organism.

Alcohol, in whatever form, either as brandy, gin, whiskey, rum, &c., or largely diluted as in beer, wine, &c., when taken into the human system by imbibition, acts primarily upon the mucous membrane of the mouth, fauces, stomach and alimentary canal, producing a state of irritation equal in degree to the quantity of alcohol taken, or strength of the liquor imbibed, producing congestion of the mucous membrane, followed by feverishness, thirst, drouth, indigestion, and frequently diarrhœa.

Dr. Aitken says, in his *Practice of Medicine* (5th ed.) "when spiritous liquors are taken into the stomach they tend to coagulate, in the first instance, all albuminous articles of food or fluid with which they come in contact; as an *irritant*, they stimulate the glandular secretions of the mucous membrane, and ultimately lead to permanent congestion of the vessels and to thickening of the gastric tissues. In these effects it is impossible not to recognise the operation of an agent most pernicious in its ultimate results. The coagulation is very different from that effected by the gastric fluid, and tends to render the article more difficult of solution by the gastric juice."¹

It should be noted that irritation is followed by congestion, as that is also followed by either thickening or softening, and frequently the formation of gastric ulcers. That the albuminous articles of diet and all albuminous fluids are conglutated, hence the gastric juice, being one by virtue of the pepsine present, is rendered unfit to promote digestion; the substances to be digested become less easy of digestion and the gastric juice less capable to digest it, and so indigestion or dyspepsia is brought about.

Dr. W. B. Carpenter and Dr. Beaumont have given us their opinions upon this point, and they are worthy of notice.

According to Dr. Carpenter, "the very vascular mucous membrane of the stomach becomes irritated by the direct contact of alcoholic liquors, and this varies with the *amount, concentration and duration* of the application of the irritant. The lining of the stomach is first congested or reddened, it then becomes thickened or swollen, and sometimes softened and ulcerated, while in other cases it is pale, corrugated or wrinkled and indurated. In either case its fitness to perform its allotted duty in the animal economy is very sensibly impaired."

Fortunately we have direct and positive evidence of the effect of alcoholics upon this most important organ secured by the experiments of Dr. Beaumont upon the man St. Martin.

Dr. Beaumont found, the stomach, on examination after he had been drinking freely, in a decidedly unhealthy condition. There was present, in some points, patches of erythema, or redness; in others aphthous or ulcerating patches were discovered. Two days later the secretions were vitiated also; the inner coats of the stomach unusually morbid; the erythematous appearance more extensive, and spots more hard than usual, from the surface of which exuded small drops of grumous blood; the aphthous patches larger and more numerous; the mucous covering thicker than common, and the secretions much more vitiated. The gastric fluids extracted on this occasion were mixed with a large proportion of thick ropy mucous, and considerable muco-purulent matter, slightly tinged with blood, resembling the discharge from the bowels in some cases of chronic dysentery." This disorder was not indicated by any outward symptom. For, Dr. Beaumont remarks, "St. Martin complains of no symptom indicating any general derangement of the system, except an uneasy sensation and a tenderness at pit of stomach, and some vertigo, with dimness and yellowness of vision on stooping down and rising again; has a thin, yellowish brown coat on his tongue and his countenance rather sallow; pulse uniform and regular; appetite good; rests quietly, and sleeps as well as usual." (By the 6th August the inner surface of the stomach had recovered its healthy appearance—the patient having in the meantime entirely abstained from all alcoholic liquors and having been confined to low diet.) Dr. Beaumont further states that, "diseased appearances similar to those mentioned above have frequently presented themselves in the course of my experience and observations." The free use of ardent spirits, wine, beer, or any intoxicating liquors, when continued for some days has invariably produced these morbid changes; and, as might have been anticipated, habitual excess converts this state of transient