

**Desultory notes on the origin, uses, and effects of ardent spirit / by a physician.**

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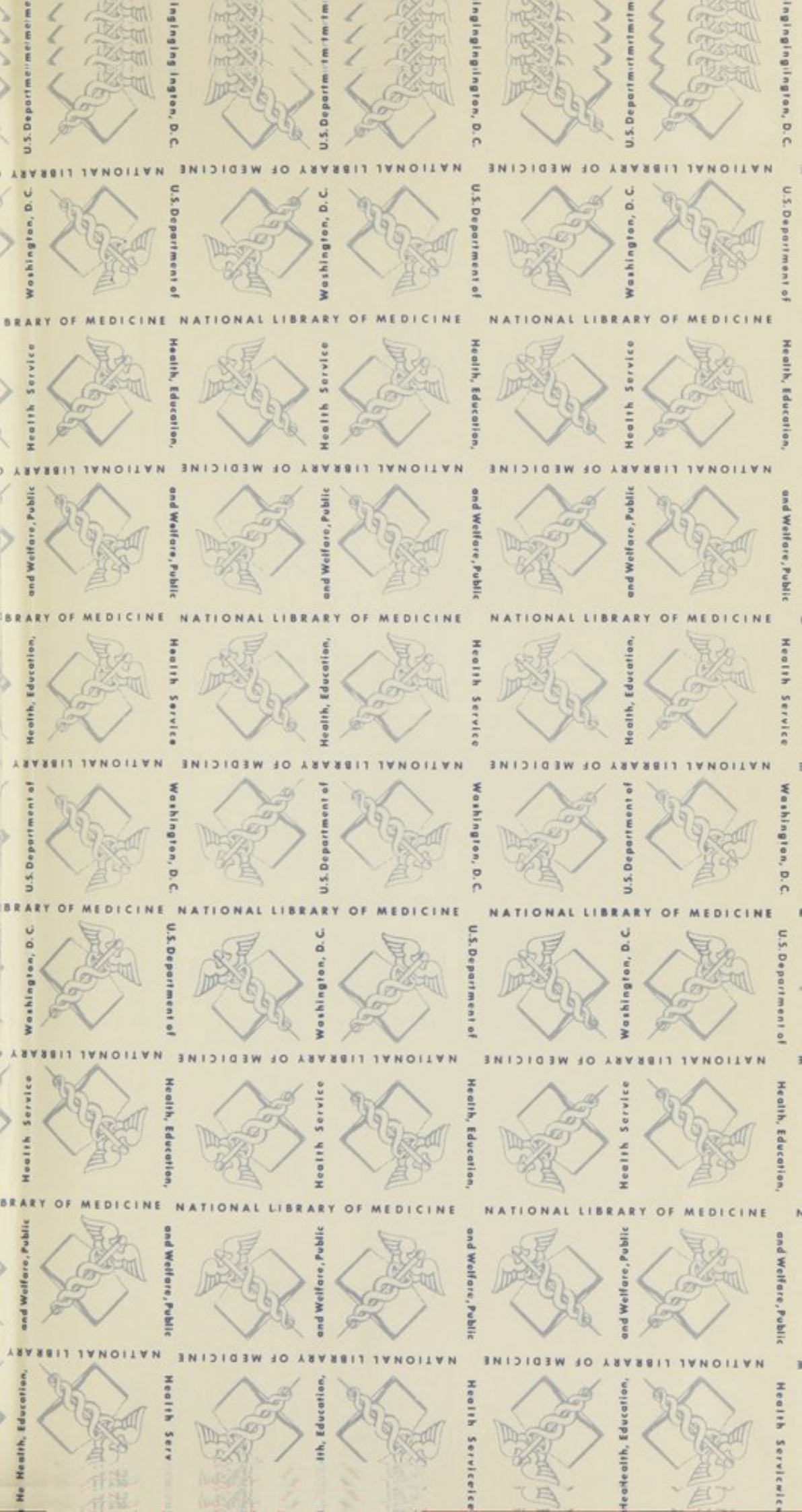
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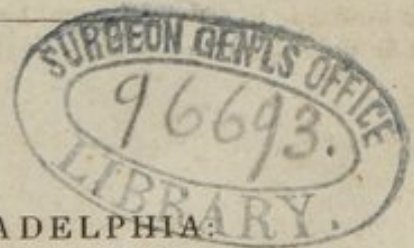
OF

Cont- Books

ARDENT SPIRIT.

BY A PHYSICIAN.

“If I was to establish a single principle of government, it should be this, that—good laws and good manners produce each other,—but such is our unhappiness that we never perceive this valuable connection, till corruption and abuses have been carried together to the highest points; so that, among men, the principle of good arises always from the extremity of evil.”—MEMOIRS OF THE DUKE OF SULLY.



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## PREFACE.

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A friend placed in the hands of the writer of these notes three questions, proposed by the Pennsylvania State Temperance Society, united with several benevolent individuals, for a dissertation on the *origin, effects* and *use* of Ardent Spirit.

1st. "What is the history of the *origin* of Ardent Spirit, and of its introduction into medical practice?"

2d. "What are the *effects* of Ardent Spirit upon the animal economy?"

3d. "Is there any condition of the system in health or disease to which its *use* is indispensable, and for which there is not an adequate substitute?"

The observations which are now offered, result from the consideration of these topics, which had previously occupied the attention of the writer. They are hasty sketches, drawn up as opportunity and health permitted, in the country, while removed from many references which might have proved acceptable. Their arrangement is not satisfactory to the writer, but such as his situation, avocation and engagements constrain him to make. They are respectfully submitted to the discrimination of public opinion, with the hope that they may benefit the cause of general temperance.





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# ORIGIN, USES AND EFFECTS

OF

## ARDENT SPIRIT.

---

Ardent spirit is the product of a peculiar description of fermentation, which has been called *vinous* or *spirituous*, in consequence of its results. It is considered a fundamental principle by the chemists, that no substances are capable of this fermentation but saccharine bodies. Pure sugar, mixed with water, forms tafia or rum by fermentation, and the quantity of spirit is proportional to the saccharine matter decomposed during this action.

From the variety of principles existing in different vegetables, (which appear to result from their organization and functions, according to the designs of the Creator,) the products of fermentation have been distinguished into the *vinous*, which produces intoxicating liquors; the *acetous*, which forms vinegar; and the *putrefactive*, which reduces the substance to soil. Some have added the *panary*, which is that shown in leavened or fermented bread; and the *colourous*, which eventuates in the formation of indigo, by the processes to which the plant that produces it is subjected.

During vegetation the constituents of plants are constantly going through a regular set of changes, losing the properties of one substance and assuming those of another. Thus, that which in the young plant has the qualities of mucilage, assumes in the old the character of starch; what in *green* fruit is an *acid*, in *ripe* fruit becomes *sugar*. This tendency to change, or rather, this continual decomposition in consequence of the mutual re-action of the different simple substances of which the vegetable principles are composed, (aided by the combination of other elements of the greatest delicacy and force, which constantly operate upon vegetation,) is by no means confined to the *living* state. It goes on with equal or with greater energy, under favourable circumstances, in vegetable matter, after it has been completely separated from the living plants. During the spontaneous decomposition which vegetable substances undergo, it is obvious that the *simple principles* of which they are composed must unite together in a different

manner from that in which they were before conjoined, and form a new set of compounds which did not previously exist. The specific gravity of these new compounds is almost always less than that of the old body, as some of them usually fly off in the state of vapour or gas. Hence, the odour that vegetable bodies emit during the whole time that they are running through the series of their changes.

The sugar which liquors that incline to the vinous fermentation contain, either wholly or in part, disappears after they have undergone that action, and the only *new* products are *alcohol*, which remains in the liquid, and *carbonic acid*, which generally escapes during the process; these, when taken together, are found to be equal in weight to the sugar which has disappeared. When several of the vegetable principles are mingled together, then fermentation is most perceptible and the changes most remarkable. Thus, when gluten is added to a solution of sugar in water, the liquid soon runs into vinegar, or, in certain cases, into *alcohol and vinegar*. When gluten is mixed with starch and water, alcohol and vinegar usually make their appearance; but the greatest part of the starch remains unaltered. As a general rule, substances containing *nitrogen* possess the property of fermentation, as gluten, caseous matter, albumen, starch, &c. Potatoes and rice consist almost entirely of starch, which is susceptible of a spontaneous change that converts it into sugar; this change has been designated as the *saccharine* fermentation. When, therefore, starch is transformed apparently into alcohol by fermentation, it is supposed that during the change it passes through the intermediate state of sugar.

It has been observed, that certain substances are peculiarly efficacious in *exciting* fermentation in others. These substances have received the name of *ferments*, or *leaven*,—from *levare*, to raise up. The different methods employed to ferment bread, are well known as of very great antiquity. This process is usually effected with a piece of dough, which has spontaneously passed through a state of fermentation, or with yeast, which is a frothy excess procured from the fermentation of beer. The distinction between *leavened* and *unleavened* bread, was one of the observances enjoined by the Mosaic laws; the peculiarities attendant upon their formation, must have been familiar to the people to whom these regulations were given. Chaptal mentions, that the inhabitants of the banks of the Rhine throw fresh meat into the vintage to hasten spirituous fermentation—and that the Chinese cast excrements into a kind of beer, made of barley and oats, as a leaven abounding with *oxygen*, which is absorbed in the act of fermentation.\*

The waters of certain rivers which contain animal adulterations of various kinds have been praised for producing malt liquors of better flavour than less impure fluids, from the facility and completeness with which they are defecated by a prompt and perfect fermentation.

\* *Nitrogen*, which is an accompaniment of articles possessing the properties of fermentation—is, by itself, destructive to animal life—it cannot be breathed without suffocation—while *oxygen*, which is absorbed during fermentation, was called *vital air*, because no breathing animal can live in any air or gas, which does not contain oxygen mixed with it.

Flour and water, mingled with butter, will rise or ferment to form a delicate pastry.—The meal of the farinaceous grains moistened with water and exposed to a certain temperature, will spontaneously ferment.

“ All the phenomena of fermentation lay for many years concealed in the completest darkness, and no chemist was bold enough to hazard even an attempt to explain them. They were employed, however, and without hesitation too, in the explanation of other phenomena; as if giving to one process the name of another, of which we are equally ignorant, could, in reality, add any thing to our knowledge. The darkness which enveloped these phenomena has lately begun to disperse; but they are still surrounded with a very thick mist; and we must be much better acquainted with the composition of vegetable substances, and the mutual affinities of their ingredients, than we are at present, before we can explain them in a satisfactory manner.”

“ Those complicated parts of plants in which various principles are already mixed, especially the liquid parts, exhibit the finest specimen of fermentation, such as the sap of trees, the juices of fruits, and of the sugar-cane, the decoctions of leaves, grains, seeds, &c. It is from such natural mixtures that we obtain all the products of fermentation, which mankind have applied to useful purposes; such as indigo, beer, bread, wine, vinegar, &c.\*

“ The contact of the external air is necessary, in the first instance, for the production of fermentation; for it was ascertained by Gay-Lussac, that, when grapes were bruised in a vessel from which the atmospherical air had been carefully excluded, no fermentation took place, although the temperature was raised to upwards of 80°; but, on introducing a few bubbles of *oxygen* gas, it immediately commenced, and a copious evolution of carbonic acid gas ensued.† From this decisive experiment we may infer, that, in the process of treating the grapes, a portion of air is absorbed; and the supposition is, in a great measure, confirmed by some remarkable circumstances, which Mr. Knight has stated, with respect to the manufacture of cider. Having observed, that the expressed juice of the apple, when exposed during a few hours to the air and light, became deeply tinged, less fluid, and more saccharine than before, he placed a quantity of the reduced pulp in a closed vessel, and found that above one fifth or sixth part of the enclosed air disappeared, and that the specific gravity of the liquor was increased from 1064 to 1073.‡

“ But after fermentation has been established, the free exposure of the must, (or juice,) is not only unnecessary, but is attended with the inconvenience, that it allows a great proportion of the alcohol and aroma to evaporate, or escape, along with the carbonic acid which is disengaged during the process. That the loss of the most

\* Thomson's System of Chemistry, from which, and from Chaptal's Elements of Chemistry, United States Dispensatory by Drs. Wood and Bache, Dr. Coxe's American Dispensatory, and Parr's Med. Dict., we are indebted for many of the preceding statements.

† Annales de Chimie, Tom. lxxvi. p. 245.

‡ Treatise on the Culture of the Apple and Pear 3d edition, 87, 89.



precious ingredients of the wine, which thus takes place, is considerable, has been clearly proved by Chaptal, who remarked, that, when he suspended vessels, containing pure water, immediately over the crust of the fermenting liquor, the water soon became impregnated with alcohol, and probably, also, with some portion of extractive matter, for it was convertible into *vinegar*.<sup>\*</sup> Hence it comes, that wines, which have been made in vessels so closed, as merely to allow the carbonic acid gas to escape very gradually, and with some difficulty, are commonly of a more generous quality, and of a higher flavour, than those which have been fermented in open vats. When the latter are used, Chaptal recommends the practice of covering them with boards and linen cloths."<sup>†</sup>

"When the *must*, or juice, which is obtained by the pressure of ripe grapes, is exposed to the temperature of 65° of Fahrenheit's scale, it speedily begins to ferment; small bubbles first collect on the top, and may be seen gradually issuing from the central parts of the liquor, and buoying up the husks, stones, and other grosser matters which it contains: as the disengagement of gas proceeds, a hissing noise is produced by the bursting of the bubbles, and a frothy crust, or scum, is formed by the viscid particles which they have carried to the surface. An increase of the temperature and bulk of the fermenting mass now takes place; the must loses its original consistency, and its saccharine taste,—acquiring a deeper colour, and vinous flavour, with an odour of *spirit of wine*, which becomes more perceptible as the process advances. At length these commotions of the fluid abate spontaneously; and after a few days, and sometimes after a few hours' rapid fermentation, the ebullition ceases altogether, the mass subsides to its former bulk, and the crust and solid particles which disturbed the transparency of the liquor, are precipitated to the bottom of the vessel."<sup>‡</sup>

His instinctive dispositions and necessities, as well as the incitements of his understanding, incline man to social, useful, and peaceful improvements, which eventuate in what we call civilisation, and have always prompted him to observe, imitate, and apply for numerous purposes and in different modes, the phenomena which constantly appear and vary before him. To procure bread, wine, and milk, indicates an advance in the arts of social life, to which, in some degree, however slight or rude, man is every way prone. These articles of food require the cultivation of the ground,—the domestication and management of cattle, and a series of auxiliary aids, which appear, in various shapes of simplicity or refinement, to have been coeval with his earliest existence. Tradition and history record their uses from the most remote periods, and from each of these articles, by different processes, ardent spirit may be obtained.

The wandering tribes of Tartars know how to procure an intoxicating drink called *koumiss*, from the fermentation of the milk of their

\* *L'Art de faire le Vin*, (2me édit.) Paris, 1819—p. 135.

† *The History of Ancient and Modern Wines*, by Dr. Henderson. London, 1824.

‡ Dr. Henderson on the Vinous Fermentation, Introduction, p. 3.

mares.\* Ardent spirit, it has lately been discovered, is always eliminated in the process of baking bread, and can be collected in a very pure state, by proper appliances to a peculiar form of oven.† It may, also, be obtained from all the farinaceous grains, by means sufficiently well known.

We need scarcely add, that all wines contain more or less of alcohol, to which they are indebted for their proportionate strength, and the permanence of their peculiar flavour.—Mr. Brande has shown by decisive experiments, which have been confirmed by other chemists of authority, that all wines contain alcohol *already formed*, and that it is *merely separated* from the other ingredients of their composition during the act of distillation. He proved, that alcohol may be obtained from all vinous liquors, by chemical agency, without the application of heat, and therefore must pre-exist in them.—Alcohol is the essential intoxicating ingredient in all spirituous and vinous liquors, and in short of every liquid which has undergone the vinous fermentation. The quantity which they contain, varies from a fourth to a fourteenth part of the wine distilled. New wines yield more alcohol than the old—but the brandy of old wines is considered purer and better. Neither pure alcohol, nor alcohol diluted with water, alone, is susceptible of the acetous fermentation. The weaker the wines, or the beer which are used, the more readily they are converted into vinegar. The stronger they are, they resist the change with greater obstinacy; but strong wines, when *made* to undergo the action of fermentation, yield a better vinegar than weak wines. When other bodies are present which readily ferment, alcohol is decomposed in the process, and contributes to the formation of acetic acid or vinegar.‡

\* “It is a curious fact, that among all the nations with whom milk constitutes a chief part of their diet, it is eaten in a state of acidity. The Tartars always ferment the milk of their mares. The Russians prefer their koumiss, which is reckoned a specific for consumptions. The Caffres ferment their milk by keeping it in sheep-skins, which are never cleansed, in order to preserve the substance that ferments it. They expressed the utmost abhorrence, on seeing Europeans drink some fresh milk, and said it was very unwholesome. Even among the poor, people of Scotland, there is more milk eaten in an ascendant, than in a fresh state.” Sir John Sinclair, Code of Health and Longevity, p. 275.

Elphinstone observes of the Uzbeks, a tribe of Tartars.—“The national beverage is *kimmis*, an intoxicating liquor, well known to be prepared from mare’s milk.” (p. 470.) Duttalde mentions, “They also make a species of *eau de vie*, (spirit) with sour milk, principally from mares, which they *distil*, after having caused it to ferment.” Tome iv. p. 38. “This distilled spirit, although produced from the same materials, must be distinguished from the *kimmis* or *kimmus*, with which it is confounded by some writers. Rubruquis furnishes a circumstantial account of these preparations of milk in all their stages.” Travels of Marco Polo, p. 208.

† Sir Richard Phillips says, “Bread in the process of baking, emits a vapour which, being condensed, proves to be a spirit of great strength. A quartern loaf affords several drachms of pure spirit, of the flavour of *noyau*; and from the general quantity of baking, it is estimated that 900,000 gallons per annum, might be produced from what has hitherto been lost.” A Million of Facts, connected with the studies, pursuits, and interests of mankind, &c. &c. p. 376. London.

‡ Some of the manufacturers of white lead form, from potatoes, a good and

From the experiments made by Mr. Brande, upon a variety of what he believed to be genuine wines, the percentage of alcohol of the specific gravity of 0.825 was found by admeasurement to be, in

Lissa wine,	26.47	Tokay,	9.88
Marsala,	26.30	Cider,	9.87
Madeira, from	19.34 to 24.42	Ale,	3.88
Port	19. 25.83	Brown Stout,	6.80
Sherry,	18.25 19.83	Rum,	53.68
Claret,	12.91 16.32	Brandy,	53.39
Burgundy,	14.53	Gin,	51.06
Hock,	14.37	Scotch whiskey,	54.32
Vin de grave,	12.80	Irish do.	53.09*
White Champagne,	12.80		

Dr. Henderson remarks in a "Note on the quantity of spirit contained in different wines." (page 23.)

"The large quantity of alcohol assigned by Mr. Brande to different wines, which were before thought to contain very little, led me at first, along with many others, to suspect some fallacy in his experiments. That idea, however, I have long since abandoned. But, though convinced of the general accuracy of his researches, I am inclined to think, that several of the wines analysed by him, must have been mixed with a considerable quantity of *adventitious* alcohol; which would, of course, render the results of little value. In one instance, indeed, I have had pretty positive proof, that this conjecture is not unfounded. Mr. Brande commences his table with the wine of Lissa, which he describes as the strongest of all; the proportion of pure alcohol contained in it being, according to his calculation, not less than 26.47 per cent. in one specimen, and 25.41 on the average. When this statement first appeared, it surprised me not a little; as I happened at the time to have in my possession a sample of Lissa wine, which had been obtained from the original importer, and which was so far from showing any unusual degree of spirituousity, that by some of my friends it was mistaken for a species of claret. The analysis of a portion of the same wine by Dr. Prout shows, that

cheap vinegar, which is used in their processes. At one of the largest of these establishments in the city of Philadelphia, that of Mr. J. P. Wetherill, we were informed by him, that during the last year he had used about 5000 gallons of whiskey, to assist in the formation of the potato vinegar. To the beer, which is made of a mash of potatoes and a small quantity of barley, a certain portion of whiskey, diluted with water, is added—in forty-eight hours, acetic acid can be formed from the combination. It has been noticed, that one stage of the fermentation of the beer is distinguished by the appearance of a small fly, of a specific character, upon the surface of the mixture.

In Scotland and Ireland, we have been informed, whiskey is frequently procured from potatoes, especially in districts where illicit distillation is resorted to. The mangle worzel root, also, has afforded good ale.

\* Our apple and rye whiskey contain about 50 per cent. of alcohol. A memorandum, obtained from Mr. J. P. Wetherill, states that 886 gallons of whiskey produced 419 gallons of alcohol, and 18 gallons of a remainder, called low wines. Dr. Kitchener mentions, that the brandy used in England has seldom 40 per cent. of alcohol, and the (*common*) gin not more than 25 or 30 per cent.

the liquor examined by Mr. Brande, must have been totally different; and a circumstance which lately occurred has satisfied me, that an adulterated Sicilian wine has been imposed upon him, under the name of Lissa.—This will serve to account for the discrepancy, as to this point at least, in our respective tables.

“As the wines of the south of France, which are often prepared *expressly for the purpose of distillation*, do not yield more than one third of *proof* spirit, and those of Malaga, and other parts of Andalusia, afford about the same quantity, we may, I think, conclude, that, when any *recent* wine exhibits a larger proportion, it must have received an addition of brandy. I use the term *recent*, because it appears not improbable, that in strong wines, which contain much undecomposed sugar and extractive matter, there may be a further evolution of alcohol, as the insensible fermentation proceeds; raising the total quantity, perhaps, to 18.50 or 19 per cent. In the list subjoined, several of the estimates will be found considerably higher: accordingly, if the above supposition be correct, the inference will follow, that in such cases, part of the spirit may be *adventitious*. That many of the wines enumerated are so compounded, is very certain: but it is desirable to expose their *artificial* strength, as they are unfortunately the kinds best known, and most generally drank in this country.”\*

Dr. Henderson's table is compiled partly from that published by Mr. Brande, in the first volume of the Journal of Science and the Arts, and partly from the results of the experiments of Mr. Ziz, an able chemist residing at Mentz, and of those which Dr. Proust most obligingly undertook at his request. They do not greatly differ from the general analysis we have given of the French wines by Mr. Brande. Burgundy, upwards of twenty years in bottle, contained 12.16 per cent. of alcohol of the specific gravity of .825.

Grenache,	21.24 per cent.
Very old sherry wine,	23.80 do.
Port wine,	20.64 do.
Do. (Vinho de Ramo,)	15.62 do.

*Of the German Wines.*

Rhenish,	from 7 to 7.58 per cent.
Johanisberger, (1788)	8.71 do.
Rudesheimer, (1811)	10.72 do.
Brodenheimer, (1802)	13.96 do. by Ziz.

*Of the Italian and Sicilian Wines.*

The <i>Ætna</i> , or <i>Syracuse</i> , contained	30.00 per cent.
Lissa,	15.90 do.
Madeira, (West India,)	21.20 do.
Constantia, (Cape wine,)	14.50 do.
Shiraz, (Persian wine,)	19.80 do.†

It would appear, from the consideration of such facts, that ardent spirit *originated*, when in the ordinary details of life, any of the va-

\* Appendix, p. 361.

† History of Ancient and Modern Wines, p. 363.

rious chemical processes we have mentioned, were first attempted or ensued. The *separation* of alcohol, which is "the ardent spirit," from its various combinations, requires a further action upon the results of fermentation.

The process of *distillation* is simple; nothing more is absolutely necessary than to boil fermented liquors in a still. The first portion that comes over is an ardent spirit, (combined with water and a variety of extraneous substances,) which receives various names, according to the nature of the ingredients employed in the distillation; as wines, cider, molasses, the fermented infusion of barley, rice, corn, rye, potatoes, &c., which produce brandies, whiskey, rum, gin, spirits, arrack, &c. &c. These, when *again* distilled and properly purified, form alcohol, ardent spirit, or *rectified spirits of wine*, (names which are synonymous,) and the various ethers, according to their chemical combinations.

It is certain that the method of procuring ardent spirit, by distillation, was known in Europe during what have been called "the dark ages;" and, it is probable, that it was practised there much earlier. It is mentioned expressly by the early alchemists. Al-ka-hol is an Arabian word, which was used to designate the impalpable powder of a preparation of lead, which the eastern women employed to tinge their hair and the edges of the eye-lids. This name was afterwards applied by the alchemists to the *purely* spirituous part of liquors that had undergone the vinous fermentation. As a general term, it implies the purer part of a substance separated from its impurities. The title of "*ardent spirit*," is derived from the Latin, ardeo, to *burn*. As *inflammability* was one of its most distinguishing characteristics, by which its strength is often tested,\* it may have served the early chemists as a convenient means of heating their alembics, as it does the present generation of *bon-vivans* in the preparation of a delicate repast.

In the chemical works of Caspar Newman, M. D., professor of chemistry at Berlin, (1759) he employs the phrase "*inflammable spirit*." The word "spirit," has also its origin from the Latin; being, in this instance, a *translation* of the German "geist," a ghost; whence, we have also the term "gas," which was first employed by Van Helmont to express the *spirit* which rises from fermenting liquors. He also was the first who introduced the word "fermentation," into modern chemistry.—[See note, in Appendix.]

\* "There are various methods used in the arts to judge of the degree of *concentration* of spirit of wine. Gun-powder is put into a spoon, and moistened with the spirit, which is set on fire: if the powder takes fire, the spirit is considered to be good; but the contrary, if this effect does not take place. But this method is fallacious, because the effect depends on the *proportion* in which the spirit of wine is used; a small quantity always inflames the powder; and a strong dose never produces this effect, because the water which remains soaks into the powder, and defends it from the combustion.

"The ardent spirit sold in London by the name of spirit of wine, or *lamp spirit*, is made by the rectifiers of malt and molasses spirit, by distillation of the residues of their compounded spirits. It is pretty constantly of the specific gravity of 0.845, at the temperature of 60° Fahrenheit; and may, by careful rectification, be brought nearly up to 0.820. Dry alkali deprives it of more of its water." On the subject of the strength of spirits, consult Blagden in Philosophical Transactions, vol. lxxxi.—Chaptal, Elements of Chemistry, p. 529.

The modern word "brandy," we have from the Teutonic, *brante-wein*, to *burn*—from which the French have borrowed *brande vin*. The name of the vessel used in distilling, called an "alembic," was considered an Arabian term by Avicenna; and the "still" is from "stillare," to *fall drop by drop*, Latin being the language in which all works of art and science were formerly written in Europe.

We are informed that the art of distillation was brought into Europe by the Moors of Spain, about the year 1150. They learned it of the African Moors, who had it of the Egyptians: and the Egyptians are said to have practised it in the reign of the Emperor Dioclesian, about three hundred years after the birth of Christ.\*

"Considering the attention that was bestowed on the evaporation of the must, and the extensive scale on which the process was conducted, it is somewhat extraordinary that the ancients (the Greeks and Romans) should have continued in ignorance of the art of *separating* the alcohol from the other component parts of the wine; the more especially as they had occasionally remarked the *inflammability* of the *latter fluid*: but as no hint occurs in their writings, from which it can be inferred that they had the most distant idea of any such operation, it is clear there could be no question of strengthening their liquors, according to the modern fashion, by the admixture, namely, of a greater or less portion of ardent spirit. They were, therefore, obliged to resort to such substances as, from their fragrant odour and agreeable pungency, were most likely to impart the desired properties."†

It was in Languedoc, in France, where the commerce in "brandies" first originated, according to Chaptal, who says, they have been made in Europe since the thirteenth century. Beckman, in his "History of Inventions and Discoveries," remarks, (Vol. III. p. 376.) "after brandy, from being a *medicine*, came into general use as a liquor at table, and was drunk in common by the people, the Italians, above all, endeavoured to render it weaker and more pleasant by various mixtures, and by raising its value, to make it more respectable, and, at the same time, more useful to persons of the first rank. That their wares might be distinguished with more certainty, they gave them the name of *liquori*, and under that appellation sold them to foreign nations. The French were the first who adopted the use of these articles, particularly after the marriage of Henry II., when Duke of Orleans, with Catharine de Medicis, in the year 1533. This event brought to France great numbers of Italians, who made the French acquainted with these delicacies of their native country, and who taught them to prepare and to use them. The Italians were the first, therefore, who made and sold the fine *liqueurs* at Paris."

The methods of making beer and wines were known in Europe in the most distant ages of which we have any account—and the Greek writers generally attribute the invention to the Egyptians.

"The invention of wine, like the origin of many other important arts, is enveloped in the obscurity of the earliest ages of the world;

\* Dobson's Encyclopædia.

† Henderson, History of Ancient Wines.

but, in the history of ancient nations, it has been generally ascribed to those heroes\* who most contributed to civilise their respective countries, and to whom divine honours were often rendered, in return for the benefits which they had conferred upon mankind. Bacchus, after his education by the Nysæan nymphs, is reported to have traversed nearly the whole globe, introducing the culture of the grape, and diffusing refinement wherever he went."†

Archilochus, a Grecian poet and satirist, who lived about 700 years B. C.—and Æschylus and Sophocles, Grecian tragedians, who lived more than 400 years B. C., mention the "*wine of barley.*"—Tacitus and Pliny remark the general use of beer among the ancient Germans, who called it *Cerevisia*—that is, "the strength of grain." Beer was in common use in Egypt during the time of Herodotus, who was born 444 years before Christ.—Almost every species of grain has been employed for the purpose of producing it. In Europe it is mostly made from barley—in India from rice—in the interior of Africa, according to Park, from the *holcus spicatus*—in China from oats, and barley, and rice—and in our western states from the white gourd seed corn, (maize.) But whatever grain is employed, the process is nearly the same.

"The juice of the harshest description of pears forms, by fermentation, a kind of cider, called Perry."

Cherries, likewise, afford a tolerably good wine; and a kind of brandy is obtained from them, which the Germans call *kirschenwasser*.

"In Canada the fermentation of the saccharine juice of the maple affords a very good liquor; and the Americans, by fermenting the impure syrups of sugar with two parts of water form a liquid which yields the spirit called taffia, or rum, by the English."‡

In Captain Clapperton's "*Journal of a Second Expedition into the Interior of Africa,*" on his way from Boussa to Kano, he mentions an intoxicating drink made of palm wine, called "*roa-bum,*" and another called "*booza,*" made from a mixture of doura, or Guinea corn, honey, pepper, the root of a coarse grass on which the cattle feed, and water. These articles are thrown into large earthen jars, open at top, and are allowed to ferment near a slow fire for four or five days, when the liquor is fit to drink; it is then poured off into other jars. Clapperton says: "It is a very fiery and intoxicating beverage, but whether Mahomedan or pagan, the natives all drink and *agree very well together in their cups.*" 170.

"In various parts of Africa they brew beer from maize—make a

\* The word *hero* among the Greeks, from whom it is derived, did not only signify a brave man, but one of singular worth and renown—and probably also one highly esteemed, having its origin from a verb which means "to love."

Sir William Jones believes Bacchus to be the Rama of the Hindoos; a great conqueror, law-giver, and improver of navigation and commerce. The Greeks call him the god of wine, which includes an attention to agriculture and the arts. Osiris, the presiding deity of the Egyptian temples, was the Bacchus of the Egyptians; who was worshipped as the inventor of agriculture among them, and probably of the plough.

† Henderson, *History of Ancient and Modern Wines.* p. 44.

‡ Chaptal on Spirituous Fermentation. *Elements of Chemistry.* 525.

species of wine from plums—and a strong liquor from honey; but what is still more remarkable, the inhabitants of Kamskatka obtain a drink of some potency from *putrefied fish!*”\*

“Virgil describes a nation in the north, who regaled themselves with a liquor made from the fruit of the service-tree; and paints them as a people gay and frolicsome by means of that unpleasant drink.”†

In Spain brandy is often procured from the plum. (See Parr’s Med. Dict.)

Captain Golowin, of the Russian navy, in the narrative of his captivity in Japan, &c., 1818, mentions: “In Japan there is drink called ‘sagi,’ prepared from rice, the colour of which is white, and the taste not unpleasant. It is far from being strong, and yet when a considerable quantity is drank, it will intoxicate men who have been accustomed to very strong liquors.”—vol. i. 25.

“In Cathay they make a liquor of rice, much stronger than wine. The khan has a tenth of all wool, silk, and hemp; and a third from sugar, spices, and *wine of rice, arrak, &c.*”‡

Stedman, in his history of Surinam, informs us, that the natives of Guiana obtain an inebriating liquor, which is said to resemble ale in its taste, by chewing cassava bread, and spitting it out into water.

There is a root called *ava*, which the islanders in the South Sea chew and then spit into the liquor of the cocoa nut—this ferments, and is said to form a very palatable liquor! See Winterbottom’s Account of the Native Africans of Sierra Leone.

“The Indians of the Isthmus of Darien, the Peruvians, Coriabs, and Tupinambas of Brazil, &c., prepared inebriating drinks from maize, mandioc, and other vegetable substances, according to the detestable process of brewing kava in the South Sea Islands; which is fermented, and drank to intoxication. The Brazilians prepared a better drink from the juice of the cashew apple, and from honey.”§

The Mexicans also drank several kinds of wine, or beverages similar to them, of the *maguei*, of the palm, of the stems or stalks of the maize, or Indian corn; and of the grain also, of which last called “*chicha*,” almost all the historians of America make mention, as it is the kind most generally used in that new world. The most common with the Mexicans, and the best, was that of the “*maguei*,” (*Agave Americana*) called “*octli*” by them, and by the Spaniards “*pulque*.” *Pulque* is not a Spanish nor a Mexican word, but is taken from the Araucan language, which is spoken in Chili, in which “*pulcu*” is the *general* name for the beverages these Indians use to intoxicate themselves. It is related that this liquor was prohibited to any persons but those who were grandfathers and grandmothers, under pain of death, among the Mexicans.||

\* See a note to Beloe’s translation of Herodotus. Vol. i. 375.

† Goguet’s Origin of Laws, vol. i. p. 109. Code of Health and Longevity, i. 304.

‡ Annals of Commerce, Manufactures, Fisheries, and Navigation, with brief notices of the Arts and Sciences connected with them. By David Macpherson. 1805. Vol. i. 76.

§ Humboldt’s Personal Narrative.

|| Clavigero’s History of Mexico, p. 256. Long’s Expedition to the Rocky



In some of the South Sea Islands Captain Cooke found the natives using a wine made from the palm tree, which intoxicated very powerfully.

The Scriptures mention the planting of the vine as one of the first agricultural processes after the flood, which, according to our calculation, was 4181 years from the present time.

“And Noah began to be an husbandman, and he planted a vineyard.

“And he drank of the wine, and was drunken.” Genesis, ix. 20, 21.

The promised inheritance was described to the Hebrews in the desert, as “a land of corn *and wine*.” Deut. xxxiii. 28.

And the Mosaic law is very particular to enjoin a means by which the poorest and most destitute might partake of the fruits:—“When thou gatherest the grapes of thy vineyard, thou shalt *not glean* it afterward: it shall be for the stranger, for the fatherless, and for the widow. And thou shalt remember that *thou wast a bondman* in the land of Egypt: *therefore* I command thee to do this thing.” Deut. xxiv. 21, 22.

When the Hebrew servant was about to leave his employer at the end of the sixth year of his servitude, the law commanded: “Thou shalt not let him go away empty:—thou shalt furnish him *liberally* out of thy flock, and out of thy floor, and *out of thy wine-press*: wherewith the Lord thy God hath blessed thee thou shalt give unto him:—And thou shalt remember that thou wast a bondman!” Deut. xv. 13, 14, 15. It was denounced also as a *punishment* for neglect of the laws.—“Thou shalt plant vineyards and dress them; but shalt neither drink of the wine, nor gather the grapes: for *the worms shall eat them*.” Deut. xxxiii. 39.

Dr. Marshman, in his account of the “Elements of the Chinese Grammar,” printed at Serampore in 1814, gives a specimen of Chinese poetry, in which *wine* is mentioned. This writing is attributed to the great Yu, who founded the Hya dynasty, and lived to be about one hundred years old. His epoch is stated to have *closed* 2142 years before the Christian era, or 3975 years from the present date. He is called in the Chinese record, “The repairer of the effects of the deluge,” which is referred in Chinese History to the year 2230 B. C., or 4063 years from the present time. “Wine,” says the Chinese Chronicle, according to Dr. Marshman, “was made by E-teih. Yu drank it, and delighted in it, but, *apprehensive of its consequences in succeeding ages, procured its prohibition*.”†

In “A View of China,” by the Rev. R. Morrison, printed at Macao in 1817, it is related, that “Chow or Chousin, (the last king of the dynasty Yin, about 1480 years B. C.) and his wife Ta-ke, are

Mountains, ii. 194. Researches, antiquarian and philosophical, concerning the Aboriginal History of America. By J. H. McCulloch, Jr. M. D. 1829.

† The four precepts of the Chinese divinity Fo, who lived 1100 years B. C. were: 1. To kill no living creature. 2. To take nothing belonging to another. 3. To utter no falsehood. 4. *To drink no wine*.

Godama, the deity of the Burmans, who lived about 600 years B. C., gave five commands: 1. Not to kill any thing. 2. Not to steal. 3. Not to commit adultery. 4. Not to speak falsehoods. 5. *Not to drink any thing intoxicating*.—Sir R. Phillips.

held infamous in Chinese history. They made a lake of wine, and surrounded it with meats suspended on trees, where men and women resorted, and passed the long nights in drunkenness and debauchery." In the same work there is a curious remark upon a declaration that, "In the time of Han," (near the commencement of the Christian era) "some of the district magistrates themselves *sold wine*. Perhaps," writes Mr. Morrison, "this opinion arose from the very great attention which was paid by government in collecting *the duty on liquors*—for the people to *distil* clandestinely three measures of *grain* was a capital crime." 47.\*

"The *wine*, or rather the beer, of the Chinese," says Du Halde, is made of a particular species of rice."—T. 11. p. 307, note.

"Their *wine*," says De Guignes, "is made with water, in which they have placed rice or millet to ferment. Ardent spirit (*l'eau de vie*.) is prepared from large millet (a description of *holcus*) or wild rice, macerated in water with a leaven to hasten the fermentation. They afterwards pass the liquor through a still. The Chinese drink this hot, as well as their wine." T. p. 278.—"The Chinese," says Pere Parenin, "do not drink either wine or arrac until they have been made warm."

"This province,"—(Tai-yuen-fu-) says Martini, who wrote about 1650, contains vines; the grapes are the best found in all Upper Asia. If the Chinese wished to make wine of them, they could have very good, and in abundance, but they content themselves with drying the grapes—and merchants sell them dried throughout all China." Thevenot T. p. 47.†

It was observed by Mr. Ellis, one of the commissioners of the embassy to China with Lord Amherst: "It is really surprising, that with abundance of grapes, the Chinese should remain satisfied with the liquor made from rice."—This distilled spirit is called *sam-shoo*, which, upon one occasion, Mr. Ellis saw the boatmen offer as a sacrifice, in small cups, "either to the protecting deity of the boat, or to the god of the stream."‡

In "A Narrative of the British Embassy to China, in the years 1792, 1793, and 1794," Mr. Anderson also mentions the offerings to an idol of "three small cups of wine, spirits, and vinegar."—p. 355.

"The wine and other intoxicating liquors which are used in China, are made of different sorts of grains, as wheat, or corn, millet, rice, buckwheat, and others."§

Mr. Anderson, who accompanied Earl Macartney in his embassy to China, mentions several descriptions of wines and ardent spirit, which were supplied by the Chinese. Of one he says: "Its colour is nearly that of what is called Lisbon wine in England, and is equally

\* Mr. Morrison mentions also, by way of comparison, that in the year 1200 after Christ, there were no chimneys in England; that in 1233 the houses in London were thatched with straw; and in 1298 *wine* was sold in England in the apothecary shops!

† Marsden's Notes to Marco Polo's Travels.

‡ Journal of an Embassy to China.

§ Memoirs relating to the History, the Sciences, the Arts, the Manners, the Customs, &c. of the Chinese. By the Missionaries of Peking. (Paris, 1772.)

clear : it is rather strong, but is of an unpleasant flavour, being harsh and sharp ; and, in short, has more the taste of vinegar than wine." 91. Another kind " of a much superior quality to that which had been received on a former occasion, and had not only the flavour, but the colour of Mountain," (102,) was sent them in another district. After leaving Peking towards the emperor's summer residence in Tartary, he says : " To our dinner each day was added a regale of Jooaw and Samtshoo : the former is a bitter wine of the country, and the latter a very strong spirit distilled from rice and millet, whose appearance resembles that of British gin." 164. On approaching Canton they received " a jar of very pleasant liquor, which is extracted from the sugar cane, and resembles in flavour the rum shrub so well known in our country." 326.

We have somewhere read, that an intoxicating liquor was extracted by the ancient Egyptians from the capsules of the hemp ; and this plant is still found to be employed in Egypt, Persia, and India, for its inebriating effects, which, however, appear rather more assimilated to those of opium in its initiative operations, than to the marked influence of an ardent spirit. Sonnini in his " Travels in Upper and Lower Egypt," says : " The Arabs and Egyptians compose from the hemp different preparations, which throw them into a sort of pleasing inebriety, a state of reverie that inspires gaiety, and occasions agreeable dreams. This bears no resemblance to the intoxication produced by wines or strong liquors—and the French language affords no terms by which it can be expressed. The Arabs give the name of *keif* to this voluptuous vacuity of mind.—The poor who soothe their misery by the stupefaction produced from hemp, content themselves with bruising the capsules of the seeds in water, and eating the paste. The Egyptians also eat the capsules without any preparation ; and they likewise mix them with tobacco for smoking."—The Egyptian hemp differs so much from the European as to be thought to constitute a peculiar species.

A brandy, extracted from dates, is also known in Egypt, to the excessive use of which, by the French soldiers, some singular influences are attributed by Larrey in his " Memoirs of Military Surgery, and Campaigns in Egypt and Syria." Vol. i. 261.

" The *thar*, or palm date, from whose stem the exhilarating *toddy* is extracted, must not be forgotten : the liquor exuding before sunrise is a delightful and innocent beverage, and only gains its intoxicating qualities by being allowed to ferment in the heat of the day. In the latter state, and when rendered still more fiery by the infusion of chillies, (red peppers,) it is drank in great quantities by the English soldiers ; and many a liver complaint, laid to the charge of an Indian climate, in fact owes its origin to this lava-like potation. It is, moreover, so unluckily cheap, that a regular, hard-going, dram-drinking campaigner may get *dead drunk* for the value of a penny."\*

" What has usually been termed palm wine, or *toddy*, is a liquor extracted from trees of the class of palms, by cutting off the shoot

\* Pen and Pencil Sketches, being the Journal of a Tour in India. By Captain Mundy, late Aide-de-camp to Lord Combermere. London, 1832. Vol. ii. p. 216.

or fructification, and applying to the wounded part a vessel, into which the liquor distils: but we read also of an inebriating liquor prepared from the ripe dates, by steeping them in warm water, until they undergo the vinous fermentation. Pottinger, speaking of the people of Mukran (in Persia) says: 'They likewise drink great quantities of an intoxicating beverage, made from fermented dates, which must be very pernicious in its effects.' p. 306. In the Anabasis of Zenophon this liquor is spoken of as having been met with by the Greeks, in the villages of Babylonia: and in the Illustrations of that work by Major Rennell (p. 113,) the subject is fully investigated.\*

In India a spirituous liquor called Arrak is distilled from rice, and also from the juices of the sugar cane. Strabo (anno 19.) in his 15th book of geography, says, in the description of India, on the authority of Nearchus, Alexander's admiral, who lived 325 years B. C.—“He (Nearchus) relates, that the reed in India, yields honey without bees; but it is not a fruit-bearing tree: *yet the fruit intoxicates.*” (See Moseley's Treatise on Sugar.)†

Dr. Moseley, in his Treatise on Sugar, informs us that the Hebrew word which expresses the phrase “strong drink,” in Numbers vi. 3, and Jeremiah xxv. 27, is Shekar or Shakar. The Indian origin of sugar is shukur—the Arabian name, zuchar—the Greek, sachar—and in modern languages there is the same identity of terms, showing, apparently, one common derivation. The Romans sometimes called sugar (saccharum) the “Indian Salt.”

Dr. Adam Clark, in his notes on Luke i. 15, and Leviticus x. 9, mentions that the Greek word sikera, translated “intoxicating drink,” comes from the Hebrew shecer, which is derived from shakar, *to inebriate*. “Any inebriating-drink,” says St. Jerome, (Epist. ad Nepot.) “is called sikera, whether made of apples, corn, honey, dates, or other fruits.” One of the four prohibited liquors among the East Indian Musselmans is called sikkir, and is made by steeping fresh dates in water till they take effect in sweetening it. See also M'Culloh's Philosophical Researches.

A liquor which is obtained from a description of palm, and (according to Bontius, physician to the Dutch settlement at Batavia, in his “account of the diseases, natural history, and medicines of the East Indies,”) is known over all India, is called saguer.

The sugar cane is indigenous to latitudes within and near the torrid zone. The art of its manufacture was known in China, and *candied* sugar was an article of commerce among the Chinese, in much earlier ages than are comprehended in European traditions. China is the only country in the East, even now, where sugar-candy is made in perfection, and they use this description alone in tea, coffee, and all other beverages. Dr. Moseley thinks it probable that the art of mak-

\* Marsden's Notes to Marco Polo, 103.

† “The cotton tree also struck the Greeks at the time of Alexander's invasion, as a very singular phenomenon. They remark with wonder: ‘that trees clothe the Indians,—that *wool* grows upon trees.’”

Historical Account of Discoveries and Travels in Asia, from the earliest ages to the present time. By Hugh Murray, F. R. S. E. Edinburgh, 1820.

ing sugar was also known to the Peruvian Indians before the Spaniards went among them.\*

Although the saccharine principle is so extensively diffused, that, according to Dr. Moseley, it has been styled "the soul of the vegetable world"—yet every kind of sugar, whatever, is separated by art—or rather by a secondary process.—Native sugar does not exist, as an unmingled original principle or vegetable product; and its most simple combinations speedily enter the fermentative process, and yield an ardent spirit. A pound of sugar dissolved in six or eight pints of water, with a spoonful of the yeast of beer added to it, will, by fermentation for a certain period, produce a strong vinous liquor, which, when distilled, gives an ardent spirit of considerable strength. If the whole fermenting mass be exposed for a longer time with a proper temperature, a strong vinegar, like that of wine, will be produced.

The prisoners of the Walnut street jail in the city of Philadelphia, have been known to add a little yeast, obtained from the baker of the establishment, to the molasses and water which is ordinarily given them to drink, and to bury it privily under the ground to undergo the necessary fermentation. They have been found intoxicated by its use, much to the perplexity of their keepers, (who are exceedingly careful to prevent the introduction of ardent spirit,) until the contrivance was discovered. The same plan has been repeatedly attempted.

From the quotations and facts which prove the existence of intoxicating drinks among numerous nations in separate and distant parts of our earth, and exhibit the *facility* with which an ardent spirit is produced from so many sources, we may believe that the knowledge of strong drink, in some shape or form, was as early as that of bread or vinegar:† and it would seem, that the evil effects of excess in its employment, have been as universally appreciated and guarded against among all the nations by whom its qualities were known, and often placed in the rank with crimes or vices of the most dangerous tendency to the welfare of society.

The Mosaic law, which provides for cases of "*drunkenness* and *gluttony*," (Deut. xxi. 20.) proves, in our opinion, the prevalence of these practices 3323 years ago, among the nations surrounding the Hebrews, on which account they were cautioned against them. And it may also be remembered, that nearly 200 years before the birth of Moses, when the sons of Jacob went down into Egypt with their

\* Captain Mignan, in his *Travels in Chaldea*, (1829,) with observations on the sites and remains of Babel, Seleucia, and Cteziphon, gives an account of the ruins of Ahwaz in the province of *Khuzistan* (the ancient Susiana,) which, in the Persian Dictionary signifies any country productive of the sugar cane; or a manufactory of this article—extensive plantations of which are mentioned by Abulfeda. A modern Persian work, quoted by Capt. Mignan, states that "what are now thick and impervious woods, were once extensive plantations of sugar cane. Implements of the art of the sugar baker are so profusely scattered over the ancient site of one of the largest cities of the earth, (Ahwaz) that it is impossible to number them." *Khuzistan* may also put forth the additional claim of possessing the last remnant of the Chaldees and Sabeans, the oldest people upon earth,—the last depositories, not improbably, of the earliest philosophical and theological systems of the human race." p. 300.

† The term vinegar is from the French—*vin-aigre*—*sour wine*.

younger brother Benjamin, and sat at table with Joseph, the Scripture informs us, "they drank, and were merry with him." Genesis, xliii. 34.

The examples we have cited show the very general prevalence of numerous liquors containing an ardent spirit, of domestic production, among various nations. These might be largely augmented, if it were now necessary for our purpose to extend their consideration. We may, however, be permitted, instead, to indulge some opinions with relation to the proofs of the antiquity of the use of ardent spirit, not only as a drink, but also in the different manufactures and processes of art known to those who very long ago preceded us.

From the contemplation of the remnants of the arts and sciences of the nations of antiquity in Africa and Asia, as well as from those which, at the present day, exist in those quarters of the globe, we must believe that a state of high refinement and extensive knowledge distinguished them. When we are informed by historians and travellers who have made acquaintance with their monuments and their institutions, that the earlier rulers of Egypt were well versed in natural science, and even practiced *as physicians*—that all information with regard to the physical phenomena of life, was earnestly sought after, held in great veneration, and gradually led to the various laws which wisdom and experience dictated, and which were admired and imitated, though often perverted, by some of the most celebrated people of whom we have record; we may conjecture that they had acquaintance with some process, by which, either to *concentrate* its powers, or to *divide* the ardent spirit from the various combinations in which it undoubtedly existed among them, and was employed for uses besides those of drink. We think it very evident that the Hebrew writers intended to distinguish between wine and *other* "strong drink." From expressions repeatedly employed in the Scriptures, we believe they designed to describe a liquor *stronger* than wine. (See Appendix.)

Alcohol is the solvent of resins and of most aromatic substances, abounding in the latitudes in which the sugar cane and saccharine fruits are indigenous. It forms the basis of the arts of the apothecary—of the japanner—the varnisher, and the perfumer—and enters into many of the varied processes for bleaching, manufacturing, or colouring the finer articles of clothing or ornament formed of silk, cotton, wool and flax, well known to the ancient inhabitants of Asia and of Africa. A tradition of the Chinese attributes the culture of the mulberry, the silk worm, and weaving, to the *wife* of Hwang-Te, whose reign closed 2622 years B. C. Of course this lady was antediluvian, both by their calculation and ours. Mr. Morrison, from whose "View" we extract, expresses the opinion that the History of China does not disprove the Hebrew Scriptures. The manufacture of silk, and the judicious cultivation of the earth, have undoubtedly a claim to great antiquity in China, although her records do not win belief from those who are scrupulous. Her arts and manufactures, however, prove the scientific and extensive knowledge which *must have preceded* the various practical details which are now exhibited there.

The Chinese conceal, with great care, the information they possess

upon the subject of their arts, science, and machinery, and it is not easy to gain a view of their processes. But the introduction of manufactures into Europe and America, and the rapid advance of modern improvements and of science, constantly and usefully applied to the arts of social life, afford us some analogies, which we will here notice, however feeble the resemblance may appear.

Berthollet, in his "Treatise on Dyeing," (vol. i. 69.) mentions, that the raw silk intended for the manufacture of blonds, laces, and gauzes, articles of the most tender and costly description, is generally obtained from the Chinese, on account of its superior whiteness to that prepared in Europe. Bemmé has published a process for rendering it thus pure, which he considers analogous to the Chinese method: part of this is to make the crude silk undergo two successive macerations in a mixture of *alcohol* with one sixty-fourth of its weight of muriatic acid, to rid it of a substance called *gum*, and of a colourous matter with which silk is coated.\*

It is remarked, in alluding to the account of Alexander's admiral Nearchus—"We find that the people of Indostan were, in all essential particulars, *exactly the same* as at the present moment. In dyeing blue—indigo, the *palm wine* of the áren, and various vegetable acids, are employed."†

"Some of the provinces of Georgia, as well as of Armenia and the adjoining parts of Persia, have, in all ages, been famous for the culture of the silk worm, and commerce in silk. I have long entertained the idea, and hope it will not be thought an extravagant one, that the golden fleece which Jason and his adventurous companions in the Argo, are said to have brought away from Colchis (Mingrelia) and exhibited in Greece, 1263 years B. C., and a few years before the Egyptian Pyramids were built, was a cargo, or perhaps only a specimen, of rich, golden-coloured raw silk, in the *hank*, which might, figuratively, be termed a *fleece*, because, like the wool of sheep, it was to be twisted into thread and woven into cloth."‡

Before we leave this field of conjecture for more practical details and conclusions, we may also mention it has been suggested, that the Egyptians employed a spirituous solvent to assist in the preparation of some of the substances used by them for the services of the dead; (although it must be noticed that bitumen, which is said to have been principally employed, is insoluble in alcohol,) and, that "after the art of the apothecary," which is mentioned in Exodus xxx. 25, (1491 years before Christ) an ardent spirit may have entered into the combination of drugs and medicaments, in those days, and thus lead to an explanation of expressions in the Scriptures, which have been embarrassed with some difficulty and doubt. These suggestions are, indeed, only presumptive—but that the Egyptians did use a spirituous or vinous liquid in the preparation of their mummies, we have evidence from Herodotus, who, in giving an account of the mode

\* Chaptal considers it a kind of gluten which envelopes raw silk.

† Historical Account of the Discoveries and Travels in Asia, from the earliest ages to the present time, by Hugh Murray, F. R. S. E. Edinburgh, 1820.

‡ Note by William Marsden, F. R. S., to the Travels of Marco Polo, p. 57.

of embalming in Egypt, says—"The intestines were washed with palm wine."\*

Those who consider this matter fully, will perceive that the antiseptic qualities of the *strong spirit* of the fermented juice of the palm were well known; and we may suppose that although "the father of history" does not mention its further employment on other parts of the body, that its use was not confined to the intestines alone. We are not by any means satisfied, that what is here termed *wine*, was in the same state of dilution or combination, as the liquors ordinarily used for drink. The language of the ancient nations was often rather symbolical than lingual—referred as much to the sight, by signs and images, as to the sense of hearing; some of their terms also, were confined in significance, referring to some well known *principle*, while others were multiplied in number, to distinguish its *varieties*. The Egyptian, Indian, Chinese, and Mexican characters, demonstrate these peculiarities, and in modern language they are also distinguishable. Every kind of liquor in which ardent spirit was contained, (whether its *principles* were distinguished, or only its *effects* appreciated,) was *generalised* under the universal name of *wine*—as all kind of strong liquors are now called *spirituous* or *alcoholic*. Herodotus speaks of the *wine* of barley—of the lotus—of the vine—of palms—of dates, &c.—vol. ii. 140. In Sale's preliminary discourse on the Koran, we are told, that "*all sorts* of strong and inebriating liquors are comprehended under the name of *wine* in the Koran,"—in the same manner as St. Jerome explains it in the Greek. The Greek word *oinos* is thought to have its derivation from the Hebrew *ion*—wine. See Parr's Med. Dict. We have endeavoured to show how all our *modern* terms relating to the origin or use of alcohol, or ardent spirit, have been derived from more recent sources—they may only more plainly exemplify to us, what was well understood, *in other words*, formerly.

It has been remarked, that "the principal cause why collections of natural curiosities were scarce in ancient times, among the Greeks and Romans, must have been because of the ignorance of naturalists in regard to the proper means of preserving such bodies as soon spoil and corrupt.—Some methods were indeed known and practised, but they were all defective and inferior to that of *spirits of wine* which prevents *putrefaction*, and which by its perfect transparency, permits the objects which are covered by it, to be at all times viewed and examined."†

\* Beloe's Herodotus, vol. 1, 241.

† Beckman's History of Inventions and Discoveries, vol. ii. p. 49.

There are two methods recommended by a celebrated naturalist, (Charles Waterton, Esq. of Walton Hall, England,) for preserving insects selected for cabinets, from the depredations of living ones. The first is by poisoning the atmosphere with spirits of turpentine, which is said to be the most pernicious of all scents to insects. The second is by poisoning every part of the preserved specimens themselves so effectually, by means of corrosive sublimate *in alcohol*, that they may no longer be food for the depredator. This is considered the most effectual method by Mr. Waterton, and superior to the preparation of arsenical soap, which he thinks more dangerous to be used. Loudon's Mag. of Nat. Hist., vol. v. p. 683. June 9, 1832.



Now, although those *we* call "the ancients," viz.—the Greeks and Romans—were deficient in a knowledge of, or neglected a recurrence to such resources, it is well known that *their* ancients, (the Egyptians) preserved in immense numbers, not only the bodies of dead men, but of other animals, birds, &c., which are found in a state of the most perfect preservation in the vicinity of the ruins of their renowned cities. The preparation of the mummies is considered "a proof of the high degree of the knowledge of *chemistry*, which existed among the Egyptians."\* (See note to Beloe's translation of Herodotus—i. 384.) These have, also, been referred to, as an evidence of their intimate acquaintance with anatomy and surgery. Dr. Larrey, who accompanied Bonaparte in his expedition to Egypt, in his "Memoirs of Military Surgery," remarks: "The state of the mummies which are yet found in great quantities, in the catacombs of Upper and Lower Egypt, showed us that the ancient Egyptian surgeons, who embalmed, or caused it to be done, had a perfect knowledge of bandages, for their mummies are covered with dressings applied in the most exact and methodical manner. It is also difficult to conceive how these physicians could embalm the different parts of the body with so much art, unless they had a knowledge of anatomy." He mentions also, that, "on the ceilings and walls of the celebrated temples of Tentyra, Carnak, and Luxor, the ruins of which still attest their ancient magnificence, are bas-reliefs, representing limbs cut off with instruments very similar to those now used in surgery for amputating. Instruments of the same kind are described in their hieroglyphics, and traces are discovered of surgical operations, which prove that their surgery kept pace with the other arts, which appear to have been carried to a high degree of perfection among the Egyptians."†

The monuments of the most ancient nations demonstrate the extremes of wealth, taste, industry, toil, and voluptuousness; and we might infer that the communications of commerce between the inhabitants of ancient Egypt with those of India and of China,‡ would have taught the general effects of liquors, containing an ardent spirit, as soon as any one nation possessed a knowledge of them. But when we regard the arrangements provided throughout the animal world for various, and astonishing inclinations, called *instinctive*, we feel obliged to refer, hereafter, to some other sources of information,

\* A recent traveller in Peru, Mr. Edmond Temple, gives an idea of the practical uses of *wine* in that country.—"Two majestic turkeys were *boiled in wine*, (a good vin de pays,) for the purpose of *preserving them from the heat*, which it did effectually." Travels in Peru, ii. 246.

† It is curious to observe, (writes Sir David Brewster, in allusion to the deception of the Egyptian priests, in reference to the speaking statue of Memnon,) "how the study of nature gradually dispels the consecrated delusions of ages, and reduces to the level of ordinary facts, what time had invested with all the characters of the supernatural.—They were all deceptions derived from science, and from a diligent observation of the phenomena of nature.—The science of chemistry has, from its infancy, been pre-eminently the science of wonders."

‡ "We find," says the elder De Guignes, "in the Chinese annals of the 7th and 8th centuries, a route by sea from China (the port of Canton) to the mouth of the Euphrates."—Mem. de Littérat. t. xxxii. p. 367.

See also Marsden's notes to Travels of Marco Polo.

besides those of national communication and personal imitation, however great their influences are acknowledged to be.

The Chinese chronicles state that in the time of Hwang-te, (whose reign closed 173 years before Christ,) "India, Ta-Tsin, (Egypt or Arabia) and other nations came by the Southern or Chinese sea, *with tribute*," (an ordinary phrase in China, which we are informed is not to be too literally credited,) "and from this time trade with foreigners was carried on at Canton.\*

About the period of the birth of Christ, the Chinese were in the habit of sending persons abroad "to *invite* foreigners"—and at the same time it is mentioned "some vessels arrived which were four or five months on their passage, and the pearls and merchandise of foreigners began to enter China." No Chinese books are extant which were written before the compilations of Confucius, who was born 538 years B. C. In Chinese books, written 100 years B. C., there are accounts of the civilization and riches of India, which is spelled Heen-too or Yin-too, referring to the five Gentoo nations.

It is supposed by some writers that the Chinese themselves are a colony, and it is mentioned that the aborigines of China continue to the present day as a distinct people—and have been noticed in the Chinese records as known 2142 years before Christ.†

"At the time of Alexander's invasion, 324 years B. C., the jurisprudence and police of India were regulated with admirable wisdom, matured by the accumulated experience of many centuries of civilization and established government. The *perfection* of their agriculture and manufactures, and the very flourishing state of the arts and sciences, afford evident proofs of this truth. Their fertile fields and their judicious cultivation, produced annually two crops of grain of various sorts, whereof rice constituted the chief article of their subsistence. From rice they extracted a *spirituous liquor*, as well as from the sugar cane."‡

Whether the Chinese derived their origin from the Indians or Hindoos, or from the Egyptians,§ or whether all these nations, at the same time, made those advances which their monuments and arts evince, from the traditional seat of civilization and knowledge, the mountains of Asia, we will not delay to inquire—but in seeking the *origin* of ardent spirit we must needs attract attention to the *most common* usages of life known to the earliest civilized people we may discover in our research.

Alcohol—the *burning, inflammable, or ardent spirit* of wine, is a solvent of the organic vegetable alkalis, of sugar, camphor, resins,

\* Sir Richard Phillips says—"The Jews in China are the principal silk manufacturers, and they settled there about 250 years before the birth of Christ."—Million of Facts, 643.

† See Morrison's View.

‡ Annals of Commerce, Manufactures, &c. &c., by David Macpherson, 1. 76.

§ In the account which is given of a Chinese Temple or College, by Henry Ellis, Esq., in his "Journal of the Proceedings of the late Embassy to China, &c." he remarks—"In one of the halls there was a statue of Confucius, with those of his principal disciples round him; the remarkable circumstances of this statue are the complexion and features of Confucius—*decidedly African*."—(page 252.) Confucius was born in the sixth century before the Christian era, in the province of Shan-tung.

balsams, volatile oils and soaps. It is now largely used for the various necessities of the druggist, to form tinctures and ethers, and by the practical chemist, for numerous most valuable purposes. The hatters employ it in large quantities to dissolve shellac, as it is considered indispensable for the finer qualities of water proof hats. The *japaners* require a very strong spirit to make their varnish. The cabinet makers, morocco dressers, saddlers, and bootmakers, have recourse to it, to give a finish to their work. The dyers are advantaged by it in many of their processes, as there are various substances soluble in spirits of wine which they need, particularly those used in the dyeing of ribbons. The manufacturers of fine soaps also require alcohol.

Mr. J. P. Wetherill, who is a large manufacturer of spirits of wine in the city of Philadelphia, thinks that one third of our common whiskey is converted into alcohol for manufacturing purposes. The *rye* whiskey is chiefly purchased, because it is cheapest, and affords the ordinary proportion of spirit. The Messrs. Loeke, who also distil whiskey very extensively to supply other manufacturers, inform us, that, for the last three months, (May 1833,) they have converted 4500 gallons of whiskey into ardent spirit, within four weeks they have sold 1200 gallons of Alcohol to the druggists, and upon an average transform from 16 to 20,000 gallons per annum, at their single establishment. There are many other similar ones in the city of Philadelphia, and in other districts of our country, where whiskey is transmuted into spirits of wine. Alcohol (according to the hydrometer or *measurer of water* which shows the proportion of *true* ardent spirit which it contains) is rated at 155° of strength—fourth proof whiskey at 100°, and first proof at 85°. Before the use of this instrument, (the hydrometer,) we are told that oil of vitriol was sometimes used to give the liquor *a bead*, to deceive in the ordinary test of its strength by shaking it. The residuum from the distillation of whiskey into spirit of wine, is described as exceedingly and peculiarly offensive. It is a dark, greenish fluid, coloured by the verdigris collected upon the inside of the common copper stills, and by the colouring matter of the wood of the barrels in which it is confined, besides other ingredients which pass over in distilling by the first process, after fermentation. We may mention, that many of the manufacturers of whiskey into alcohol, are very favourable to the cause of temperance—being themselves water drinkers. Some of those we have spoken with think few would be disposed to use the common whiskey as a drink, who should see the *poisonous* remainder which passes off into the common sewer, after the distillation of the alcohol.

It may not be misplaced to remark here, that the political economy of a nation, or the laws affecting its *internal* or *domestic industry*, have a bearing upon the excessive production, use and price of ardent spirit. In the interior of our country, where formerly the means of communication were difficult, and the variety of industry limited principally to the cultivation of the land, the *excess* of grains and of fruits were distilled into whiskey, because they, in this form, were reduced in bulk and were more saleable in the markets. With the introduction of manufactures of various kinds into the United States, two

effects have been produced and are apparent in the state of Pennsylvania particularly.

1st. The increased domestic demand for bread stuffs, and of course their increased proportionate price, render rye and corn, which are the grains generally converted into whiskey, more profitable to the farmer in the neighbourhood of manufacturing establishments or of internal public improvements, when sold *for bread*. In consequence, many distilleries were stopped from this cause.

2dly. The establishment of certain rates of duty upon many articles formerly brought from abroad, and largely consumed here, in the preparation of which alcohol is essential, promoted a demand at the same time for whiskey, to form into alcohol, as an ingredient in the various products of these manufactures, rapidly and prosperously undertaken in the United States;—and thus the farmers, in districts where a home market for corn, rye, apples and cider, or peaches, &c., was *not* at hand, obtained a better price for whiskey, and a better price for bread stuffs also, than they could have expected, did no such economical establishments exist among us, particularly in a time of almost *universal peace*.

“In regard to wine *as a medicine*, among the ancients, that subject is very fully treated of in ‘Barry’s Observations on the Wines of the Ancients,’ chap. xiii. p. 355. He informs us that Hippocrates always considered his vinous mixtures as a principal instrument in his medical regimen, and claims the singular merit of being the first (among the Greeks) who applied them to medical uses. He directed three different mixtures of the *strong* wines, and even diluted the *weak* wines with water. Plutarch reports, that when the plague raged in the army of Julius Cæsar in Africa, no remedy was found so effectual as good and generous wine.”\*

The same was remarked among the French troops, by Dr. Larrey, during some of the diseases which prevailed in Egypt.

The manner in which wine and strong drink are recommended in the Scriptures,† impress us with the opinion that they were designed as remedial among the Hebrews. \* Among all the ancient people dietetic rules were observed as affording more natural, safe and agreeable means of recovery, or prevention, than the free employment of nauseous and more active drugs.

The introduction of the use of ardent spirit, in a *separated* form, into medical practice in Europe, is attributed to a professor at Montpellier, Arnaulde de Villeneuve, who was born about the end of the 13th century. This chemist first formed *tinctures*, and introduced them into the practice of medicine. It is also said that he was the first who obtained the spirits of turpentine. The investigations of the alchemists in their search after various imaginary qualities caused the discovery of many valuable principles, of which they and their followers made prompt use in the practice of medicine, and in the preparation of their intricate compounds. The discoveries of the older che-

\* The Code of Health and Longevity, by Sir John Sinclair, Bart. Edinburgh, 1807. i. 309.

† Proverbs xxxi. 6, 7.

mists led the way to the more definite and decisive truths of modern philosophers. The sciences, the arts, and manufactures of our day owe many of their improvements to the means of progression thus afforded them; it may, therefore, justly be supposed, that, *before* the high state of cultivation could have been arrived at, which is evident from their vestiges among the most ancient civilized people, there *must* have been a gradual advance in natural and physical, as well as in moral investigations, somewhat similar to that we have a knowledge of at the present day; the combined influences of which, to the purposes of life, are, in fact, the principles which constitute what we mean by civilization. In the discoveries of modern science and arts, we pass much of the same ground over which other nations have long ago preceded us—varying, with our distinct condition, many steps or gradations in our course—but tending onward to the same hope of excellence—and, too often, with the *expectation* of similar decay.

The effects of the use of ardent spirit *as a drink*, are as various upon different individuals, as there are varieties of constitution and character in society. Its influences are to be estimated according to the peculiar state and habit of the *same* person, at *different* periods also; for its results are regulated by the conformation and physical condition of the several organs of the system upon which it makes an immediate or sympathetic impression, as well as by the quantity *relatively* employed, its combinations and quality. The ingredients, simple or compound, with which ardent spirit is conveyed into the stomach, must likewise be considered in calculating its *effects*, for whether in the shape of cider, beer, wines, whiskey, brandy, or diluted in its other forms with water—the intoxicating powers of all, when unadulterated by poisonous drugs, mainly depend upon the quantity of alcohol which they contain—variously modified by its other conjunctions.\* Ardent spirit affects, then, the intellect, in proportion to the peculiar character of the *individual*, as well as by the quantity and quality of the liquids with which it is united when employed.

“A great quantity of liquors may be taken without inebriating, in certain diseases, such as spasm, tetanus, gangrene, and retrocedent gout. Certain circumstances of constitution also, make one person naturally more apt to resist intoxication than another. It is related of Mr. Pitt, that he would retire in the midst of a warm debate and enliven his faculties with a couple of bottles of port. The quantity of wine that would have closed the oratory of so professed a bacchanalian as Sheridan, scarcely excited the son of Chatham.”†

It is well known, that the *time* of using intoxicating liquors, regulates their influences according to the other habits of the individual, and we have further to add, that the *place* in which they are employed

\* “The differences in the character of wines, may all be traced to peculiarities in the nature and preparation of the grapes from which they are manufactured, or to particular modes of conducting the fermentation;—in other words, to the constitution of the *must*, or juice, or to the chemical changes which this liquor is made to undergo.” Hist. of Ancient and Modern wines.

† Rede’s Memoir of the Rt. Hon. George Canning—Anatomy of Drunkenness.

is also found to be a cause of difference in their action. In the proceedings of the Geological Society of London, 1827-28, No. vii. p. 76, there is an account of the ascent of Popocatepetl, fourteen leagues from Mexico, by Lieutenant William Glennie, R. N. "The sensations experienced by the author were analogous to those usually felt by travellers at considerable elevations, viz. weariness, difficult respiration, and headache; the latter inconvenience having been first perceived at a height of 16,895 feet. *Tobacco smoke and spirituous liquors* were also found to produce an *unusually* rapid effect upon the sensorium."\*

The season or temperature, the manners, and the time of life, with all other adventitious and natural causes which simultaneously operate upon us, might also be enumerated, as influencing their effects. Careful physicians warn dyspeptic patients, who are usually very sensitive, against tinctures, and other preparations of alcohol, which influence *them* speedily and injuriously even in very small quantity, without certain precautions.

As a general effect, the first sensation induced by ardent spirit is an exciting one. Its volatile and active nature makes powerful impression on the nerves of the nostrils, the mouth, the throat, and the stomach, and through them on the brain, which depends upon the organs called senses, for its impressions, which are *sensations*. The consequent action, it is supposed, influences the heart—the circulation—the respiration, and the system generally. All these actions are regulated in intensity and force by the causes we have noticed, especially by the condition of the stomach, and the other organs essential to the digestive processes, among which, in man, is the brain.

It is not always necessary that ardent spirit should be *swallowed* to affect the brain—delicate persons may be intoxicated by inhaling, or smelling for a long time, the fumes of strong liquors, which impress the lining membrane of the nose and fauces largely supplied with nerves, and probably also the lungs. Other articles have been used, without entering the stomach, to influence the brain by their exciting and narcotic powers. An intoxicating snuff is taken in various parts of Brazil, Paraguay, and on the upper waters of the river Amazon, the effects of which, Condamine says, last twenty-four hours. Father Romans, who accompanied Columbus, relates, that the natives of the West India islands snuffed tobacco and other narcotics up the nose, through a reed twelve or fourteen inches in length. The plant they used was called *cohoba*, and, he adds, that "it put them beside themselves, *as if they had been drunk.*"†

It is almost impossible to render intelligible, to the unprofessional reader, (which we much desire to do,) the absolute, eventual effects of ardent spirit, without opening to him, some of the physiological‡

\* See Loudon's Mag. of Nat. Hist. for 1829, vol. i. 285.

† Pinkerton's Am. Voyages, iv. 83, &c.

‡ Physiology is "the science of *life*,"—Anatomy is the "science of organization."

mysteries which the active intellect of our age has developed; advancing step by step in the knowledge of some of those great principles of human action, furnished by the wisdom of our Creator, to the most humble, as well as to the most elevated—which have influenced regularly, by the authority of all history, men in all ages, and in every nation, according to their application of them to the true purposes of their existence.

In regarding the peculiarities which attend an individual in a state of intoxication, we must be aware of the general influence which is exercised both over the body and the intellect, by the article he uses: and it is considered essential to a correct comprehension of the *effects* of ardent spirit upon the animal economy, as well as to an idea of the *true causes* of intemperance, that the intimate relation of the several faculties should be somewhat distinctly pointed out—that society may be instructed in the various agents which regulate the bodily health, and, through it, affect the moral condition.

It is by means of the nerves that the brain communicates to, and receives intelligence from every part of the body, and by their *different* arrangements in the *external* senses it obtains impressions from abroad. The senses were formerly limited to five, but we must now understand differently, expressions which were introduced under circumstances of different degrees of information from those we at present possess. The four *elements*, as they were called by the Romans, are not now recognised *as such*, for chemistry has divided and increased them tenfold. The eye, the ear, the nose, the palate, and the skin, do not constitute the only physical means of communicating sensations to the brain, and influencing the mind. The organs peculiar to each sense consist of certain intricate, mechanical provisions, to which numerous nervous fibres are sent from the brain or spinal marrow, differently modified for conveying *distinct* impressions—and accommodated with different degrees of vital power, according to their condition and arrangements.\* But every organ and part of the system is also thus provided, and the *internal* structure of the body is quite as complicated, although regular in the diversity of its nervous and other appropriations; and it is certain that *every internal organ* can communicate impressions to the brain of the actions performing in or upon it, by which the mind is affected. The diseased, as well as the healthful functions of the stomach, the liver, the spleen, the heart, the bowels, the lungs, the brain itself, and of each of the other organs, all cause their different *sensations*, modified in many ways, by peculiarities of the affection, and of the individual. When we recollect the mass and variety of information which the letters of the alphabet or the decimal numbers afford us, we must not estimate these causes too heedlessly because of their apparent insufficiency, for the multiplied diseases of the present day most amply vindicate their influences.† Our only channel of communication with the mind, is

\* The *mechanism* of the eye, the ear, and of the organs of voice, demonstrates most forcibly the necessity of comprehending the *means* by which our Creator acts.

† Why the Egyptian priests called their hieroglyphics and symbolic marks, *stoikeia*—"elements"—was because, in this way of writing, they employed all kinds

through some bodily organ or sense, either external or internal, visible or concealed; and this communication is transmitted, perfectly or otherwise, according to the state of health or derangement of the body, in its wonderfully minute and intricate formation and functions. Locke has demonstrated that the mind reasons and judges according to the means of comparison which the senses afford it. As this has been proven with respect to the *external senses*, a subject which now scarcely needs an argument, we have only to carry the same just principle somewhat farther, with the experience derived from the multiplied diseases and improvements of the present day.

The gymnotus electricus, or electric eel, has a *sense* distinct from the five usually attributed to animals of that class, illustrated by means of electricity.—“ ’Tis a *mode of perception*, (writes Sir William Jones,) peculiar to himself, or a *modification of feeling*; but are not *all* our senses so? ”\*

Dr. Fleming has added the *sense of heat* to the five organs of perception usually enumerated. He considers that “the qualities of the *sense* of heat, sufficiently distinguish it from that of touch, with which it has been confounded, and justify its establishment as a *distinct power* of perception.”

The Chinese have a phrase which refers to “*sixty-four intelligences*,” intimating *senses* or *faculties*, as we suppose; and indeed they are quite as near the truth, as those philosophers, who, Dr. Fleming observes, “have agreed to *reduce* our sensations to *five* kinds.”

The stomach has always been known to exert very great influence over the *physical* condition of all animals, and in discussing the use and effects of ardent spirit as a drink, we may plainly allege the truth, that *its actions* also *affect the moral condition of man*. From its obvious importance and power over the animal economy, it has been called “the conscience of the body,” and “the key of the brain.” On the stomach all the other parts of the system depend for the supplies necessary to their growth, functions, and active existence. Lord Bacon justly calls it, “the father of the family, for if it goes wrong, the whole body suffers.”

In some persons, the stomach is very sensitive, its condition influences the mind materially; as those well know who have suffered from its derangements. At the crisis of some diseases, the instigations of the stomach are attended to with respect by physicians, and returning health is recognised by its action on the mind. Some of the most surprising *instincts* in animals, may be referred, in part, to the

of beings throughout the whole extent of nature, to denote their conceptions; the proper signification of *stoikeia* being—the first *elements* or *principles* of things, out of which all beings arise, and of which they are compounded. Hence it came that *alphabetic* letters, which were an improvement on *hieroglyphical*, and borrowed their first shapes from hieroglyphical images, were called *stoikeia*, or *elements*.—The Divine Legislation of Moses Demonstrated, &c., by William Warburton, A. M. vol. ii. 163.

With such an interpretation, the improvements of modern science justify an increase of *elements*, and in allusion to the *senses* it becomes still more necessary to enlarge.

\* Life of Sir William Jones.



impressions of this indispensable *sense*—for the word *instinct* intimates an inward stirring or impulse, which is what we call an *internal sense*. The young lamb, instinctively as it is said, searches for the dug of its mother a few minutes after birth, *from the impressions of its stomach*: and the new-born chick, even without the instruction of the parent fowl, for it is sometimes hatched by a duck, will pick its requisite variety of food; although the parent often assists its search. Throughout the animal world, similar sensations are evident which have neither the excuse of habit, nor an example for imitation.

The impression of food and drink upon the palate and adjacent parts of the mouth, and upon the sense of smelling, occasions the elimination of various juices, which are mingled with them in the acts of chewing and swallowing. In the stomach they are joined with the gastric liquor which is formed by an action of the nerves, and of the arteries of the part, in what manner we are not yet able to decide—but the facility with which this is effected, causes the satisfaction we experience during and after a grateful meal. The alimentary matter is gradually dissolved in the stomach; is afterwards combined with the bile, pancreatic juices, &c., and further changed and divided in its character. A part called chyle, of a milky white, is taken up by a set of vessels, (connected with the intestines and accompanying their convolutions,) conveyed by particular channels to the right side of the heart, and is mingled with the dark coloured blood, returning in the veins, from all parts of the system. The united mass of venous blood and chyle are thence discharged into the lungs, to be subjected to the influences of the atmosphere which we inhale, and there become of a bright vermilion colour, altered by the essential and incessant process in the lungs. The blood is emptied from them into the left side of the heart, and, by powerful muscular contraction, is distributed through the arteries, to every part of the system, to prepare, increase and change, by its diversified alterations and impressions, the future means of support and life. The precept is important in a *physical* sense, which urges—“keep thy heart with all diligence, for *out of it are the issues of life.*” Proverbs, iv. 23.

As the stomach, by the principles of our being, impresses upon the general economy its distinct and characteristic sensations, so also does the heart, by its natural as well as in its diseased state, peculiarly influence body and mind. The work of a celebrated French surgeon, Corvisart, upon diseases of the heart, is calculated to alarm the general reader—but proves numerous instances of its imperfection and derangements, and may suggest some useful opinions upon the affections of the mind.\*

\* The view we offer upon these subjects is no novelty—“*An heart to perceive and eyes to see, and ears to hear,* Deut. xxix. 4, are expressions used in the scriptures, which indicate a comprehension of *internal* as well as *external organs of perception*. The strict enquiry into natural causes which is known to have been made by the Egyptians, may have originated such expressions, which were understood in the plain language of former days as simple exemplifications of well known phenomena, that all feel, and all attempt to explain. Even if these expressions were designed to convey a *figurative* sense, it would not alter

The brain also, as an organ of the body, or system, depends upon the blood for its vigour and sustenance, as well as other parts; and at the same time that it receives by the nerves impressions of the actions taking place in or through other distant organs, it has a secret action *within itself*, distinct and peculiar, but variously modified by the other impressions.

The *effects* of the *intemperate use* of ardent spirit exhibit an altered state of the ordinary phenomena of the natural and physical, as well as of the moral or mental faculties. No topic, no disease, no experience can more fully demonstrate their intimate communion, connection, and relation. *The causes which produce it* are believed to be no less combined, dependent and intricate; and in vain shall we attempt to oppose successful obstacles to its influences, unless we are able to trace its original sources, and the ultimate causes which promote it.

There are no measures so well calculated to impress man with a proper conception of and reverence for his Creator, like those which lead to the discovery of the *principles* by which He has regulated this whole universe. As we ascertain these ultimate physical causes, so we are truly and fully satisfied of the Great Power which gave them utterance. Until we gain this information, it seems *designed* that we should investigate. "Man is especially distinguished from the lower animals by the consciousness of a Supreme Ruler of the world, and by the dominion he is enabled to exercise over the earth and its productions. He is distinguished also by the restless and insatiable desire for knowledge, the *capacity* to attain it, and the power to perpetuate it from one generation to another."\* The First Great Cause cannot

the impression we have of them while thus conjoined, for the *figures* of the Hebrew language are all *natural* and exact ones.

"Pour bien entendre le vieux Testament il est absolument nécessaire d'approfondir l'Histoire Naturelle, aussi bien que les mœurs des Orientaux."—Michaelis. Recueil de Questions, &c. Præf. xv. "The frequent recurrence for metaphorical expressions to natural objects, and particularly to plants and to trees, is so characteristic of the Hebrew poetry, that it might almost be called the *botanical* poetry. In the sacred scriptures there are upwards of two hundred and fifty botanical terms; which none use so frequently as the poets." Michaelis' note upon Lowth's Lect. iv. "In perusing the sacred scriptures, our ignorance of the various beasts, birds, and plants, which are expressly mentioned or incidentally referred to there, prevents us from discovering the *propriety* of many allusions to their nature and habits, and conceals from us the beauty of many similes which are founded on their characteristic qualities." The Natural History of the Bible, &c., by T. M. Harris, D. D.

The diseases of Egypt are often alluded to in the scriptures, and we are informed by historians that the divisions of scientific labour were so great in that country, that physicians confined their attention to the study of the peculiarities connected with a *single organ* of the body, as we have dentists, oculists, &c. &c. Such facts prove the existence of great diversities of disease, and extreme accuracy and delicacy of research, and authorise, we think, the interpretation we give to the peculiarities of language we allude to, which were readily comprehended in those days, as founded upon physical phenomena of notoriety, and were used without subterfuge by the ancient people. Our speech abounds with similar images, and the Indians offer precisely the same analogies in their simple language.

\* Introductory remarks to an Essay on Instinct and its Physical and Moral Relations. By Thomas Hancock, M. D. London, 1824.

be overlooked, neglected or denied by such research, although the magnitude and splendour of his attributes may confound and overwhelm us.\*

We may desire to know how He has arranged the elementary and connected principles of our being, and of the various primordial agents which surround us. We *must* enquire, how the actions and passions of men are induced and influenced by certain arrangements which He has made evident to our senses; for by such enquiry and information, we fulfil the purposes of our existence, and are enabled to improve it. In the language of a quaint author, man may endeavour "to be a co-partner in the secrets of divine art, in some degree, unless we should think it impertinent for us to design the knowing of that which God has once thought fit to do."†

Matter, as a substance, has much changed its character in the estimation of the well instructed. It has no longer the dull, inert distinction which it was formerly thought to possess. The most simple substances are constantly found performing some kinds of action, from the impression of other matter, quite as wonderful and inexplicable as those of more complex bodies. The principles of galvanism, electricity and magnetism pervade substances apparently senseless and sluggish, and cause the most astonishing and useful variations. Need we refer to the origin of the profuse improvements to which the present age is witness, or to the advances which continue to be made in the various physical sciences and mechanic arts, that open greater space for individual comfort, security and information, and lead to improved systems of government and laws?

Aristotle, the naturalist and philosopher, or some subsequent commentator, entitled "meta ta physica"—now united in the word *metaphysics*—those subjects which were to be studied "*after physical things.*" And it may be asserted, respectfully, that men of the most honourable and benevolent dispositions, have sometimes failed in the choice and adaptation of successful regulations for the general welfare of society, by the want, or injudicious application, of the knowledge of physics, or of those natural laws established by our Creator to be essential and necessary to render intelligible the operation of the ordinary and daily usages, which so greatly control and influence the mental faculties of men and their temporal conditions. Man is the most excellent in form, and most fully endowed of all animals; and has most abundant powers in the aggregate. Yet some others exceed him in the developement of a particular sense. Some description of dogs are superior to him in the sense of smelling—and anatomy proves that the bony and nervous conformation, connected with this organ, is more extensive in those animals, than in man. The eyes of some birds have a keener vision than his—and some small animals hear more acutely than men—the *causes* of such differences may be investigated with advantage, and have been distinguished. But the actions of different salts in taking certain and peculiar shapes as chrystals—the

\* "God is the first cause—the CAUSE of *causes.*"—Arabic Proverbs, by J. L. Burckhardt.

† An Idea of a Philosophical History of Plants, by Nathaniel Green, M. D. 1682.

formation of a shell or a rock—the germination of a seed, and the development of an egg, are as wonderful in adaptation and character as the actions of the superior organised beings.

We are led to make these remarks upon natural phenomena, by facts which demonstrate, that certain individuals, and certain nations, are much less subject to the evils of intemperance, while *using* vinous or spirituous drinks, than others who employ them : and that some nations, although morality interdicts the *abuse*, or their religion may even be thought expressly to forbid the *use*, of wines, are yet prone to excesses in their employment. We believe that the influence of the physical manners, customs, habits and condition, may *promote or prevent* intemperance. The great and general neglect of natural truths—and their combined relations—the ignorance of, or inattention to, the intimate connection of the mental emotions with affections of the body, and the unhappy confusion in which causes and effects appear to be intermingled, seem to demand an explanation ; and the present improved state of physical science may excuse an attempt to discover some of their operations.

In offering a glance at the connection between the physical and moral powers, we must advance one step further in accordance with the present extent of anatomical and physiological investigations. The organ of the brain has been declared the organ of the mental faculties—which are described as varying in intensity, purpose, character and proportion according to the peculiar construction and developements of the brain. The Rev. Dr. Beaseley, in an article on the Science of Phrenology, published in the North American Magazine for Sept. 1833, writes—“ Nor let it be objected that enquiries of this kind have a tendency to lead the understanding towards materialism. An apprehension of this nature arises out of a *superficial* view of the subject. Deeper enquiries and a more thorough comprehension of the matter will correct such *misapprehensions*.”

Every one who does think, is perfectly aware that the *action of thought* proceeds, in some manner, from that position and organ. The manner and mode are, as yet, inexplicable to us—but we should not neglect the most trifling fact which proves that the works of the Deity are more simple and natural than our self respect and peculiar prepossessions incline us to admit. The cessation of certain bodily functions at once cuts off all our communication with the mind—in this world—nay, it is not always necessary that death should occur, (as the subject we discuss most amply proves,) to prevent profitable communion with it! What of truth we discover should be cautiously respected—we gain true knowledge only by the application of those powers with which the Almighty has provided us; liable to various perversions, distortions and contradictions, the results of our own incaution or neglects, which we may with propriety study to regulate.\*

If the operations of the mind are essentially distinct from those of bodily action—then the mind *cannot be diseased*—and the phrase becomes a fiction of poetry. The body complains in its various or peculiar organs, and the mind, acting by and through this body,

\* “ For the Lord is a God of knowledge, and by him actions are weighed.”  
1 Samuel ii. 3.

fulfils its functions with less perfection from the defects of its agent. We should then, in calling insanity from drunkenness, or the derangements of the intellect from other causes, diseases of the mind, absolutely deceive ourselves.

But how do those alter our position, in argument, who consider the brain, the material position, or organ of mind, disconnected by the ordinances of the Almighty, with separate powers? May it not be safely and frankly avowed, from all the phenomena presented both in health and in disease—under all circumstances—and at every age—that the brain and nervous system appear to be the *peculiar agents* of the mind?

Of the essence of mind we absolutely know nothing; and hence the various phrases, Unity, Indivisibility, Immateriality, and others, which have been employed to express the *nature* of this essence, are, in fact, expressions of our own ignorance and presumption. When we witness the mind capable of exciting action in matter, and of being excited to action by matter,—exhibiting its identity by its local residence,—variable in its relations to matter,—variable relatively to its own conditions—capable of exercising different functions at the same time,—and, last of all, multiplying with an increase of population,—we feel overwhelmed with the incomprehensible phenomena which it presents, and admit the suitableness of an expression of our Divine Master, when applied to the present case, “ye know not what manner of spirit ye are of.” \*

According to Mr. John Hunter, an anatomist and physiologist of the most careful and accurate research—“The brain depends on the body for its impression, which is *sensation*; and a *consequent* action is that of the mind.”

Upon a subject so seriously interesting all classes of the community, which mutually depend upon each other, caution is necessary, that while the most direct and simple view should be taken of the *causes* which lead to the evils we refer to, due allowance should be made for the infirmities of our being. And although no proper means ought to be neglected to diminish their *effects*, yet great discrimination appears necessary to distinguish *voluntary* crime, from *involuntary*, constitutional, *diseased*, or vitiated inclinations. † We once saw a boy, who

\* Dr. Fleming “On the Faculties of the Mind.”—Philos. of Zoology. 214.

† The distinction between *voluntary* and *involuntary* offences is one which is peculiar to our moral code and feelings. By the Mosaic law sacrifices were offered for sins committed through “*ignorance*.” (Lev. iv.) It was also declared “ye shall have one law for him that sinneth *through ignorance*, both for him that is born among the children of Israel, and for the *stranger* that sojourneth among them.” (Numbers, xv. 29.) A very liberal enactment which made *general instruction in the laws a moral obligation*. This was indeed facilitated by another command which directed “Thou shalt set thee up great stones, and plaster them with plaster. And thou shalt write upon the stones all the words of this law—*very plainly*.”—Deuteronomy, xxvii.

The Egyptian monuments, which *still* remain, exhibit this style of writing upon plastered stones—the most permanent method which could have been offered—and which was perfectly intelligible to the Hebrews who had so long a time resided among the Egyptians, and were necessarily well acquainted with their practices and customs. The words “*very plainly*,” may have had reference to a style, readily accessible to *every* understanding, for in Egypt, as in

for a number of years had been subject to a diseased action of the heart. Its pulsations were apparent outside of the clothing. He was, *by very slight causes*, thrown into *violent fits of passion*—which were referred to the organic derangement by the very able and considerate physician who attended him.

Corvisart mentions that, in several cases of persons who attempted their lives by suicide, adhesions of the pericardium, and biliary calculi, were found, and he enquires, “is that uneasiness, anxiety and anguish, which in certain instances, the adhesion of the pericardium to the heart induces, capable of rendering the burden of life intolerable?”

The Rev. Robert Hall of Bristol, England, observed to a friend, “It is a remarkable fact, that there are more suicides committed in Cambridge-shire, than in any other county in the kingdom. Why, sir, in the fens, many when they are low-spirited, you find will either drink brandy, or drown themselves, to get rid of *the feeling*.” He said the country, which was then flat, monotonous and unenclosed, looked “like nature *laid out*,” and acknowledged that it “lowered his spirits.”\*

A highly respectable female, who recovered from the effects of a strong dose of laudanum, taken with intent to destroy life, and who for some time resisted the efforts made to relieve her, by one of the most skilful surgeons of Philadelphia, although two children under four years of age were in her bed at the time; detailed to him, afterwards, the temptations she had *felt* to commit suicide for several years, which, she said, were *increased* by hearing of other cases that were published! This instance proves how feeble, in effect, one of the most powerful motives of prevention, *maternal affection*, was found to be when resisted by active and distressing physical impressions. Our ordinary reasoning is also insufficient to explain why the publication of the successful perpetration of violence should induce an imitation, and not deter from similar efforts.

We have heard described the sensations resulting from the improper administration of an undue quantity of a poisonous mineral, as a medicine to an enfeebled stomach. The individual declared that the distress was so great he would not *voluntarily* have resisted an attempt to deprive him of life—so completely was the love of existence absorbed by the wretchedness of his physical condition; and he said expressly that “he believed he understood *the sensations* which instigated suicide or murder!” We often hear of instances of self destruction occurring in persons who were excited by no *apparent external* causes of despair, which can only be referred to derangement of some bodily organ or function, which is secret to us, but sensibly, dangerously and powerfully impressing, irritating or exciting the individual who suffers.

Some cases of inflammation of the bladder are attended with delirium, and the various diseases of the mucous membranes, (mentioned by Dr. Baillie, in his “*Morbid Anatomy of some of the most important*

China, and also in the South Sea Islands, the *religious* language was different from that in *common* use; giving scope to great deception and falsehood.—(See Cook’s voyages, Hawkesworth’s Edit. vol. ii, 264.)

\* Reminiscences of the Rev. Robert Hall, A. M. late of Bristol, &c. by John Greene, &c. &c. 1832.

parts of the Human Body,") powerfully operate on the intellect. A few worms in the stomach or intestines, connected with a depraved digestion, have deranged the proprieties of mental exertion, and often cause fantasies and distressing dreams. During severe dentition, children are aroused from sleep by similar interruptions, influenced by the transient irritation of the gums. This consideration of the various organs of the body, which form the *internal senses*, may somewhat assist us in explaining the phenomena of dreams; which, undoubtedly in some instances, are the results of peculiar operations in, or conditions of, the stomach and other organs of digestion; and may with propriety be considered, in other cases, dependent upon some similar causes of internal functional disturbance or obstruction.\*

"Good digestion favours refreshing sleep, and causes a state of corporeal hilarity conducive to moral enjoyments; while on the contrary, a disordered state of the stomach and its dependencies creates troubled dreams and irritations of the temper."†

"The ancients, among them, Galen, attributed dreams chiefly to indigestion. Mr. Locke informs us, "I once knew a man who was bred a scholar, and had no bad memory, who told me, that he had never dreamed in his life, until he had fever!"‡

"We hear it reported of Dryden, and of Fuseli in modern times, that they thought proper to eat *raw meat* for the sake of obtaining splendid dreams: how much better for such a purpose to have eaten opium, which yet I do not remember that any poet is recorded to have done, except the dramatist Shadwell: and in ancient days Homer is, I think, rightly reputed to have known the virtues of opium."§

"An Essay towards a theory of Apparitions," by Dr. John Ferriar, exemplifies in a curious manner, some of the propositions we have offered—and in the third letter of Sir David Brewster to Sir Walter Scott on spectral illusions, in his "Treatise on Natural Magic," will be found some very singular analogies, showing that, "the immediate cause of the spectres was a deranged action of the stomach." Page 56.

The complicated impressions of the various actions performing in the different organs of the body, must vary in health and in disease—and be the causes of premonitions and natural instigations, to the well regulated system; or produce what are called vagaries and perverted fancies, melancholy and desperation in a diseased state.

By the term *disease*, we do not, it is evident, mean only such violent

\* "Nature is distinguished for deriving a multitude of effects from a very small number of causes; it therefore shows a very imperfect acquaintance with her laws, to assign a separate cause to each fact." Richerand—Elements of Physiology.

Sir Isaac Newton, in his rules for philosophising, declares, "Natura enim simplex est—et rerum causis superfluis non luxuriat."—Nature is simple and does not luxuriate in superfluous causes.

† An Essay on the Disorders of Old Age, by Anthony Carlisle, F. R. S. &c. &c.

‡ On the phenomena of Dreams, and other transient illusions. By Walter C. Dendy, member of the Royal College of surgeons in London, &c. London, 1832.

§ Confessions of an English Opium Eater. Page 167.

cases as are obvious to all—but every source of irritation, derangement or obstruction, incident to the various parts of the bodily structure. Diseases of the mind, (as certain affections have been termed,) or insanity—are often, with great difficulty, established by proof in courts of justice—until one acquainted with the peculiar subject of the hallucination has excited such an answer as to prove the *partial* perversion of the particular individual.

The healthful functions of body and mind are designed to perform their parts with silent and *unfelt* action—like the constant revolution of our earth, which is “unperceived by its inhabitants”—though not the less indisputable on that account—or, like the *sensation* of rapid travelling upon a well made rail road, when “but for the noise of the train, and the rapidity with which external objects seem to dart by, the *sensation* is almost that of *perfect rest*.”\* It is when disease obstructs these healthful and designed movements of the bodily organs, that the mind appreciates the difficulties and embarrassments of progression, and it is then that disease teaches us the mode in which these actions are performed, as it often happens that some casualty or imperfection in mechanics renders us capable of appreciating the necessity of future caution and improvements. It is the individual who endures the irritation—or the passenger who rides over an uneven surface—and not the simple spectator, who is most sensible of suffering, and best capable of explaining the sensations which he feels.

Joy and despair, pleasure and affright, are communicated by the *external* senses, from *external* objects of interest; which influence us, according to the associations of the mind, and the physical state of the individual. For different persons are very differently impressed by the *same* external objects. In like manner, actions which influence the *internal* organs, can convey sensations to the brain, to distract its functions, and show the pride of man how feebly he is prepared by his imagination or fancy, without physical knowledge or observance, to control those influences which the decrees of the Eternal have subjected him to.

The Scriptures, which abound with evidences in support of these positions, frequently mention the “stony heart”—the “trial of the reins—and of the secret or hidden parts;” evidently alluding to *internal sensations* and peculiarities of a physical character, affecting the understanding. The ancient Hebrews, from their daily sacrifices and necessary examinations of the structure of animals, to which they were enjoined for the purpose of excluding the unhealthy or deformed—their peculiar regulations, which were intended to lead to physical investigation—and their attention to natural knowledge, which is obvious in their history, manners and character—no doubt had noticed, and were aware of *various organic peculiarities*, which are introduced as analogies, of the most true, simple, and impressive character, in their writings. “Behold,” says the Psalmist, “Thou desirest truth in the *inward parts*, and in the *hidden part* Thou shalt make me to *know wisdom*.” Psalm li. 6.

\* See Sir J. F. W. Herschell's Treatise on Astronomy, page 12.



The correct physical information exhibited in the Mosaic law is striking and peculiar. The whole of its morality seems deducted from the most natural truths. Some of the most judicious rules which physicians point out at the present day, for the prevention of disease, and some of the most just and salutary regulations in our policy and government, we derive from those which were given to the Hebrews to be the constant guide of their conduct. In some instances the intent of these ordinances is slightly veiled from us by the figurative expressions of ancient language—or by our ignorance of the customs and opinions of remote ages. Many which have been neglected are now called for by the general voice of the civilised world—and our increased knowledge in the arts and sciences, similar to that which, there are strong reasons to suppose, existed *before* the days of Moses, place us in a position more fully to appreciate their general tenor, intent, and purport.

The physical laws are not all merely ceremonial, as their *perversion* would lead us to suppose, but may be esteemed necessary to assist the moral inclinations, to aid, by comparison, in increasing knowledge—and to produce by a more perfect information of the *causes* of contentions, that peace and tranquillity among men and nations which have been the avowed objects of many ages, however illy the *general manners* have been calculated to advance and maintain them. The physical and moral laws given with equal injunction and solemnity to the Hebrews, are, to a certain extent, evident among all nations. The attempts made to prove, from certain usages, that the aboriginal tribes of our vast continent are of Hebrew origin, which have occupied the minds of some intelligent persons, only manifest to us the basis upon which those laws are established.

In alluding to the body, then, it will be perceived that we do not especially refer to the muscular conformation of the limbs, or to the general carriage and appearance, which by no means always indicate the dispositions of the mind, but to the whole connected, organised system, which influences its character.\*

Some of the internal, organic, or functional derangements and imperfections are accidental and momentary—and may be dependent upon the behaviour of others to us—some are produced by imprudent customs and evil practices—while some others are undoubtedly inherited!—We must, however, observe, that there has been kindly provided, within our system itself, a power to alter, repair, and renew. The absorbent vessels acting in an *inverse* proportion to the action of the blood vessels, take up offending causes and regulate improprieties with proper assistance. By their tendencies we may explain the occasional advantages of want of appetite—desire for rest—and certain inclinations that often occur on the approach of disease, which, if aided and attended to, may ward off an attack. Their operations show the advantages of occasional abstinence, rest, and changes of

\* The scriptural description of the creation of man authorises this consideration of him: "And the Lord God formed man of the dust of the ground, and breathed *into his nostrils* the breath of life, and man became a *living soul*." Genesis, xi. 7.

diet, necessarily resorted to in the management of various medical and surgical cases : and afford some explanation of certain religious ordinances which have been proposed, to assist the moral principles by excellent physical observances.\*

It is the action of the stomach upon the brain which indicates to it the quality, quantity, and character of the *peculiar* food and drink which various animals require—and the results depend upon the healthful or depraved condition of these organs. In many cases, we believe that the *stomach* does unquestionably instigate, by its peculiar *diseased* or *perverted* action, the *undue* use of liquors which have an intoxicating effect—and when this is strongly felt the will cannot *always* counteract it.

We should attend with care to the physical character of this indispensable internal organ—the stomach—since a peculiarity affects its *sense*, of great importance to the due comprehension of our subject—namely, that from its nervous appropriations it is *wholly and necessarily independent of the control of what is called the will*.—“The heart, the stomach, the intestinal canal, do not obey the will, and seem to possess a more insulated and more independent existence, and to *act* and *rest* without any influence on our part.”†

It is only by attention, experience, knowledge and *precautions*, that we can hope to influence their impulsive incitements. This power, to a certain extent, we do possess, and the regulation of the general *manners* of life, have undoubtedly an influence over the movements and sensations communicated by these organs. “We conclude,” says Dr. John Flemming, (in the *Philosophy of Zoology*, vol. i. p.44, in the third chapter on the distinguishing characters of animals and vegetables) “that as vegetables are *destitute of nerves*, they are likewise destitute of the *faculty of sensation*. If the nerves of the finger are cut across or compressed, I am unable to communicate to my finger the requisite power—sensation has ceased, and *along with it* voluntary motion.” It may, from these hints, be understood how an interruption of the healthful functions of the nerves of the stomach by an unnatural or perverted secretion of fluids, impressing their sentient extremities;—from the too frequent employment of stimulating substances both of food and drink—or by other means which physicians are aware of—may excite dispositions over which the volition of the individual, by a physical necessity, can exert no influence.

But although the *will* has no power over the actions of the stomach, it is found that the impressions and condition of the stomach greatly *control the will*. It is now known by physiologists, also, that *each* nerve consists of distinct filaments, and although there is nothing in these filaments to distinguish them from each other, or to declare their offices, yet these may be discovered by following out the thread, and observing its relations and especially *its origin*. One filament may be for the purposes of *sensation*—another for muscular *motion*—a third

\* For He knoweth our *frame*; † He remembereth that we are dust.” Psalm, ciii. 14. († The Hebrew word signifies our “*formation*”—*gitsereña*.)

† Richerand, *Elements of Physiology*, 59.

for *combining* the muscles in the *act of respiration*. Each filament or track of nervous matter has its peculiar endowment, *independently* of the others which are bound up along with it. A concurrence of the nerves of *distinct* systems will be found necessary to actions which at first sight appear to be very simple acts of the will.—“If we cut the division of the fifth nerve which goes to the lips of an ass, we deprive the lips of *sensibility*: so that when the animal presses the lips to the ground, and against the oats lying there, he does not *feel* them; and consequently he makes *no effort* to gather them. If, on the other hand, we cut the seventh nerve where it goes to the lips, the animal *feels* the oats, but he *can* make no effort to gather them, the *power* of muscular *motion* being cut off by the division of the nerve. Thus we perceive that in *feeding*, just as in gathering any thing with the hand, *the feeling directs the effort*; and two properties of the nervous system are necessary to a very simple action.”\*

The different modes of treatment to which intemperate persons are subjected, during or consequent to their paroxysms, prove incontestably, the strong influences of the state of the stomach. The emetic plan which has been found successful among some of the intemperate, was not effectual in relieving the *insanity* from strong drink, (as was observed by the medical gentleman, Dr. Klapp of Philadelphia, who, we believe, introduced the practice,) unless *a certain ropy substance* which, appeared as *a diseased secretion* of the stomach, was discharged from it. In some of the secondary stages, anodyne and stimulating palliatives often *suddenly* relieve the most singular perversions of the stomach and of the brain.

An old toper used to call upon a physician of our acquaintance, with most frightful tales of horrors and demoniacal communications, which were presently relieved, to the surprise of the sufferer, by a preparation of assafetida and laudanum, with mint water. These means of relief, however, were so frequently required, that it was necessary to resort to others less palatable, as the patient was at large, and unrestrained in the use of whiskey.

In some stages of certain diseases, judicious physicians have observed that water and fruits are highly objectionable and injurious, although the thirst and *desire* for them are very great, from a *depravation* of appetite; this is found to subside as the exhausted system is restored by proper stimulating food, drinks and medicaments. In some other complaints, the *wish* for water or fruits is, on the contrary, an indication of returning health and natural action, and may most advantageously be gratified. But these sensations are the results of local organic functions, and not of *the will*. Under some circumstances, then, we presume that the inclination for exciting drinks is certainly an healthful action—and its moderate gratification does *not* lead to the disposition to misuse them. In others, on the contrary, there appears not a *capacity* to resist, solely by the efforts of the mind, after the drink has been once tasted—and in some, indeed, even *before* it is tasted,

\* The Nervous System of the Human Body, embracing the papers delivered to the Royal Society on the subject of the nerves. By Charles Bell, F. R. S. From the Register and Library of Medical and Chirurgical Science.

there is an eager and instinctive *appetite* for it. Children differ exceedingly in their dispositions to taste wines or other strong liquors. Some refuse them altogether instinctively and by the smell; while others seem at once inclined to smell, taste and drink them. The means to prevent the misuse of ardent spirit, should of course, in different individuals, be regulated according to their natural tendencies: for, as a celebrated physiologist remarks, "the laws of the Creator will not change to gratify our fancy."

Dr. Spurzheim, in "a View of the Elementary Principles of Education, founded on the Study of the Nature of Man," states: "I know of a family in which the *desire* to drink liquors is *hereditary*; the grandfather and father have killed themselves by hard drinking, the grandchild, *when only five years of age*, manifested the same inclination." 302. It must not be supposed that the knowledge of such facts will tend to the prejudice of society, but it may cause the exercise of moral restraints in those whose affection for their offspring still maintains its natural and designed influence.

In some, no doubt, the will is not controlled so strongly to resort to intoxicating drinks, by the instigations of the stomach—and they who have the least cause to incite them to drink, should certainly exhibit the largest means of resisting excesses. We believe, however, that the *voluntary* drunkard is much more rare than he who falls unwillingly.

These remarks tend to impress the great necessity of connecting moral culture with physical information; from the combination of which we derive the influences requisite for the regulation of our *composite* character.—We must all be aware of the *sensations* which cause us to discriminate a simple thirst for water, or fruits—from those which incline us to more solid aliment—from hunger. Are we not satisfied *by our feelings* that this discernment is induced by the sensations or action communicated through the stomach? and do we not know that they always possess some influence over the will and mental powers, as well as over many involuntary movements? In many cases, the stomach, more than the intellect, urges the excessive employment of intoxicating liquors. The sensations of the stomach often overpower those of the mind, more especially where the intellect has not been properly cultivated. At the same time, we wish to describe those sensations as *diseased, depraved, or perverted*, in function and action—and not as originally necessary in all instances. To enable us to give the proper caution, a knowledge of the *machinery* of our bodily structure is very essential—and it certainly must be understood to enable us to form a just discrimination—and to apply those palliatives which may cause contrary results and more healthful influences. The action and re-action of the mind upon the stomach, and of the stomach upon the mental faculties, are among the most curious, interesting, and important phenomena of our natural existence!; much has yet to be learned concerning them.

The brain, by means of the eighth pair of nerves, holds influence over the stomach—and by them that organ re-acts upon the brain. Portions of the same nerves supply the tongue—and, indeed, they are so general and extensive in their distribution and relations as to

obtain the title of *par vagum*, or the *wandering pair*. The sensations of taste and smell seem to preside, in an especial manner, over the *choice* of food and air, and to belong to the digestive and respiratory functions, as well as to those of the intellect and of thought. Richerand mentions also, that "the use of the system of the great sympathetic nerves is not merely to establish a closer connection and a greater union between *all* the organs which perform the functions of assimilation, but likewise *to free those parts from the influences of the will.*" It can be understood, therefore, why precept alone cannot prevent *desire*—which may, however, be regulated and controlled by the assistance of other means.

Mungo Park, in his travels into the interior of Africa, says, that "*the long use of vegetable food creates so painful a longing for salt, that no words are sufficient to describe it.*" These few words, however, describe exactly the propensity for the stimulus of ardent spirit, which is felt by many who unhappily abandon themselves to excesses—particularly among the poor and miserable, the negligent, the ignorant, and the diseased—and it may hereafter be important to enquire whether *their food* and condition promote, in any manner, such tendencies!

The salt licks in the western country are chosen as favourable stands for procuring game; as it is well known that various animals resort to them to satisfy their *natural* instigations. They are like the springs of water in the desert, from which the fear or danger of death cannot deter.

"The eagerness with which many quadrupeds and birds press towards salt springs and lakes, situated in inland districts, for the purpose of tasting their contents, indicates a *constitutional* fondness for salt. The saline mineral spring of Dunblane, discovered a few years ago, first attracted notice by its being the constant resort of pigeons, which flocked to it from great distances, at all times of the day."<sup>\*</sup>

If, by a cool and dispassionate view of this subject, it can be shown that the use of any one particular description of food prompts such insatiable craving for another—may we not be warranted in calling attention to the effects of the general manners and usages of life, when the extravagance of desire demands the employment of an article so dangerous in its excess as ardent spirit? The longings, the predilections, and caprices, which occur during gestation, are but slightly troublesome in perfect health—and are often of a character which should be satisfied, though sometimes they are prejudicial. They may be compared, as analogous, to those other impressions of the stomach, which strongly solicit so great a variety of food or drinks.

If it can be proven that peculiar manners of life, atmospheric distemperature, and exposures, induce *distinct* diseases, as dyspepsia, bilious disorders, gout, cholera, or consumption—all of which are attended with peculiar mental symptoms in different individuals—and make their impressions upon peculiar, and sometimes very distant, organs of sense—or even if it will be believed, that food, drink, air, exercise, employments, exert any influence over them, either to re-

\* Phil. of Zoology, i. 326. (See note in Appendix.)

lieve or to aggravate them: it may be asked why *the disposition* to use ardent liquors to excess, distinguished equally by peculiarities of bodily and mental disturbance, should not be classed among the other physical infirmities?—If there is a question to establish a discrimination between a *voluntary* or an *involuntary* propensity—ask the voluptuary, in the early stages of gout, to relinquish high-seasoned and piquant dishes, wines, and hot suppers—require the student to be regular at table, and in exercise—plead abstinence to the bilious—or selection to the dyspeptic—propose thick soled shoes or warmer apparel to delicate females—more natural habits, or early hours, to the young and fashionable—or temperance to him who *begins* to drink—are they not all found equally inattentive? When the case becomes more aggravated—the retention of habit, the pertinacity of custom, and the difficulty of change, are equally apparent in all. In breathing an impure atmosphere no one *designs* an ague and fever—in eating delicate food who *wishes* to have gout? The careless school-girl does not think of consumption, nor the student of dyspepsia, while using the means to induce them. Can it be said that any one drinks ardent spirit with the wilful *desire* to become an *habitual drunkard*?

Drunkenness is often referred to habit: which should mean, that the constant use of wines, or stronger liquors, has caused a man to drink intemperately! But many are in the constant habit of using vinous or spirituous liquids, who do not drink to excess; and drunkenness is sometimes induced by a single draught. Our North American Indians had never been in the habit of intoxication, until the white man introduced whiskey among them—yet many relish the drink on the first trial. Habit is “an uniformity in action,” constantly maintaining effects natural to the causes.\*

The eventual debilitating effects of accidental or occasional intoxication, frequently induce sensations which cause a disposition in many, who are not aware of, or cannot procure other means of relief, to recur again to stimulating liquors to renew the *exciting* impressions, however partial or transient, which they have *already* experienced from them; and thus a habit may be kept up. Our experience from the actions of men, under other circumstances, does not lead us to expect a *facility* in relinquishing what are called habits,

“For use can almost change the stamp of nature.”

It is with the expectation that a knowledge of the effects of the use of ardent spirit as a drink, which we attempt to give, may have an influence to correct its *abuse*, that we state the opinion,—*the desire* to drink ardent spirit is sometimes beyond the influence of the will—that, in many cases, it appears to be indulged, from an instigation of the

\* The Arabs have many quaint sayings well adapted to explain the difficulty of change where physical arrangements counteract the will, one of them is as follows: “They said to the hen, Eat, but do not scatter the corn about.—I cannot leave off my habits, said she.” Burkhardt’s Arabian Proverbs. This does not intimate that habits cannot be changed, but that when we attempt an alteration we should understand the nature of the case.

internal organs of the system, to obviate some offending cause or circumstance, resulting from other previous practices and impressions, or as the consequence of an unhealthful or perverted functional derangement. The temporary relief, afforded by undue excitement, induces the habit, which, by continuance, becomes *itself a disease*.

We cannot now argue upon the results which must necessarily follow the general acceptance of these opinions. We can only consider if they are founded upon the proper principles of *truth*—if so, they must ultimately prove advantageous to the community. Dr. Fleming, in treating on the faculties of the mind, remarks—“ Though many have endeavoured to give a satisfactory answer to the question, ‘ What is Truth ?’—few have succeeded in the attempt. The failure, we apprehend, has in great measure arisen from the *variety of meanings* attached to the term, and the impossibility of giving a definition which shall include the whole, independent altogether of our limited acquirements. Thus, truth is, by some, considered as opposed to falsehood ; by others to ignorance; and by many to duty. At present, we shall consider *truth* as expressing *the actual existence of things*.”\* It is with this interpretation we now employ the phrase. There is certainly a necessity for every exhortation, prescription and precaution that can assist in checking the extension of intemperance ; and, also, for tempering some of the opinions, which prevail upon a class of the unfortunate; as they, no less than society, are interested in a change.

There are so many facts to prove an *involuntary* disposition for ardent spirit in persons who have inducements of the highest moral obligation to resist, and who are fully instructed, and aware of the consequences of the enjoyment ; that we cannot be satisfied without alluding to intemperance in this light, with the full assurance that, in doing so, we assist its prevention.

“ By the East Indians, drunkenness is looked upon as a species of insanity; and in their language, the word *ramgam*, signifying a *drunkard*, signifies also a *madman*.”† The laws of Pennsylvania, with humanity and truth, we think, describe the habitual drunkard as “ non compos mentis,” one who does *not* possess the proper and healthful exercise of his rational faculties.

“ A drunkard,” says Sir Edward Coke ; “ *who is voluntarius demon, (a voluntary devil !)* hath no privilege thereby; but what hurt or ill soever he doth, his drunkenness doth *aggravate* it.” The Roman law admitted ebriety as a plea for misdeeds committed under its influence: “ per vinum delapsis capitalis pœna demittitur,” (capital punishment is remitted to those who fall into crime in consequence of intoxication.) But, notwithstanding this tenderness to the offences of drunkards, the Romans, at one period, punished the vice of drunkenness *itself* with death, if found occurring in *a woman* !

We think the practical influences of punishing drunkenness, in any or every instance, much more likely to be effectual in *preventing* it, than considering drunkenness an *aggravation* of crime—for there can be no question, that in the greater number of instances, the power to resist the use of liquor, however difficult for some, is greater than the power

\* Philosophy of Zoology, vol i. 232.

† Anatomy of Drunkenness, p. 20.

to resist its *effects when employed*. And if the disposition is not in *all* instances *voluntary*, Sir Edward Coke's position falls, with many other similar errors of the old English law; being founded upon fictitious or *imaginative principles*. As the law stands at present in Great Britain, drunkenness *per se*, is not punishable, but acts of violence committed under its influence are held to be aggravated. A bond signed in a fit of intoxication, holds in British law, it is stated, (*Anatomy of Drunkenness*, 189,) and is perfectly binding, unless it can be shown that the person, who signed it, was inebriated by the collusion or contrivance of those to whom the bond was given—although a judge or magistrate found drunk *upon the bench*, is liable to removal from office; and *decisions* pronounced by him, in that state, are held to be null and void. But if a drunken magistrate cannot give a just decision, how can a drunken debtor give a just bond? will the *place* of the action influence the effects, or the *punishment* correct his error? or has the latter any effect to prevent drunkenness more than severe punishment has to avert crime when general and just *measures of prevention are neglected*?

"Drunkenness," says the author of the *Anatomy of Drunkenness*, in his preface, "debases and brutifies the intellect so much, that neither moral nor religious considerations have any great effect upon it. A much more effectual weapon is a faithful representation of the effects of habitual intoxication on the human frame." Where the physical character is most degraded, and mental instruction wanting, we also find the difficulties of changing the impressions to increase, and punishment has no good effect. It is said that the Hottentots of the Cape of Good Hope have a "proneness to drunkenness which no *punishments* nor *disgrace* could eradicate."\*

Intemperance is seen in many forms;† but upon this occasion we particularly refer to the *excessive* use of vinous or spirituous drinks. Intemperance of this description is *relative*, as we have before noticed; for under different states of the system individuals are differently affected by stimulating liquors, employed in the ordinary proportions. It is sometimes *accidental*, for those who, after drinking wine for the first time, are sober and sensible while sitting at the table, often find themselves intoxicated by slight exercise afterwards.

Dr. Oudney, in a "Narrative of Travels and Discoveries in Northern and Central Africa," in which he accompanied Messrs. Denham and Clapperton, mentions an instance of *accidental* intoxication in ruminating animals. "Several of our camels," he writes, "are *drunk* to day, their eyes are heavy and want animation; gait staggering, and every now and then falling, as a man in a state of intoxication. It arose from *eating dates after drinking water*: these probably pass into the spiritous fermentation *in the stomach*." The action of a healthful

\* See Earle's Journal of a Residence in Tristan D'Acunha, 308.

† It is said of Mirabeau, in the introductory notice of his life and writings, conduct and character, "*Temperate in drinking*, he was the reverse in every other gratification of sense." See Mirabeau's Letters during his residence in England, &c.



stomach would interfere with the fermentative process, but it is after severe fatigue and travel that such depravation takes place.\*

We have extracted from the first number of the Register and Library of Medical and Chirurgical Science, a notice of some cases of delirium tremens, the peculiar description of derangement which has usually been thought distinctive of the effects of intoxication from the use of ardent spirit.—“ Dr. James Johnson the distinguished editor of the Medico Chirurgical Review, in a late discussion at the Westminster Medical Society, related to the society four cases of delirium tremens which had lately come under his observation, the subjects of which had not been guilty of the slightest degree of intemperance in drinking.

“ The patients were young ladies, residing at a country boarding school. The symptoms were sleeplessness, (one of them had not slept for eight nights,) spectral illusions, ferrety eyes, cold clammy skin, constant jactitation, &c. &c. Indeed, he observed that he never saw the symptoms of delirium tremens more marked and complete in the cases of drunkards. In three of the cases the ladies had remained at school during the holiday recess, a long way from home and their parents, for the purpose of devoting that portion of time to study, to remedy the defects of a neglected education. They had laboured most assiduously; and the delirium commenced immediately on the return of the other pupils at the commencement of a new session. On visiting the cases he attempted to produce relief by the exhibition of opium, but that only aggravated the disease. Cold to the head, soothing treatment, and moderate nourishment, were adopted with success.”

Now and then intemperance appears in an *intermittent* form, after the lapse of weeks, months, and even years: and this type is the one in which its peculiarities, *as a disease*, are most distinguishable. Too often we see it *continued*—and it may be *symptomatic* of, or dependent upon, the influence of other physical or mental infirmities.†

The *causes* which induce the *disposition* to use ardent spirit, and the character of the *disease* of drunkenness, must be distinctly considered—for we believe, that the *effects* can only be successfully encountered by treating it *as a disease*. We must not blindly combine and generalise the various conditions, character, and stages of the *causes*, or of the *disease*, of drunkenness, in the different forms they assume in different individuals. We must distinguish both *causes* and *effects*, as we are wont to do in other cases, according to individual predisposition and personal peculiarity.‡

The mental resolves which intemperate people sometimes make

\* Cattle, after eating largely of wet clover, become often swollen to such a degree by the disengagement of gases, that unless relieved by stabbing or a stomach tube they speedily die under the effects of this imprudent *feeding*.

† Mr. Earle, in his account of the New Zealanders, describes their general disgust for spirituous liquors; but in certain instances, in which there was a wasting away from something like consumption, in females, who had previously enjoyed perfect health, he observes, they eagerly asked him for *wine*.

‡ Dr. Fleming remarks: “ The lower animals have their curiosity confined to *effects*; man alone attempts to investigate *causes*.” Phil. of Zoology, i. 258.

“ In reasoning, we must consider in all cases the *mode* of action, or we only mystify and obstruct enquiry, and have no real knowledge.” Sir Isaac Newton’s *Mathematical Principles of Natural Philosophy*.

during the interval of the paroxysms, show a *will* to resist, which is, however, afterwards overcome by the sense of physical suffering in an organ whose actions we repeat are *involuntary*. Some confess "an unconquerable desire for liquor," and invoke, with all the earnestness of anticipated ruin, assistance by employment, confinement, or other aid, to enable them to abstain. Others honourably avow the disposition, and frankly state *the exertions* employed to resist the temptations they feel.

A sudden pleasurable *excitement* of mind, and the hope of success, have sometimes been found to relieve the inclination for strong drink—and hence we perceive the advantages to be gained by active employment, healthful instruction, and rational enjoyments, for all classes of persons. In Ireland immense numbers have assembled at the fairs, without tasting a drop of liquor, in the *hope* of effecting some desirable political purpose they had at heart. On board one of our frigates during the last war the men refused to drink their grog until *after* the battle, in which they proved victorious. In both instances the *exertion* to abstain would, undoubtedly, have been much greater but for the *excitement of mind* which, at the moment, counteracted the inclination for an habitual practice.

In one case of periodical intoxication within our knowledge, there were intermissions of several months, during which time the person exhibited the most correct deportment. But when the *peculiar sensation* was experienced, which is sometimes described, the individual, who was much respected, neglecting every caution, uninfluenced by any consideration but that of satisfying his desire,—eagerly sought to experience the gratification of drunkenness, with such insane haste, and heedless extravagance, as fully evinced a perverted and diseased condition *before* the liquor was obtained.\*

An intimate friend informed us that he knew a gentleman who, in the interval of a paroxysm of drunkenness, influenced by the misery and distress of his family, determined to reform at all hazards—and resolved he would never more drink ardent spirit. As the inclination (which affected him also periodically) advanced, he felt the greatest wretchedness, which he attempted to describe†—and roamed about the house almost distracted with his sensations. In passing through the kitchen he espied a large bunch of red peppers hanging up to

\* This "great law of *periodicity*," as it has been termed, (from a Greek word which signifies a going round—a circulation or revolution,) is not less observable in some of the peculiarities of the actions of our system, than of those which pervade all astronomy—"the continual reproduction of the same phenomena, in the same order, at equal intervals of time." See Sir J. F. W. Herschell's Treatise on Astronomy, p. 40.

The eccentric character of intermittent fevers, (fever and ague,) exhibits a foundation for the distinction we make in that of the disease of drunkenness; we have not a knowledge of all the exact causes which produce these actions, although the phenomena are very distinguishable—and the disease curable, frequently by more simple and mild measures than are often used.

† "A late under-secretary of state described to me the sensation which first drove him to the use of opium, in the very same words of the dean of —, viz. "that he felt as though rats were gnawing and abrading the coats of his stomach." Confessions of an English Opium Eater, p. 6.

dry ; he suddenly dashed at them, and devoured a considerable quantity, *which relieved the demands of the stomach*. By using the peppers whenever he afterwards felt a disposition to drink ardent spirit, he redeemed himself from the miseries of intoxication.\* This case is a beacon, to guide our intelligence to the true cause and mode of preventing *one* character of this infirmity.

A gentleman of very amiable dispositions, and justly popular, contracted habits of intemperance : his friends argued, implored, remonstrated : at last he put an end to all importunity in this manner. To a friend who was addressing him, in an affectionate but decided and plain tone, the poor victim, deeply convinced of the helplessness of his case, replied—"My good friend, your remarks are just ; they are, indeed, too true ; but I can no longer resist temptation : if a bottle of brandy stood at one hand, and the pit of hell yawned at the other, and if I were convinced I would be pushed in as surely as I took one glass, I *could not* refrain. You are very kind. I ought to be grateful for so many kind, good friends ; but you may spare yourselves the trouble of trying to reform me : the thing is impossible!"†

"I have seen and known," says Dr. Trotter, "many instances where the most nauseous and fetid tinctures were devoured with an avidity not to be conceived, when it was found that they were compounded of brandy. The taste of the mouth on such occasions, has little to do in exciting the desires of the patient : there is a *vacuum in sensation*, if I may so term it, that can be supplied with nothing but the vinous stimulus, while the habit remains, and the *mind* not earnestly in pursuit of something that *can* engage it."‡

We recollect an instance in which an excellent servant woman resisted for some time the *inclination* for drink, which was increased by domestic uneasiness. She would not indulge in the house of her employer, although she could have done so with much less risk than elsewhere ; but absented herself, and then became abandoned to the greatest excesses. She would afterwards be months without tasting liquor of any kind, and express the deepest and most sincere contrition for the sad effects of the indulgence. In this instance the *involuntary* instigations were very apparent ; and although the restraint to which she subjected herself, in not drinking at home, showed some power of resistance, in this respect—yet the change of disposition, and irritable feelings which were only observable at such periods, showed some powerful internal cause of compulsion.

We are satisfied that ardent spirit is often times resorted to, because other means of relief are not known, or attended to, or accessible—as well as because instinctive sensations of the stomach incline to it. In the *early* stages of distress, shame and abandonment, proper physical

\* Carlisle, in his Treatise on Old Age, recommends cayenne or black pepper to be taken freely with vegetables, soup, and fish—and observes with respect to these spices: "They are the most useful *stimulants* to old stomachs, and often supersede the *craving* for strong drinks, or diminish the quantity otherwise required." p. 41.

† Anatomy of Drunkenness, 199.

‡ An Essay on Drunkenness, &c. by Thomas Trotter, M. D. 183.

and other kind attentions, would generally curb the depraved inclinations; and the recollection of some, conspicuous for bright talent, liberal education, agreeable manners, and all the requisites, apparently, for happiness, who have fallen from their respectability, forces us to place this subject in the most obvious and simple, but serious light. Who knows not instances which fill the mind with solemn regret; however, occasionally, we may treat them more lightly—or severely?

The operation of spirituous and vinous liquids, upon a healthful stomach, when moderately used, is *generally* to enliven, and cause more cheerful sensations.\* But with this experience, there is also a physical impression on the stomach, and the brain, which they usually demand to have repeated after a certain interval—and here appears the great difficulty. Those who for years are most temperate in the use of wine or other liquors, but who constantly drink a certain quantity at particular times, and at all seasons—may not find this quantity sufficient to occasion the usual tranquillity and cheerfulness of mind, under a change of fortune, or the distress and despondency to which, from various causes, all are occasionally liable—and if, unfortunately, an individual, with such habits, refers at once to a larger quantity of wine, or other strong drink, to calm the effects of misfortune and anguish, (when in prudence the amount should generally be diminished, for in the *early* stage of such crises, the brain is often *unduly excited*,) then the system, debilitated by the consequences of the powerful emotions of the mind, sinks speedily under the additional violence of the inebriating draught; increased *sensations* of misery—which are necessarily occasioned by the derangement of the functions of the brain and of the stomach—urge a renewal of the concealed and fascinating mischief; and we have added to the list of human infirmities, one of the most pitiable—and, too frequently, one of the most neglected!

Instances of drunkenness are not diminished by too harsh measures of despite and condemnation. On the contrary, examples are not wanting to prove, that some have been driven to the greatest excesses, when only on the threshold of the tavern, by the inattention or ignorance of those upon whom they had the greatest claim for regard.

It may be understood how the *imprudent* use of wine or other liquors containing ardent spirit, (that is, when it is not called for by the wants or infirmities of the system,) or its *excessive employment*, under other circumstances, will produce most effect upon those organs of the system *previously* disposed to disease—or of the more delicate structure and function.

The circulation and respiration† being immediately affected, the blood passes through all parts of the system with increased rapidity and volume—some of the secretions are augmented—and under certain circumstances of health, dangerously so—the nervous energy is

\* “In certain constitutions, however, wine seems to cause no pleasurable emotions, operating rather as a direct narcotic, and occasioning only stupor, when drunk in excessive quantities.” (Of the dietetic and medical qualities of wine. *History of Modern Wines*, 349.)

† “Mr. Spalding, the celebrated diver, said, that after drinking spirits he always found the air in his diving bell consumed in a shorter time, than when he drank water.” Trotter on Drunkenness, 59.

heightened, and the brain is powerfully excited—but its actions exhibit the greatest diversities, according to the individual. The ideas are, in some, prompt and energetic—in others, dull and soperose—they become deranged and confounded by the various impulses which are simultaneously felt. The impressions upon distant organs are accumulated by their increased exertions. The liver,\* which in drunkards is almost always diseased, enters largely into this embarrassment—and every other organ and function has part in it, and is strongly tested in its integrity and health. The first impressions soon subside, leaving, as the consequences of excess—debility, languor, stupidity, pain, and nausea. These results are much modified, as we have already noticed, by the character and composition of the liquor drank, as well as by the peculiarities of the individual. Ale, beer, wines, cider, and spirit, in its stronger combinations, operate very differently in the permanency of their effects, although the general result is the same by their intemperate use. When narcotic and poisonous substances are mingled with these liquors, their influences are in proportion more dangerous and fatal—and more likely, from the interruption they give to the instincts of health, to lead to future imprudence.

In contemplating the variety of instinctive impulses which influence so extensively our sense and reason, we regard them as portions of the comprehensive design of our Creator—and, therefore, not to be despised or contemned without serious consequences to our happiness. They guide, in great degree, the curious movements of animal life, in its dependent forms; and although man does possess the power to control them, while in health, by his superior faculties, they occasion, by the depravations of disease, many of the results which are most injurious to society. A knowledge of their origin, location, bearing, and tendencies, may therefore greatly assist to prevent future infirmity, disaster, and crime.

Our instinctive sensations give the *desire* for action—by the operations of the mind we reflect, compare, and judge of them—and hence the necessity of judicious instruction. But the organic and functional perversions of our systems regulate, in a large measure, our *capacity* to exert its designed influences. “The will can excite the senses to action, and the instincts can do *the same*.”†

The instincts, (which we consider the incitements of the internal as well as of the external senses) *appear* to be accompanied by less complicated or extensive actions than those of reason; but neither of them are very simple processes. A peculiar sensation of an

\* “In distilleries and breweries, where hogs and poultry are fed on the *sediments* of the barrels, their livers and other viscera are observed to be enlarged and hardened, like those of the human body,—and were these animals not killed at a certain period, their flesh would be unfit to eat; and their bodies become emaciated.” Trotter on Drunkenness, 115.

Sir John Sinclair, in his remarks upon this subject, adds: “But this is owing to their want of fresh air and exercise, and their being almost entirely fed on the *dregs*, or *refuse* of the distilleries.” Code of Health, i. 337. Note.

“Some fowl-dealers in London are said to mix gin with the food of the birds, by which means they are fattened, and their livers swell to a great size.” Anat. of Drunkenness, 132.

† Philosophy of Zoology, i. 312.

internal organ, like that of an external sense, may induce certain movements, without the operations of the rational faculties of the mind, further than to promote an almost insensible reaction: while reason requires reflection, consideration, comparison, &c. which necessarily accompany the inexplicable *act* of thought. Reason requires *the peculiar* organic action of the brain—while instincts usually originate from the distant action of other organs. In many instances, however, there is great affinity between them—and in animals which possess a brain, they are generally concomitant. Both reason and instincts demand a very extended series of natural provisions, to enable them to be distinguished; and it is only by an acquaintance with these indispensable accompaniments, that we can expect to gain just information of those points which are accessible to our understandings. Man is not the only animal who possesses what is termed the faculty of reason—other animals, which have a brain, are not alone influenced by instincts—unless we are disposed to recognise as such, the varied functions of the brain in *all* animals. Man is affected by instinctive sensations like the others—with *greater* power, than others, to control them—and all animated beings are endowed with that portion of rational faculty required for their and our benefit; which is often improved by instruction and exercise. It is necessary to know the various instincts, to be able to decide in how great a degree, and under what circumstances, reason *can* affect them—for some practices and certain diseases obstruct the movements which otherwise take place.

Many of the symptoms attributed to ardent spirit, (some of the most difficult to explain, and those most dangerous to the system,) may be induced by various poisonous articles which have been added to wines and other strong liquors, either to increase their apparent strength and pungency, or to conceal their imperfections. Much of the torpor, sickness, and derangement which are observed after the use of some very low-priced liquors, has been ascribed to such adulterations. A wine, which was sold for thirty-seven and a half cents per gallon, in one of our large cities, being found deleterious, was said to be sweetened by sugar of lead, and its flavour quickened with a well known drug, which, used by itself, powerfully intoxicates—colouring matter was also added, to cause it to resemble a Lisbon, although originally a white acid French wine. The employment of such deleterious compounds, must assist in causing intemperance; for a poor labourer, who does not wish to drink any thing stronger than wine, will have the instincts of his stomach completely deranged by this mixture, and be enticed, *by his subsequent sensations*, to use a larger quantity, or to resort to a stronger spirit, and thus increase the evil he might otherwise desire to avoid. The verdigris which comes over in ordinary distillations when there is not sufficient care taken of the cleanliness of the coppers, must also have an injurious influence on some stomachs, and rather incite those who use the *cheapest* liquors\* to over-

\* We do not mean to intimate that low-priced liquors are always the most prejudicial—for they are often more pure than some of the dearer kinds—but, that those whose *means* allow them only to procure liquors at a moderate cost, should be advised of the hazard they may encounter with such poisonous admixtures.

come the sensations which this poison induces--by the temporary excitement of the spirit, than to relinquish its use altogether.

That very deleterious effects may ensue from the admixture of verdigris with our common whiskey, and of course, with liquors composed in part of it, will be understood, when it is known that subacetate of copper, or verdigris, is rarely used in medical practice internally, on account of the dangerous consequences which follow its employment, although it has been praised as an emetic—one or two grains are said to act as soon as received into the stomach. The best remedy for persons poisoned by verdigris, is *sugar*, largely administered. Whether the great *craving for sugar*, which is apparent in many intemperate persons, is instigated by some preservative admonitions of the stomach and system, in consequence of the use of verdigris, may be worthy of a thought.

As allied with this subject we may also remark, that we have known an excessive *desire for sugar* to be attended with very inconvenient sensations to dyspeptic persons. A gentleman of literary eminence, exceedingly temperate in the use of wines, and other strong drink, once informed us he was so much distressed by this inclination for sweets, that he was obliged to cross the street when he came near a confectioner's shop, lest he should be tempted to yield to his extreme craving, and increase the *borborygmus*, or flatulent uneasiness, with which he was annoyed. Professor Silliman mentions a case of a man of mature age, of a grave and respectable character, but in delicate health, and his mind frequently gloomy and depressed, to whom nitrous oxide was administered: "Antecedently to taking the gas, he exhibited no peculiar choice in the articles of food; but immediately subsequent to that event, he manifested *a taste for such things only as were sweet*, and for several days ate nothing but sweet cake. Indeed this singular taste was carried to such excess that he used sugar and molasses, not only upon his bread and butter and lighter food, but upon his meat and vegetables. This he continues to do even at the present time, and although eight weeks have elapsed since he inspired the gas, he is still found pouring molasses over beef, fish, poultry, potatoes, cabbage, or whatever animal or vegetable food is placed before him."\*

The peculiarities of the various desires of the stomach are evinced in many ways—in different conditions of health—very frequently, no doubt, to promote a restoration—but it requires much discretion and experience to comprehend the intricacies of *its language*.

Brandy, wines, gin, beer, and every other alcoholic liquid, have been adulterated, either through ignorance or intention, by various noxious drugs and compounds, whose effects upon the stomach and the brain should always be estimated in calculating those of ardent spirit, with which they are so frequently conjoined. This is a matter of much more importance than is sometimes given to it, since it regards the most numerous and industrious classes, particularly in very populous districts—some of whom, with every disposition to be prudent and temperate, will find themselves deranged and diseased by the liquors which they employ, although they are directed by a physician.

An important source of mischief is detailed in the January number

\* Brewster's Letters on Natural Magic.

of the New York Farmer, for 1833; taken from Whitlaw's Treatise on the Causes of Inflammation. "On my journey from New York to Albany, (writes Mr. Whitlaw,) where the legislature of that state was sitting, I stopped at a place called Kinderhook; and being cold, contrary to my usual practice, I drank a glass of gin. I had not drank it many minutes before it affected me as if I had taken something boiling hot into my stomach. Although I immediately took an emetic, which produced the most active effects, the poison had taken so firm a hold upon my constitution, that my throat and rectum were extremely painful. I had a cold perspiration towards the morning, with a pain in my bones and head, whereas I was in perfect health before I drank the gin. I accused the tavern keeper of putting poison in the gin: a gentleman of the town who heard me, and had observed that the habitual gin drinkers in the place had died, seconded me in my charge. The landlord declared he was innocent, and referred us to the distillery. Upon our applying, the distiller was much alarmed at our charge of his putting poison in the gin; and added, it would be his ruin if the report got abroad, in consequence of the great mortality. He took a voluntary oath that he put nothing but the pure grain into his gin, and invited us to see the grain in the still-house loft. We found it on inspection badly cleaned, and probably, one tenth of it *spurred rye*, or rye vitiated by being infested with the *clavus* or *ergot*!"

Mr Whitlaw attributes the great mortality which occurred in the states of New York and Vermont in the years 1811 and 1812, to this *spurred rye*, used as food, and in liquor distilled from it. Such results have been described by European physicians, and the most horrid accounts given of its effects. The rye becomes diseased by an insect depositing its animalcula in the grain. Ergot is known in the practice of medicine to have fatal results, of a very peculiar character, unless used with great care.

During the prevalence of Cholera in the city of Philadelphia, in the summer of 1832, the *best* port wine was sold for twelve dollars a gallon. A reputable wine merchant assured an invalid, that his own port wine at three dollars per gallon, was not suitable for the use it was required by the sick. After rinsing the mouth with some of the three dollar wine, a white cambric handkerchief was passed over the tongue, which revealed streaks of the artificial colouring matter contained in this liquor. Port wine was generally recommended by physicians while the epidemic prevailed, but its employment was found disadvantageous to many, from an extreme astringency, owing to the admixture of ingredients foreign to the wine; and to how few was the truly pure liquor accessible?

The coarse acerbity and astringency which are perceived in some of the port wines, they receive from "alum, sloes, or oak bark"—a variety of colouring matters are also employed, such as "the elder berry, whortle berry, privet, beet root, tounesol, logwood, Brazil wood, &c." Dr. Henderson remarks, "that though the company of the Alto Douro, may have succeeded in extirpating the elder tree from the district, yet they left the pokeweed (*phytolacca decandra*), the fruit of which has been found to answer equally well." The following



is stated to be the composition of a bottle of the *ordinary* port wine. Spirits of wine, three ounces; cider, fourteen ounces; sugar, one and a half ounces; alum, two scruples; tartaric acid, one scruple; strong decoction of logwood, four ounces!

Dr. Henderson, in his account of the wines used in England, refers to the impolicy of the preference given in a treaty formed by Great Britain with Portugal in the year 1703, which checked the introduction of the wines of France, "many of which are better and cheaper. It has led to the importation of a large quantity of mixed liquors under the name of port wine, from other places than Oporto, especially from the Island of Guernsey;\* and what is still worse, it has encouraged, in this country, the *manufacture* of various deleterious compounds of which the juice of the grape forms *no part*."

"The manufactured trash," as a writer in a periodical work, (Quarterly Review, No. xliii.) justly observes, "which is selling in London under the names of various foreign wines, are so many *specious poisons*—which the cheapness of the common and inferior wines of the Cape allows the venders of them to use as the basis of the several compositions, at the expense of the stomachs and bowels of their customers."

An apartment for the stronger and more durable kinds of wine was, by the Greeks, called *apotheke*—from which word we derive the term apothecary. Among the Romans, in this apartment the wines were exposed to such a degree of smoke as was calculated to bring them to an early maturity—and it was usual to put a label or mark upon the amphora, or large earthen ware vases, indicative of the vintages, and of the names of the the consuls in authority at the time. Pliny affirms, that this mode of designating wines originated from the frequent adulterations that were practised in the manufacture. Martial humorously supposes one Munna, who was tempted to send indifferent specimens of wine from Marseilles, to have abstained from revisiting Rome, lest he should be compelled to drink—his own wines.†

"No adulteration of any article has ever been invented so pernicious to the health, and at the same time so much practised, as that of wine with *preparations of lead*. The juice of the grape when squeezed out, becomes wine, through the first degree of fermentation—but scarcely has that begun, when it approaches the second degree, called the acid fermentation. The progress of this fermentation may be stopped by care and attention: but to bring the liquor back again into its former state, after it has passed the second stage, is impossible. Ingenuity, however, has invented a fraudulent method of rendering the acid in spoilt wine imperceptible, so that those who are not judges are often imposed on, and purchase *sweetened vinegar* instead of wine."‡

\* In the year 1812, according to the custom house books of Oporto, 135 pipes and 20 hogsheads of wine were shipped for Guernsey. In the same year there were landed, at the London docks alone, 2545 pipes and 162 hogsheads of wine from that island, reputed to be port.—Review of discussions relating to the Oporto Wine Company, page 26. Hist. of Modern Wines, 315.

† Henderson's Hist. of Ancient Wines.

‡ Beckman's History of Inventions and Discoveries—on the Adulteration of Wines, i. 396.

It is said "that the calx of lead, dissolved in the acid which spoils wine, gives it a saccharine taste, not unpleasant, without any new, or at least perceptible tint, and arrests the acid fermentation." But the lime, salt, calx, or oxide of lead, as it is variously called, forms with the vegetable acid in wines—*sugar of lead*—which is soluble in water or in alcohol, and is "a dangerous poison." According as it is used in a great or small quantity, and according to the constitution of the consumer, it causes violent cholics, obstructions, and maladies, and in some cases a speedy or a lingering death. A writer, upon this subject, (Beckman, we believe,) observes, "one may justly doubt, whether Mars, Venus, or Saturn,\* (war, love or lead,) is most destructive to the human race."

Conrade Cilters, who was crowned as a poet in Germany, in 1491, writes, "If the debasers of the current coin are punished capitally, what punishment ought to be inflicted upon the person, who hath either killed or thrown into diseases all those who use wine? The former, by their fraud, injure a few; but the latter exposes to various dangers, people of all ages and of both sexes."†

Prohibitions against the adulteration of wines began in Germany in the 15th century, and were from time to time renewed with more severity. In France this practice was interdicted in 1371; and the use of *lime* to correct the acid of wines, was forbidden in Spain in 1348.—Shakespeare makes Falstaff exclaim, after drinking, "You rogue, here's *lime* in this sack too;—there is nothing but roguery to be found in villanous man; yet a coward is worse than a cup of sack with *lime* in it.‡

This wine, the name of which is, in the opinion of some, corruptly written *sack*, was brought from Palma, one of the Canaries, and made from half *dried* grapes. It was therefore called *sec*, which signifies *dry*—lime was added to it to conceal any acidity, which indicated the loss of its flavour by the conversion of ardent spirit into *vinegar*. §

Burnt lime and baked gypsum were sprinkled upon the ripest grapes in the manufacture of Spanish wines. Sir Richard Hawkins observes, "Since the Spanish *sacks* have been common in our taverns, which for conservation are mingled with lime in the making, our nation complains of calentures, of the stone, the dropsy, and infinite other distempers, not heard of before this wine came into common use." ||

\* The ancient chemical name of sugar of lead, is *Saccharum Saturni*, or Sugar of Saturn.

† It must be recollected that the light wines were in those days used as we now employ tea or coffee, for breakfast. In some parts of Europe they are still thus drank, like cider in certain districts of the United States. In the Northumberland household book, there is an account of a breakfast in England in 1512. "The family rose at six in the morning.—My Lord and my Lady had set on their table for breakfast at 7 o'clock in the morning—a quart of beer—a quart of wine—two pieces of salt fish—half a dozen red herrings—four white ones—and a dish of sprats!" Peptic precepts.

‡ First part of King Henry IV. Scene ix.

§ See Neumann's Chemical Works, 443. In the Saxon language it is spelled *sec*.

|| Observations on a Voyage into the South Sea. London, 1622.

Chaptal notices that Goulard's extract, a solution of the subacetate of lead, which is employed with advantage *externally* in medicine and surgery—"is likewise used to clarify liquors, and to deprive brandies of their colour; an evil practice which has been common for some years at Cette, though prohibited under heavy penalties. The wine merchants avail themselves of this composition but too often, or of litharge, to render their sour wines sweet. This fraud was prodigiously common at Paris in the year 1750; and it was proved that, in the interval of three years, thirty thousand *muids*\* of vinegar had been thus sweetened and sold for wine." †

"When the season is unfavourable to the vintage, the more generous wines remaining from better years are mingled with such feeble or perishable wines as would otherwise remain unsaleable—or could not be preserved for any length of time in their natural state." ‡ This is more frequently the practice with the Rhenish or German wines in consequence of the precarious character of the climate; and it is mentioned that it was formerly a rule in the German wine trade, that, along with every cask of good wine, the buyer should at the same time be obliged to take one of inferior quality. In the reign of Edward III. and Charles II., there were laws directing that *assay* of all the wines imported should be made at least twice a year in every town in England—and that such as were found spoiled or corrupted should be cast out, and the vessels broken. It was also ordered that no one vending wine should mingle Spanish with French or Rhenish wines, or with other substances or ingredients—"nor any sort of *flesh* whatsoever." Substances were however, indiscriminately precluded, which are solely used to purify wines and prepare them for keeping, and are not prejudicial to health.

"In the year 1696, several individuals in the duchy of Wirtemberg, were poisoned by drinking wine sweetened with ceruse, of the employment of which they made no secret, appealing to the authority of certain learned physicians, who pronounced the practice to be harmless, and sanctioned it by their own example. This defence did not allay the alarm." An enquiry was ordered by the government, which was assured that both litharge and sulphur, but especially the latter, when combined with bismuth, were exceedingly unsafe ingredients, and the use of them in the preparation of wine was declared a capital crime. In one instance, a wine cooper was condemned to lose his head for reviving this nefarious trade. §

"Lead is not the only poisonous metal used in the preparation of wines. The Spaniards are charged with having had recourse to

\* A muid contains about 72 gallons, English measure.

† Elements of Chemistry, 324.

‡ It is certain there are few wines drunk free from some sort of adulteration. An extensive practice of this kind, carried on at Paris, to the destruction of many thousand lives, was confessed by a rich old Parisian wine merchant, struck with remorse on his death bed." Hints, &c. in reference to Sir John Sinclair's *Queries and Essay on Longevity*, by James Molleson, M. D. of View Bank, near Montrose, North Britain. Code of Health, vol. ii. appendix 42.

† See Dr. Henderson on the Mixture of Wines.

§ Henderson's *History of Ancient and Modern wines*, 340.

arsenic, and even to corrosive sublimate, in order to fine their vintages, and render them more firm and durable; and the Dutch, also, are said to have prepared in the same manner such French wines as they shipped from their colonies." We may well exclaim with Pliny, "How can we wonder that wine proves noxious, when it is mingled with so many poisonous ingredients?"\*

"Such, however, is the influence of custom in reconciling the palate to certain tastes, that wines are sometimes rendered more saleable by having qualities imparted to them, which, in themselves, are absolutely repulsive." †

"While we remained in Spain," says Larrey in his Memoirs, "our men suffered much from the use of adulterated wines, purchased in the inns of the city of Madrid. In France it is no uncommon thing for wine merchants, who are actuated by a spirit of cupidity, to mix foreign ingredients with their wines, as litharge, or oxide of lead, to sweeten and give them a more agreeable taste: but in Spain, or at least in Madrid, the merchants have no need to resort to the same expedients, as their wines are much milder than those of France, and do not so easily become acid. A considerable quantity of narcotic substances were, however, obtained in extracts made from some of the wines indiscriminately purchased at several of the inns of Madrid, by the apothecary general of the army, M. Laubert."

These being tried upon a cat and a dog—"the former died in a few hours in a lethargic state, and the dog continued in a profound sleep for twenty-four hours." On opening the body of the cat, the same appearances were discovered as were noticed in the body of a soldier who died from the effects of the wine. "The wines of Spain contain much of a sweet gummy substance, and are not easily turned sour; but they add the water of different narcotic substances of a stimulating nature, in order that each kind of wine may possess its natural strength and taste. I never could acquire a knowledge of all the substances thus used, but I know that *pimento* and the *lauro-cerasus* are among the number, and I have been informed so by Spaniards of credibility. The inhabitants of Spain are accustomed to these kinds of wine, and are seldom disordered by their use; besides, they drink them mixed with water, and, while smoking their segars, they swallow the tobacco smoke—it stimulates the stomach, &c. But our men who drank these wines pure, (without water,) and without precaution, were much disordered; almost all who used them were ill, and some even died from their use."

Larrey mentions that the Spanish brandy had been distilled with different narcotic substances, "as is also the custom in Egypt." He

\* "Poets, philosophers and historians, have all joined in celebrating the virtues of wine; and must, therefore, have been familiar with it in its best and most refined state." The History of Ancient and Modern Wines, 62.

Moses, in drawing a comparison between the condition of the obedient and disobedient, says, "And thou didst drink the pure blood of the grape."—But "their wine is (like) the poison of dragons, (or serpents,) and the cruel venom of asps." Deuteronomy, xxxii. 14 and 33.

† Dr. Henderson on the Adulteration of Wines, 34.

remarks, however, that "intoxication is rare among the Spaniards." With regard to the mode in which these poisons act, he adds, "The absorption of the poisonous principles of narcotic substances, when thrown into the stomach, appears to me to take place in two different modes. First, through the arteries of the internal membranes of this viscus, whence it passes rapidly through the sanguiferous system—and, secondly, through the nervous extremities of the par vagum, or pneumogastric nerves, which convey it directly to the brain. I coincide in opinion with Professor Rossi, of the Academy of Turin, who has shown in a manuscript memoir, that the nerves are the conductors of all deleterious or poisonous principles, which are highly volatile."\*

Neumann, who was professor of chemistry at Berlin, remarks—"Some of the dealers in wines have not only sweetened acid wines by litharge and other preparations of lead—but impregnated sweet ones with mercury sublimate, and arsenic! Sundry substances have likewise been employed for augmenting the inebriating power of malt drinks, to the injury of their salubrity, as clary, cocculus indicus, and the plant called Bohemian rosemary, which last produces a quick and raving intoxication."†

During the last session of the Pennsylvania legislature, petitions were presented from inhabitants of Northampton county, stating that the practice of using cocculus indicus, as a "crazy bait" for fish, was increasing to an alarming degree, and that by this means, thousands of young fish were annually destroyed. This drug is said, in the dispensatories, "to be much used by the London porter brewers to give bitterness to their beer, and to render it more intoxicating. Whoever has seen its effects upon fish, will understand how promptly and powerfully it operates. The cocculus is a nut about the size of a large pea, brought from various parts of the East Indies. It is beaten fine—mingled with moistened bread or meal, thrown upon the water, and greedily eaten by the fish. In a very short time its action is visible. The fish are seen dashing in every direction through the water—in a state of high and unnatural excitement, like ducks at play; they gradually become exhausted by the poison, which intoxicates and maddens them—faintly flutter their fins upon the surface, and are easily caught by the hand."

\* See Larrey's Memoir "On the Cholera of Madrid," and "On a particular malignant Fever" in Spain.

Chemical Works of Caspar Neuman, M. D. page 444.

† "Brewers have employed lime and gypsum to render sour beer fitter to be drunk and more saleable." Beckman.

In some instances, tobacco and even excrement have been<sup>9</sup> resorted to by publicans in England. We have been assured that in the town of Leeds, an innkeeper was twice fined for using the latter as a ferment in his home brewed ale, in imitation of the Chinese.

"Between 1720 and 1730, 500,000 quarters *more* of malt were consumed in brewing 3,733,000 barrels of beer, than from 1790 to 1800, in brewing 6,170,000 barrels! A proof of the excessive adulteration by drugs." Sir Richard Phillips' Million of Facts, 379.

The same writer also mentions that the consumption of opium in England, which is used in that country by the public brewers to give an intoxicating character to their liquors, is from 50 to 60,000 pounds per annum. 147.

Marco Polo relates that the East Indians, who dive for pearl oysters in a gulf between Malabar and the island of Ceylon, which is infested by sharks—"take the precaution of being accompanied by certain *enchanters* belonging to a class of Brahmins, who, by means of their *diabolical* art, have the power of constraining and *stupifying* these fish, so as to prevent them from doing mischief." It is also mentioned that "these enchanters are likewise profound adepts in the art of *fascinating* all kinds of beasts and birds."

We may presume that an acquaintance with drugs, and a knowledge of the habits and character of the animals, enabled these Brahmins to perform wonders in the eyes of those who were more ignorant than themselves; in which ignorance the rulers had an advantage; for, in a description of Ceylon, it is said, "the fishermen's superstition in this particular is favourable to the interests of government, as from their terror at diving *without* the protection of the charms, it prevents any attempt being made to plunder the oyster banks!" The nuxvomica or poison-nut is grown on the coast of Coromandel, and may have assisted at the incantation.

Dr. Trotter remarks: "The legislature has lately turned its attention to the noxious quality of some of the porter brewed in London; and *opium* has been mentioned as an ingredient frequently added to this liquor. An increase of duty has been laid on this celebrated drug by way of prohibition. But when we consider that four grains of opium are sufficient to *double* the intoxicating power of a gallon of porter, the article is still cheap enough to be used by the brewer, without subtracting much of his profits."\*

Dr. Trotter (p. 43) also observes: "The drunken paroxysm lasts much longer, after indulgence in ale, porter, or beer, than when it has been produced by any kind of wine, or even ardent spirit diluted, or otherwise:"—and probably from the more general prevalence of adulterations in Great Britain, for the English describe the use of their honest home brewed ale to be followed by no such evil effects.†

We have lately read a work which illustrates the discrimination we wish to have made, between the effects of an unadulterated spirit, and that impregnated with poisonous drugs and minerals. Although the process described is by no means an inviting one, still we may believe it less injurious to the constitution, than some others which are more *secretly* employed.

In describing the celebration of a holiday (the elevation of the cross) among the Peruvians, Mr. Edmond Temple says: "Infinite, indeed, was the mirth of all, which was kept up by dancing, singing, and drinking chicha to *excess*."

"This latter part of the ceremony is *never* omitted upon the feasts and holidays of these people, which are *very seldom* known to terminate in those riotous outrages that so frequently occur at popular

\* An Essay, Medical, Philosophical, and Chemical, on Drunkenness, and its Effects on the Human Body. By Thomas Trotter, M. D. &c. &c. 39.

† Dr. Cheyne, however, remarks, that "Nottingham or Yorkshire ales make excellent bird-lime; and, when simmered some time over a gentle fire, make the most sticking and the best plaster for old strains, that can be contrived!" Cheyne's Essay on Health. p. 60.

meetings, in countries where pretensions to civilisation are carried to a greater pitch." ii. 63. He remarks upon another occasion: "I also agree with Schmidtmeyer in *never* having witnessed a really *passionate* state of mind among these people." i. 118.

"Chicha is the favourite beverage of the South American Indians, and also of many who consider it an insult to be called Indians. The manner in which it is made, as I have frequently witnessed at Potosi, is as follows:—A quantity of Indian corn is pounded into a fine powder, and placed in a heap, round which as many old women (I always observed they were old women) as can form a convenient circle, sit down upon the ground, and filling their mouths with the powder, chew it into a paste—perhaps '*mumble*' would be the appropriate term; for to '*chew*,' I presume, there must be teeth, but in this operation the performers are toothless. When the paste, then, is mumbled to a sufficient consistency, it is taken out of the mouth and rolled between the palms of the hands into a ball, generally about the size of a grape-shot, but varying, of course, according to the capacity of the mouth from which the substance is taken. The balls are piled in a pyramid, until the flour of the *mais* is finished; they are then placed upon a fire to bake, (or dry.) After this they are put into a given quantity of water, when they ferment; I am not aware that any other ingredient is used. The fermentation forms the beverage called "*chicha*," which is the nectar of the Indians; and, *although enebriating, is by no means injurious to health*. In hot weather, I must acknowledge, notwithstanding the process—which is a most unsightly scene to witness—a draught of chicha is extremely grateful; though I know not how to describe the taste, nearer than what may be imagined would be obtained by a mixture of small beer and indifferent cider, yet it is considered as nutritious, among the labouring classes, as porter is in England," (Vol. ii. 63.) \*

Caillié, in giving a description of the Bamarras, a nation in Africa, as a kind-hearted, simple and gay people, gentle in their dispositions, and humane, says: "They make a sort of beer or hydromel, of fermented millet and honey. They are very fond of this liquor, which they drink till they intoxicate themselves." †

It is by regarding *all* the known causes which exist to influence the individual, the tribe, or the nation, that we can approach the knowledge, either of the full effects, or of the absolute causes of intemperance. That such simple preparations of ardent spirit are not so deleterious when used by persons of peculiar habits, as some others, appears very probable from these authorities; and we have proof of *natural disinclination* for any of the preparations of it, as a characteristic of other nations.

In a description of some of the inhabitants of Terra del Fuego, in Lieut. Cook's Voyage round the World, (1769,) he relates: "they would not swallow a drop of wine or spirits: they put the glass to their lips, but, having tasted the liquor, they returned it, with strong expressions of disgust." Vol. ii. p. 49.

While at Otaheite he mentions of the natives: "Some of them

\* Travels in various parts of Peru. By Edmond Temple, &c. 1833.

† Travels through Central Africa to Timbuctoo, &c. By René Caillié. p. 371. vol. i.

drank freely of our liquors, and in a few instances became very drunk; but the persons to whom this happened were so far from desiring to repeat the debauch, that they would never touch any of our liquors afterwards."\* ii. 223.

We think it highly necessary that every truth in connection with the account of the origin, uses, and effects of ardent spirit, with all its various and powerful auxiliaries, should be told—water drinkers will not be discouraged by these details—but it is of great importance to the welfare of society, that the poisonous adulteration of spirituous liquors should be prevented, since it unquestionably increases the victims of intemperance—and until all can, or will, use water alone, it is a *duty* to protect those who employ vinous or spirituous drinks, from the *additional* offences which result by such unhealthful and injurious combinations.

When we attempted to explain some of the influences of peculiar organic functions upon the intellect, we were induced to believe that they might render more generally intelligible, the mode by which, in some instances, the use of ardent spirit operated, through the bodily system, upon the mind; and show that the derangement of the one naturally promoted that of the other, in an infinite variety of forms and gradations. This becomes particularly apparent when we refer to *other* articles which possess a specific influence upon the brain and nervous system. Such effects are conspicuous in tea, coffee, tobacco, and a variety of other substances, among which opium,—“the insane plant, which also takes the reason prisoner,”—has the most powerful operation.

All these seem to us to demand the same general regulations; they are desired or required by the different conditions of the individual, *to excite the brain*—they act with different degrees of energy and promptitude—and with specific differences also—and benefit or injure according to the person, the practice, and the necessity,—“So,” in the language of an old writer, “I leave every man that understandeth his own state of body, to be his own director herein—*via recta ad vitam longam.*” p. 23. Opium, tobacco, and coffee, are used by nations who are restricted in wines, or stronger spirit—tea and coffee occasionally take their place as excitants among us—and are used to counteract the influences of the others.

“As Galen teaches, poisons must  
By counter-poisons be discuss’d.”

From those articles which are poisons, we obtain our most valuable medicines—and whatever disturbs the natural and healthful disposition of the body or mind in any description of excess, is a poison. The word *intoxication* is derived from *toxicum*, a poison—and *intemperance* from *in* and *tempus*—a time, a term, or *bound*, (*out of bounds*,) all designating *excess*. Southey says: “*Passion* is the *drunkenness* of the mind.”†

\* Captain Wallis, in his *Voyage round the World*, in 1776, also mentions, that the Patagonians “eat indiscriminately whatever was offered to them, but they would drink nothing but water.” Hawkesworth’s *Voyages*. Vol. i. 127.

“We offered them some leaves of tobacco rolled up into what are called segars, and they smoked a little, but did not seem fond of it.” *Ibid.*

† Crabb’s *Synonymes*.



“Some people,” says the English Opium Eater, “have maintained in my hearing, that they have been *drunk* upon green tea : and a medical student in London, for whose knowledge in his profession I have reason to feel great respect, assured me the other day, that a patient, in recovering from an illness, had got drunk on a beef-steak !” (Confessions, p. 102.)

Sir John Sinclair notices, that “tea is often mixed both in Asia and in Europe, with a variety of other substances of a deleterious quality, with a view, it is said, to improve its colour or flavour ; and sometimes the whole article is a sophisticated mixture of noxious ingredients.” He also remarks, that “tea is naturally a pernicious, and if taken in *undue* quantity, a *poisonous* plant.”\* “But even the very air we breathe is a compounded *poison*, in the immense proportion of seventy-eight parts of deleterious matter in a mixture of one hundred !”†

“The first discoverers of the Floridas are said to have corrected the stagnant and fetid water they found there, by infusing in it branches of sassafras ; and it is understood that the first inducement of the Chinese to the general use of tea, was to correct the water of their ponds and rivers.”‡

In a state of exhaustion, after fatigue, tobacco, in the form of a segar, tea, or coffee, refresh some persons very much, and enable the mind, in these cases, to perform at *the moment*, what, without such assistance, it could not ; while in others they interrupt or embarrass the same actions they produce or assist in the first. It is a delicate matter to judge for, or of, those who absolutely need these aids.

“Throughout America tobacco was cultivated wherever the climate was sufficiently mild to permit its growth. The Peruvians, according to Ulloa, however, hardly made any use of tobacco ; an exception, which, as it does not depend upon any defect of climate or soil, must be explained by the prevalence of their custom of drinking *chicha*, or chewing *coca*. Habit, modified by different considerations, may have confirmed a practice which was found to *soothe care, or excite stronger sensations* in those unacquainted with the more pernicious stimulant of fermented liquors. Smoking was its equivalent among the rude nations of North America, and became the pledge of their hospitality, like the *salt* of the Arab.”‡

Las Casas, in his “General History of the Indies,” mentions that two Spaniards sent by Columbus, in his first voyage, to communicate with the natives in Cuba, “met great numbers of people of both sexes, the men always with a firebrand in their hands, and certain herbs for smoking—the preparation of which into cigars they called *tobacos*.”

\* Code of Health and Longevity, i. 290. † Journal of a Naturalist. 82.

‡ The Natural History of the Bible—article aloe.

‡ Social and Moral Institutions of the barbarous American Tribes. 91.

|| Charlevoix says, the Islanders call the herb *cohiba*—and *tobaco* was the term used to signify the article formed from it for the purpose of smoking.

“The flower of hemp is mixed with raisins, (called Zebyb,) and tobacco, and is smoked (by the modern Egyptians) in the Persian pipe ; from which mixture the name of Zebybe has probably been derived.” They also use a preparation of

The smoking causes a drowsiness and *sort of intoxication*—and, according to their account, *relieves them from the sensations of fatigue.*\*

“In 1624, Pope Urban VIII. published a bull, excommunicating all persons found guilty of taking snuff—when in church. This bull was renewed in 1690 by Pope Innocent; and twenty-nine years afterwards, the Sultan, Amurath IV. made smoking a capital offence, on the ground of its producing infertility. For a long time smoking was forbidden in Russia, under pain of having the nose cut off: and in some parts of Switzerland, it was likewise made a subject of public prosecution—the police regulations of the Canton of Berne, in 1661, placing the prohibition of smoking in the list of the ten commandments, immediately under that against adultery!”† Tobacco is at this moment, the most universal luxury in existence, and *particularly so* in those countries where it was formerly prohibited by such severe penalties.

“Throughout almost all Africa, the Mandingoes are the only people who do not smoke.” The manufacture and use of snuff are very general among the Africans.‡

Sir Richard Phillips says “snuff-taking in England took its rise from the capture of vast quantities of the article in Sir George Rooke’s expedition to Spain, in 1702. The prize of the forces was sold in England, and gave rise to a habit now general, and which yields a million (of pounds sterling) a year to the revenue. It is useful only to those disposed to apoplexy, increasing the secretions and acting like a seton.”

There can be no doubt that snuff is used by many persons to excite the active energies of the brain, as well as to relieve a tendency to apoplexy. Whoever scrutinises the movements of an intelligent snuff taker with attention, will discover the satisfaction he experiences from its use—we do not however recommend this practice, but only refer to its obvious influences and effects.

The effects over the nervous system and the brain, and the secretions drawn from the different glands by smoking, snuffing, or chewing tobacco, seem to cause a gratification to some persons—while others are not excited in this manner, but by its direct inebriating, or emetic, or narcotic powers. The Persians have a proverb, that “coffee without tobacco is meat without salt.”—They use opium also, and *beng*, which is formed of the leaves of the hemp made into pills or conserve. Those who use these articles are by the rigid Mahometans looked upon as debauchees, because they intoxicate and disturb the understanding *as wine does.* (See note to Sale’s Translation of the Koran.) “The Peruvians chewed the leaves of a plant called *cuca* or *coca*, together with chalk or lime, in the same manner as the East Indians employ the *betel*. Another article, used in the Levant, called *bang* or *bangue*, is made from the leaf of a wild kind of hemp. The effects of this drug are to confound the understanding—set the imagination loose—induce a kind of folly and forgetfulness, wherein all cares are left, and joy and gaiety take place thereof. *Bang* is, in reality, a succedaneum to wine, and

hemp, opium, and honey, which is excessively intoxicating, and hence the Arabic Proverb: “Mingle thy sorrow with Zehybe.”—Manners and Customs of the Modern Egyptians, by J. L. Burckhardt, page 19.

\* Personal Narrative of the First Voyage of Columbus to America.

† Anatomy of Drunkenness, p 79.

‡ Caillie’s Travels, i. 382.

obtains in those countries where Mahometanism is established, which prohibiting the use of that liquor the Mussulmans have recourse to other articles to rouse their spirits." See Encyc. Brit.\*

Mohammed explains his objections to wine, thus: "In wine and games of chance there is great sin, and also some things of use unto men—but their sinfulness is greater than their use."

"Avoid them that ye may prosper."

"Of the fruits of palm trees, and of grapes ye obtain an inebriating liquor, and also good nourishment."—Koran.

"Some imagine that *excess* therein only is objected to, and that the moderate use of wine is allowed—but the more conscientious are so strict, that they hold it unlawful, not only to taste wine, but to press grapes for the making of it—to buy or to sell it—or even to maintain themselves with the money arising from the sale of that liquor. The Persians, however, as well as the Turks, are very fond of wine; and if one asks them how it comes to pass that they venture to drink it, where it is directly forbidden by their religion, they answer, that it is with them as with the Christians, whose religion prohibits drunkenness as a great sin, and who glory notwithstanding in drinking to excess!"†

"The wines of Shiraz," says Gibbon, "have triumphed over the laws of Mahomet among the Persians."‡ Herodotus mentions that "they drank wine profusely." Whatever they discussed when sober, was always a second time examined after they had been drinking—and they did not decide after drinking, until they had reflected *soberly*.

"Pietro Della Valle mentions two ordinances of Shah Abbas; the one forbidding the use of wine, which shows that the religious precept had failed of its effect; and a second annulling the prohibition, upon his finding that the people, and especially the soldiers, had substituted for wine a liquid preparation of opium, by which their health was injured.§

"At present many Persians indulge *secretly* in wine, and generally to intemperance; as they imagine no pleasure in its use unless it produce the full delirium of intoxication. They flatter themselves, however, that they diminish the sin, by drinking only such as is made by infidels! for 'so great is the horror of a Mahomedan vintage,' as a late traveller informs us, "that whenever jars of the wine of Shiraz are discovered, the chief officers of the town are ordered to see them broken to pieces. But all this strictness relates to the Persians alone."||

"The Jews and Armenians prepare wine on purpose for the Mahomedans, by adding lime, hemp, and other ingredients, to increase

\* The composition of the leaf of the betel plant, the areca nut, and the lime of calcined shells, which is used by the East Indians, is said by Cordiner to possess "an wholesome, nutritious, and enlivening quality," vol. i. page 96.—See Marsden's Notes to Marco Polo's Travels, page 667.

† Preliminary Discourse on the Koran, translated from the original Arabic by George Sale, Gent.

‡ Persia is declared to be the native country of the vine—it is also native in North America and in China.

§ Travels by Marco Polo, p. 80. Note.

|| Travels in Georgia and Persia, by Sir R. Kerr Porter, vol. i. page 348.

its pungency and strength; for the wine that soonest intoxicates is accounted the best, and the lighter and more delicate kinds are held in no estimation among the adherents of the prophet."\*

A French traveller in his account of Persia, writes: "The courtiers, the gentry, and the debauchees, drink wine—and as they all take it as a remedy against *ennui*, some that it may tranquillise them, and others that it may arouse and put them in merry mood, they require the most strong and active kind. If they do not perceive themselves soon inebriated by it, they exclaim, "What kind of wine is this? It does not cause any pleasure!"†

Marco Polo observes, "should any one assert that the Saracens do not drink wine, being forbidden by their law, it may be answered that they quiet their consciences on this point by persuading themselves that if they take the precaution of boiling it over the fire, by which it is partly consumed and becomes sweet, they may drink it without infringing the commandment; for *having changed its taste, they change its name*, and no longer call it wine, although it is such in fact."‡

—It may, perhaps, be for some such purpose that the modern Turks call cider "apple water"§ according to the account of "an American."

We are told by the same author, "From information upon which I can rely, it appears that in six months alone of the year 1830, there were shipped from the United States to Turkey, twelve million gallons of rum. There is reason, however, to believe that this was an unusual quantity, owing to peculiar circumstances; but still the annual supply is very great. To the honour of the Turks we should state, that little of this is consumed in their own country. It is intended for the Black Sea, where it is distributed over Georgia, Armenia, and Persia."

Charles Mac Farlane, Esq. mentions, "The Turks drink *rum* without scruple, as they say, with great truth, *it* was not prohibited by the Prophet." He also remarks, that, "they are *always quarrelsome* in their cups." Of Suleiman Aga, the intimate associate of Lord Byron, he says, "he carried his scruples so far, as to drink no wine but Champagne, which, he said, and with much plausibility, was not at all like "*crassi*," and could never be distinguished by the Turks to be wine at all. *Crassi* is the common wine of the country, not much unlike what the soldiers at Gibraltar call black strap." 48.—Constantinople in 1828.

Tanner, in his "Narrative of a Residence among the North American Indians," arrives at the same conclusion as Mohamed with regard to drinking and gambling. "Their long debauches," he says, "are attended by mischievous quarrels and followed by hunger and poverty—*gambling* is a vice scarce less hurtful to the Indians than drunkenness—old and sensible people among them are much opposed to it." He describes the children "eating their mocassins for want of provisions." But he also remarks, that the Indians "are *induced* to refer to intoxication *from the destruction of their game for the fur trade!*"

\* History of Modern Wines—Wines of Persia, 263.

† Chardin's Voyages, vol. ii. page 67.

‡ The Travels of Marco Polo, a Venetian, in the 13th century, book i. p. 76.

§ See Sketches of Turkey in 1331-32, by an American.

The Indian term for ardent spirit indicates very truly its character—they call it "fire water."

“The white hunter,” says Schoolcraft, “on encamping in his journeys, cuts down green trees and builds a large fire of long logs, sitting at some distance from it. The Indian hunts up a few dry limbs, cracks them into little pieces a foot in length, builds a small fire, and sits close to it. He gets as much warmth as the white hunter without half the labour, and does not burn more than a fifth part of the wood. The Indian considers the forest *his own*, and is careful in using and preserving every thing which it affords. He never kills more than he has occasion for. The white hunter destroys all before him, and cannot resist the opportunity of killing game, although he neither wants the meat, nor can carry the skins. I was particularly struck with this wanton practice, which lately occurred on White river. A hunter returning from the woods, heavily laden with the flesh and skins of five bears, unexpectedly arrived in the midst of a drove of buffalo, and wantonly shot down three, having no other object than the sport of killing them. This is one of the causes of enmity between the white and red hunters of Missouri.”\*

The destruction of the wild game, upon which the Indians depend almost entirely for food, and the supply of a poisonous liquid for their drink, have sometimes *driven* them to violent acts of aggression and outrage; and we are too easily led to believe we are authorised to exterminate them, as a just retaliation for practices *caused*, in great part, by our own misconduct or neglect towards them. (See appendix.)

Tanner says the traders were “urged by the agents of the fur companies, to take whiskey among the Indians—and to use *every* method to procure the greatest possible quantity of skins at the lowest price.” 266. Upon one occasion, “the old woman,” (his adopted Indian mother) “being much dissatisfied at the misconduct of her own son, who had deserted her, the disappointment of her hopes of returning to Lake Huron, and other misfortunes, began to drink. In the course of a single day, she sold one hundred and twenty beaver skins, with a large quantity of buffalo robes, dressed and smoked skins, and other articles—*for rum*. It was her habit, whenever she drank, to make drunk all the Indians about her, at least as far as her means would extend.” She however severely reproached Tanner for following her example. “The Indians hearing her, told her, she had *no right to complain of me for doing as she herself had taught me!*”

According to the Hebrew law, a certain number of witnesses of a crime, and diligent enquiry into it, were required, before punishment was inflicted—when this was capital, it was ordered “*the hands of the witnesses shall be first upon him, to put him to death.*” The stubborn and rebellious son who was “a *glutton and a drunkard*,” was directed to be “stoned to death”—but the *only legal* witnesses in *this case*, were “*his father and his mother!*” Deut. xxi.

We may rather suppose that this law was designed as an additional incitement to parental instruction, example and caution, in order to *prevent* the occurrence of gluttony and of drunkenness *in childhood*, as we have never read that it was put in force.

\* Tour in Missouri, page 52.

A police magistrate in London, has lately given evidence that the Jews are not addicted to intemperance, although their laws expressly permit the *use* of wine.

Bishop Heber, in his "Travels in India," observed, "nothing can be more foolish, nor in its effects more pernicious, than the manner in which spirits are distributed to European troops in India. Early every morning, a pint of fiery, coarse, undiluted rum is given to every man, and half that quantity to every woman. This, the greater part of the new comers abhor, in the first instance, or would, at all events, *if left to themselves*, mix with water. The *ridicule* of their seasoned companions, however, deters them from doing so, and a habit of the worst kind of intemperance is acquired in a few weeks, more fatal to the army than the swords of the Jats or the climate of the Burmese. If half the quantity of spirits, well watered, were given at a more seasonable hour—and to compensate for the loss of the rest, a cup of strong coffee allowed to each man every morning—the men would be quite as well pleased, and both their bodies and souls preserved from many dreadful evils. Colonel Williams, of the 'Queen's Own,' whom we met at Bombay, has tried this experiment with much success—and it might, with a little resolution, be universal throughout the army." Restraints are very properly directed in the army and navy of the United States, while a certain discretion is permitted to the men. If judicious measures of *prevention* are not used by those who have men under their command, either in the army, the navy, or in common life, they cannot justly "cast the first stone" against those, who, more ignorant, and of necessity less free in their actions, are misled by the indifference or heedlessness of those who greatly control them. Bishop Heber also states with respect to the Hindoos: "Intoxication is little less common, as I am assured, among great numbers of the Indians, both of high and low castes, than among Europeans. Intoxicating liquors are *forbidden by their religion*, but this is disregarded. Liver complaints and indurations of the spleen are very common among them, particularly with those in easy circumstances, to which their immense consumption of '*ghee*,' or clarified butter, must greatly contribute. To cholera morbus they are much more liable than the whites, and there are some kinds of fevers which seem peculiar to the native race." ii. 45. "All the Rajpoots indulge in the practice of using opium, and many to a great excess; but as the remainder of their *food* is so simple, and they touch no other stimulant of any kind, it of course does them *less* harm than Europeans."\*

Those who smoke opium in China, or swallow it in Turkey and through Europe, are found in the same state as our intemperate whiskey drinkers. Mr. Wood, in his "Sketches of China," says, "the quantity of opium consumed, in China, as an indulgence, (for it is little used in medicine,) is startling to one who is unacquainted with the subject. The consumption of *Indian* opium in China during one year, from the first of April 1828 to the first of April 1829, is estimated at 14,434 chests, valued at more than thirteen millions of dollars—although its

\* Heber's Travels in India, ii. 20.

importation in any shape is *strictly prohibited by the laws of China!*" All classes are regular consumers of the drug among a population of one hundred and forty-five millions. "The trade (of Smyrna) in opium is said to be extremely delicate; ingenious modes have been discovered of adulterating that expensive article, and only a limited number of appointed brokers, whose honesty can scarcely be depended upon, are said to be in possession of the secret. The Americans have of late been the largest purchasers of the intoxicating drug, which they dispose of in their trade with China, and the Mahometans of the islands of the eastern seas. Its use has been for many years on the decline in Turkey; and the Turks, who are not aware how the purchasers after dispose of it, give the Yankees the credit of having assumed the propensities they have themselves abandoned."\*

We must remark how very little would be gained by substituting opium or its preparations, for those of ardent spirit, while the *inclination* for intoxication remains. It may be esteemed the more dangerous from the facility of *concealing* its use. We recollect an instance of a highly cultivated and most amiable lady, who became so habituated to the use of opium, that to conceal it from her husband, who had strongly interdicted it, and for whom she had great affection, she carried it constantly wrapped up in cotton in the points of her shoes!

The "English Opium Eater" describes himself with a wine decanter containing a quart of "ruby coloured laudanum," beside him—and says, "I usually drink tea from eight o'clock at night till four in the morning—and have ventured to call every day for a glass of laudanum negus, warm, and without sugar."†

The President, De Goguet, in his treatise on the "Origin of Laws, Arts and Sciences," observes, "The qualities of the Nephenthe of Homer have, as appears to me, a great relation to those of opium. I am very much inclined to believe, that in his time the Egyptians were perhaps the only people who knew the preparation of it. The Egyptian women, who used a great deal of Nephenthe, were looked upon formerly solely to possess the secret of dissipating anger and chagrin. Homer says, Helen had learned the composition from Polydamna, wife of Thonis, king of Egypt, and this medicine was so admirable, that it made one forget all ills, and dissipated all weariness."‡

Bhung is the name of an inebriating preparation, made with the leaves of the hemp (*Cannabis sativa*, Willd.) mingled with black pepper, cloves, mace, nutmeg, &c. It is used in a liquid form, and is very intoxicating. An electuary called *majoon*, not unfrequently (from an over dose) produces a temporary mental derangement, and is taken by the dissolute among the Mahometans, to intoxicate and ease pain. The chief ingredients are *hemp* leaves, milk, clarified butter, poppy seeds, flowers of the thorn apple, the powder of *nux vomica* and sugar. Previously to the ceremony of circumcision, which is directed to be performed between the age of seven and fourteen years, the Mooselmans administer some *majoon* or sweetened *bhung*, with a

\* Constantinople in 1828, by Charles Mac Farlane, Esq. page 33.

† Confessions of an English Opium Eater, London, 1826.

‡ Code of Health and Longevity, vol. ii. 26; and Odyss. L. iv. v. 220, et seq.

double view of intoxicating the child, so as to prevent his crying much, and of acting as an anodyne to mitigate his sufferings. Although to drink wine, preparations of opium, fermented, or any other intoxicating liquors, is *unlawful*.\*

There must exist some peculiar *natural* causes which induce among so many different nations, (some of whom are restricted by their religious obligations even from the *use* of such stimulants; and all of them from the intemperate abuse of those dangerous articles,) the *disposition* to employ them, in moderation, as well as in excess. The existence of such causes appears evident, not only from the great variety of articles in use of very different character and preparation, but by the fact that some persons cannot be *induced* to employ those excitants, which others so anxiously covet. Baron Humboldt, (in his *Pers. Nar.* vol. v. page 15,) mentions the inhabitants of Maypures, a nation on the Upper Orinoco, as a mild and temperate people, distinguished by *great cleanliness*. "The Savages on the Orinoco for the most part," says he, "have *not* that inordinate fondness for strong liquors which prevails in North America. We were frequently *unable to prevail* upon the Guahiboes, or the Maco Piaroas, to take a drop of brandy while they were labouring for us, and seemed exhausted by fatigue." There is an example in the Scriptures of a similar disinclination in those who were expressly *tempted* to use wine.

"And I set before the sons of the house of the Rechabites pots full of wine, and cups, and I said unto them, drink ye wine!"

"But they said, we will drink no wine, for Jonadab, the son of Rechab, our father, commanded us, saying, ye shall drink no wine, neither ye nor your sons, for ever!"

"Neither shall ye build house, nor sow seed, nor plant vineyard; nor have any: but all your days ye shall dwell in tents, *that ye may live many days* in the land where ye be strangers." Jeremiah, xxxv. 5, 6, 7.

This declaration is thought to refer to the Arabs, who still pursue all these customs, according to the expressions of the same writer: "Thus saith the God of Israel, Jonadab, the son of Rechab, shall not want a man to stand before me for ever!" xxxv. 19.†

\* Customs of the Mooselmans of India, &c. by Jaffur Shurruf, (a native of the Deccan,) composed under the direction of, and translated by G. A. Herklots, M. D. surgeon on the Madras establishment. London, 1832.

According to their belief, *Huffan*, one of the nine sons of Satan, is the patron of wine bibbers.

Dr. Harris observes, that "the Arabic version of Deut. xxxii. 17, has shaattan, or shattan, from the root shatana, *obstinate*, refractory—whence our appellation Satan. Nat. Hist. of the Bible. article ape.

† As a contrast to the Indians of the Orinoco and the Arabs, the Narrative of Travels and Discoveries in Northern and Central Africa, by Messrs. Denham and Clapperton, and Dr. Oudney, in describing Wawa, the capital of a province in the kingdom of Borgoo, relates, in the words of one of the travellers: "I never was in a place in my life where drunkenness was so general—governor, priest, and layman, and even some of the ladies, drink *to excess*. Notwithstanding their drunkenness they are a merry people, and have behaved very well to me."

Sir Walter Scott, in describing the effects of ardent spirit derived from barley, signifies, very truly, the varieties from constitutional differences: "John Barleycorn always heightens and exaggerates the *prevailing* passions, be they *angry or kindly*." (Chronicles of the Canongate.)



It was a maxim of Confucius, that "*self-government* is the root of all virtue"—and we feel persuaded that our religion and reason accord fully with this precept of the Chinese philosopher. But the extension of the rule requires a knowledge of the *means* whereby this self-command may be obtained—for we perceive how almost universally it is wanting!

The impression upon the stomach and brain by ardent spirit, and narcotic drugs and plants, which influence the intellect, may be also more plainly comprehended by a notice of cases in which *the want* of food or water, besides *the use* of other physical agents, produce effects very similar to those occasioned by the improper employment of stimulating drinks; for the *extremes* of excess and abstinence have the same obvious properties upon the human system as the extremes of heat and cold. A kind of delirium or madness precedes death in such as die of starvation. Mr. John Tanner relates, than an Indian woman "having gone *mad with hunger*, remained in a state of derangement for more than a month after food was procured;"—and upon another occasion, in describing the return of an unsuccessful war party, he says: "stragglers dropped in from different directions, some vomiting blood, and some in a state of *madness* from exhaustion with fatigue and *thirst*."

After the shipwreck of the *Alceste* frigate, which carried Lord Amherst to China, the embassy was conveyed in one of the boats, from the bay of Gaspar, across the Javanese sea, to Batavia. Mr. M. Leod, the surgeon of the *Alceste*, in his narrative of the voyage, remarks the effects of excessive abstinence. "The chief discomfort of this boat voyage proceeded from being so crowded, and being obliged to sit so long in a particular posture, and the *great distress arising from thirst*. It was very difficult, indeed, to prevent the people from drinking salt water; one man became delirious, and it was attributed to this cause. It most probably, however, proceeded from the *extreme irritation produced by thirst*; for salt water, although an article of materia medica in very extensive use, has never been known to take the direction of the head." 180.

In an account, from Bell's London Messenger, of the loss of the *Hibernia*, by fire, (from a lighted candle falling into the spirits while the mate was drawing a bucket of rum) which vessel had two hundred and thirty-two souls on board, one of the passengers, who was saved in the long boat, relates in his letter: "Had I been possessed of a thousand worlds, I would willingly have given up all for a draught of water. We had no water the whole time. Many of those in the long boat, on the sixth day after the fire, drank sea water, though warned against it—several of them became delirious." "Dr. Patouillet has described the case of a family of nine persons, who were all driven mad by eating the root of the *hyoscyamus niger*, or black henbane. On the following day they had all recovered their senses, but recollected nothing of what had happened in the interval." (Letters on Natural Magic. 56.)

Capt. Parry speaks of the effects of *intense cold* produced upon two young gentlemen who were exposed to an extremely low temperature: "They looked wild, spoke thick and indistinctly, and it was impossi-

ble to draw from them a rational answer to any of our questions. After being on board for a short time, the mental faculties appeared gradually to return, and it was not till then that a looker-on could persuade himself that they had not been *drinking* too freely."\*

Dr. Colladon, when descending in the diving bell at Howth in 1820, experienced "a state of excitement resembling the effects of some spirituous liquor"—while a friend, who accompanied him, "was in involuntary low spirits." (Letters on Natural Magic, 212.) This is another instance also of the different effects of the same apparent external cause from constitutional varieties.

About the year 1776, Dr. Priestley, whose discoveries in chemistry opened a new light upon many mysterious phenomena, in the course of his experiments, produced a gas, the properties of which, being afterwards more fully investigated by Sir Humphrey Davy in 1800, received the name of nitrous oxide.

Dr. Priestley and the Dutch chemists had concluded that it cannot be respired; but they did not examine it in a *state of purity*. Davy ascertained that it may be breathed for several minutes without any bad effects. The feelings produced by breathing it bear a strong resemblance to intoxication; but they are not always followed by that languor and debility which is usually an attendant of intoxication.†

Mr. Edgeworth, to whom nitrous oxide was exhibited by Sir Humphrey Davy, relates: "The principal feeling through the whole of the time, or what I should call the characteristic part of the effect, was a total difficulty of restraining my feelings, both corporeal and mental, or in other words, *not having any command of myself*."‡

Sir Humphrey Davy describes his own feelings after respiring nitrous oxide upon different occasions. During one experiment, he exclaimed to Dr. Kinlake—"Nothing exists but thoughts;—the universe is composed of impressions, ideas, pleasures and pains." An inhalation taken previously had induced him to call out: "What an annoying concatenation of ideas." Professor Silliman of Yale College describes other effects. "A gentleman, about nineteen years of age, of a sanguine temperament and cheerful temper, and in the most perfect health, inhaled the usual quantity of nitrous oxide when prepared in the ordinary manner. He was thrown into a frightful fit of delirium—was perfectly unconscious of what he was doing—and was in every respect like a maniac. He stated afterwards, that his *feelings vibrated* between perfect happiness and the most consummate misery.§

This gas produces the highest excitement to which the animal frame seems capable, and operates as diversely upon different temperaments as ardent spirit. The inhalation of it for a few moments is sufficient to interrupt the *voluntary* actions of the individual, whose movements appear solely regulated by the temporary sensations produced by this active, but invisible, agent.

\* Anatomy of Drunkenness, 103. † Thomson's System of Chemistry, ii. 12.

‡ Anatomy of Drunkenness, 91.

§ Letters on Natural Magic, addressed to Sir Walter Scott, Bart. By Sir David Brewster, &c. &c.

We may see from the comparison of the chemical analysis of this gas with that of some others, the wonderfully simple provisions which are made by the Creator for the most extraordinary varieties of effect and power—it may also lead us to reflect how possible it is for the *same* organ of our body to produce very *contrary* actions from impressions of *different* degrees of strength—when we know that the *common air* which we breathe, the *nitrous oxide*, and the powerful *aqua fortis*, are composed of the *same* elementary principles united in *different* proportions.

Atmospheric air, from experiments in Egypt and in France, in Edinburgh and in London—in all the different seasons of the year—and also from the examination of some brought from the height of twenty-one thousand feet above Paris,\* is found to contain of oxygen which is *essential* to animal life, 0.21—and of nitrogen or azote, which by itself is *destructive* of animal life, 0.79=1.00; while nitrous oxide, according to Sir Humphrey Davy, consists of 1.00 oxygen and 1.75 azote. Aqua fortis, or nitric acid, is composed of 2.00 oxygen, and 1.75 azote or nitrogen.

The decomposition of common water shows that it contains 14.42 of hydrogen and 85.58 of oxygen. The *absolute* alcohol of Richter, deprived of all accessories, has 13.70 of hydrogen—34.32 of oxygen, and 51.98 of carbon. Such are the proportions of what we now understand as the *ultimate physical principles* of these strange compounds, which operate so variously upon the human system. The most simple of them—and those most universally necessary to our existence, as air and water, are known under certain peculiarities and distemperatures, (which is the title we give to an unknown natural cause,) to convey the seeds of death to constitutions prepared by peculiar habits, organisation, or function, to be influenced by their deleterious conjunctions or proportions. The epidemics which sometimes prevail with such fearful violence, *have a discrimination*, although we do not readily perceive the delicate and wonderful natural *causes* which excite or allay them. A change of water has been known to assist the recovery of the sick—or to render those diseased who were previously in health. We must always acknowledge physical causes for such diversities, although we may remain ignorant of them, for want of sufficient extension of observation and comparisons.

The Greeks and Romans—and before them the Egyptians—the Chinese, the Indians, and other ancient nations, typified the *natural causes* of the physical phenomena, which they observed, without always comprehending them fully, by various images of writing and of language, which became eventually objects of superstitious adoration.† The

\* See Thomson's System of Chemistry.

† The ancient dogma expressed the opinion—that "Truth was not to be told to all the people." It was therefore enveloped in figurative imagery, and produced the necessary subserviency and superstition. "The prince, the priest and the sage, were leagued in a dark conspiracy to deceive and enslave their species; and man, who refused his submission to a being like himself, became the obedient slave of a spiritual despotism, and willingly bound himself in chains when they seemed to have been forged by the gods. This system of imposture was greatly favoured by the ignorance of those early ages. The human mind is

Hebrew lawgiver, most distinctly referred all these *natural causes* to their True Origin—and hence it is that the name of *God* is so frequently used in the Hebrew Scriptures to exemplify *natural* phenomena, which the writers were not always able to explain, but were forbidden to typify by graven images, (*or falsely*,) like the other nations, and therefore spoke of them as *directly* emanating from the Deity.

It may be observed in the Hebrew Scriptures that the word “God,” is frequently used in the manner which the Latins employed the term “nature”—for the goddess *natura* served to exemplify, in their figurative ideology, the general phenomena which we acknowledge to derive their existence and influences from the power of the Almighty. Thunder, in the Hebrew expression, is sometimes described as “the voice of God.” In the 29th Psalm, there is a description of the various appearances and effects of what we now call the electric phenomena, expressed in the sublime simplicity which distinguishes the Hebrew writers.

- V. 3. “The *voice* of the Lord is upon the waters. The glory of God *thundereth*: The Lord is upon many waters.”  
 5. “The *voice* of the Lord breaketh the cedars; yea, the Lord breaketh the cedars of Lebanon.”  
 7. “The *voice* of the Lord divideth the *flames of fire*.”  
 9. “The *voice* of the Lord *maketh the hinds to calve*,\* and discovereth the forests.”

It is by a consideration of the practical peculiarities of the Hebrew laws and writings, which strove to *repress* an idolatrous imagination—by an acquaintance with the simple customs of the people of the East, and by a knowledge of the ancient style of communicating ideas by *figures of language*, or images in writing, (the *first* of which was used by the Hebrews, and the *latter* forbidden to them) to represent in one glance the design of the communicator, that we can properly comprehend the propriety of phrases, employed by man to render intelligible to the mind of his fellow man, the intentions of his Creator.

The *finger*, the *hand*, the *arm*, the *feet*, the *face*, the *mouth*, the *eye*, the *ear*, the *voice*, the *heart*, the *soul* and the *mind* of God, all which expressions are used in the Hebrew Scriptures, are *figures of speech*, which do not authorise any likeness or graven image to be imagined, worshipped or revered as the similitude of the Deity—for that is expressly prohibited, † but showing by a well known natural emblem

at all times fond of the marvellous, and the credulity of the individual may be often measured by his own attachment to the truth. When knowledge was the property of only *one caste*, it was by no means difficult to employ it in the subjugation of the great mass of society.” Brewster’s Letters on Natural Magic, 14.

\* This is an effect known to take place among cattle heavy with young, in severe thunder storms. We may observe that thunder is very seldom heard in Egypt, where the infrequency of rain is otherwise compensated for.

† “Take ye, therefore, good heed unto yourselves, (for ye saw no manner of similitude on the day that the Lord spoke to you in Horeb out of the midst of the fire,) lest ye corrupt yourselves and make you a graven image, the similitude of any figure.” Deut. iv. 15, 16.

accessible to the understanding of man, the power and might of the "Living God," the Creator, the Preserver, and the Destroyer!

All the proper names in the Hebrew language, like those among the Indian nations, have an express significancy; without referring to which, we can have no just idea of the intention or meaning of the epithet. The impressive name of Jehovah, "who is, who was, and is to come," includes the character of the Deity, and exemplifies his eternity.

Throughout the whole language the subservience of speech to absolute character, and natural comparison is very remarkable. "The names of animals, plants, &c., were not arbitrary, but founded on some apparent and predominant property or quality, sufficient to give them a designation at first. The original Hebrew names of many of the beasts and birds of that region are apparently formed by imitation of their natural cries or notes: so the general name given to the tamer animals, sheep and kine, was *beme*, in which sound the lowing of the one, and the bleating of the other, seem to be imitated; so the name of the common ass, *orud*, and of the wild ass *pra*, resembles their braying. The name of the raven, *oreb*, was doubtless taken from its hoarse croaking; of the sparrow, *tsippor*, from its chirping; of the partridge, *quera*, from the note she uses in calling her young; and the murmur of the turtle dove, is exactly expressed by its Hebrew name *tur*, and evidently gave rise to it. Other names appear to be derived from the characteristic qualities of the creatures; as for instance, the camel might be called *gamel*, from its revengeful temper, and the sheep *rachel*, from its weakness; the ram *ajil*, because agile and active, and the goat, *sair*, from its being hairy."\*

It is related in a sketch of the life of Maimonides, that when that celebrated physician explained the causes and reasons of the Mosaic statutes, this procedure gave offence to many of the Jews. "They could not conceive that the revelations of God were to be explained upon the principles of reason; but thought that every institution must cease to be divine, the moment it was discovered to have any thing in it rational." The learned Spencer, who has pursued the same plan, and executed it happily, observes very truly, "nothing contributes more to make men atheists, and unbelievers of the bible, than their considering the rites and ceremonies of the law as the effects only of caprice and arbitrary humour in the Deity; yet thus they will always be apt to consider them while they remain ignorant of the *causes and reasons* of their institution."†

With respect to figurative expressions, "the Sages say: 'The law spoke according to the language of the sons of men.'"‡

Jeremiah (chap. xiii. verse 13,) describes an instance of general profligacy, speaking in the name of the Almighty: "Thus saith the Lord, Behold, *I will fill* all the inhabitants of this land, even the

\* Preface to the Natural History of the Bible, by T. M. Harris, D. D.

† The Main Principle of the Creed and Ethics of the Jews, &c. &c., by Herman Hedwig Bernard, Teacher of Languages at Cambridge.

‡ Ibid. 80.

kings that sit upon David's throne, and the priests, and the prophets, and all the inhabitants of Jerusalem *with drunkenness!*"

Isaiah says also, by the same *figure* of speech—"I will tread down the people in mine anger, and *make them drunk*, in my fury—and I will bring down their strength to the earth." lxiii. 6.

The Hebrews were taught by their prophets, that God was equally the cause of evil and of good, which result according to the *actions* of men, to whom he had given the means to comprehend his will.

"See now that I, even I am He, and there is no god with me: I kill and I make alive—I wound and I heal." Deut. xxxii. 39.

"I form the light and create darkness: I make peace, and *create evil*." Isaiah, xlv. 7.

"*Declaring the end from the beginning*, and from ancient times the things which are not yet done." xlvi. 10.

This kind of instruction ought to lead to the knowledge that all things, evil as well as good, are, as we say "providential," that is, by "foresight"—from a knowledge of the *principles* He has created, which operate upon men. But we are not led to believe that "drunkenness," in the manner in which it is noticed by the Hebrew prophets, was according to the wish or desire of God, but directly contrary to it; and a *consequence* of the neglect of laws which he had inculcated to *prevent* such results, and which he has given us faculties to discover and control. The expressions, quoted, we think, authorise the conclusion we wish to arrive at,—that the *causes which produce intemperance are natural ones*—and to be sought for, in like manner, as those of other *diseases*, which it was foretold should result from the neglect of ordinances which are founded upon a most correct observance of the natural laws of the Almighty. These effects must *have been* remarked among those ancient nations, whose monuments, in the sands of Africa and Asia, demonstrate their knowledge, their luxury, and their extinction—and serve as a memorial of events which *necessarily* ensue from similar *acts* of extravagance, profligacy and oppression.\*

The laws of the decalogue, which contains the principles of many of the civil and criminal enactments of modern civilised nations, (mingled to a certain degree with the Roman, Grecian, Norman, and Saxon usages and laws,) are founded upon an attentive observation, and knowledge of what *we* call *natural* phenomena—which the Hebrew patriarchs understood as "laws of God." These laws exhibit, from experience, comparison, observation and sensation, an intimate acquaintance with the physical peculiarities which bias the actions of

\* By an attentive retrospect of the revolutions which *have* taken place within the last half century, and the changes which are still threatened, we might suppose that the descriptions which are given in part of the 26th chapter of Leviticus, and the 28th chapter of Deuteronomy, were taken from scenes which some, *who still live*, have witnessed—so closely allied are they in character to the distresses there enumerated; and this consideration induces us to believe that the Hebrew prophet described disasters which *had been* known among other nations, and were referred to as historical evidences of his truth; for he frequently alludes to the days which are past, and to the surrounding nations.—"Remember the days of *old*, consider the years of *many generations*. Ask *thy father*, and he will show thee; *thy elders*, and they will tell thee." Deut. xxxii. 7.

men among all nations; the influence of which *we* are just beginning to recognise.\*

Superstition, idolatry, profanity, oppression, disobedience to parents, murder, adultery, theft, falsehood, covetousness,—are the topics upon which the ten moral commandments simply comment, or rather which they plainly interdict. Some of these *vices*, as they must be called *among men*, are known to exist, almost, if not altogether, *instinctively*, in different degrees and proportion among individuals of different nations—in a state of what is termed savage, as well of, what we call, civil life—but not alike in all such, some being more inclined to one than to other of these propensities; and it is obvious that the existence of one does not always give evidence of others. Many of the *same* inclinations are also perceptible, as *natural instincts*, such is the phrase we use, among other wild, or domestic animals, birds and insects, as our modern naturalists and common observation, clearly exemplify and prove. The *command* that *we* should avoid such acts, intimates that we have the *power* to do so—or may attain it. The *very laws* also prove that men are *inclined* to such acts; and therefore require *to be instructed* in the *causes* of them, as well as in their pernicious tendencies and effects. Do not these dispositions, then, proceed in *all cases* from causes ordained by our Creator, which are *regulated* in correspondence with *our actions* and *our laws*? and are we not led by the comparison of these natural truths, to perceive the wisdom which has discerned and indicated *the difference* that should exist between the practices of well informed, healthful men—and those of other animals—for *our temporal* welfare and the prosperity and peace of the people in a state of social and civil society? How much the propensities noticed in the Decalogue may have originated among men from *imitation*, (for the life of the eastern people, even to this day, is spent among their flocks and herds, and in contemplating the natural works of the creation of God;)—how much from *instinctive impulse*, a sensation *not voluntary*; but which we are taught to control, within certain limits, by mental energies, and which is found liable to perversions, or mistakes, *by disease*:—or how much from *ignorance*, which these laws were designed to correct:—or from *intention*, which the law punished under the title of *presumption*,—we cannot pretend to determine. But Moses met *all* these difficulties, by strictly forbidding *the acts*—and plainly pointed out the *consequences* of obedience as well as of neglect. An attention to the natural and simple interpretation of some of his other laws may show us the causes of various other perversions which are now distinguishable in society. Let us recollect that the idolatrous nations represented the *principles* of all human and natural actions, to be instigated by *imaginary* beings they called *gods, or devils*. Moses, on the contrary, described the Almighty as the Creator of this earth we inhabit; of all the things and creatures upon it, and of the prin-

\* Sir Isaac Newton, in the close of his Treatise on Optics, hints, that “if natural philosophy should continue to be improved in its various branches, the bounds of moral philosophy would be enlarged also.”—D’Israeli’s Curiosities of Literature; article, Medicine and Morals.

ciples affecting it, us, and them—and also, as the sole and universal Parent of the whole creation of worlds which surround us—a conception worthy of the highest faculties of man. Thus in the Hebrew writings the Almighty is called “a God of gods.” As the *gods* of the heathen nations were the *imaginary* types, or representatives, of just *principles*; Moses acknowledged these *principles*, but cast away the idolatrous, unnecessary, and false similitudes, to unfold their true foundation.\* He was, in those days, the great, but the prudent, reformer of abuses and of ignorance, and recognised results which are even *now* apparent.

It is by a comprehension of the ultimate natural causes which God has evidently established *as principles*, that we are able to comprehend the Mosaic doctrine, that he is alike the cause of what we esteem evil and good; since it is by *natural analogies alone*, that such facts and truths are authenticated, developed, and intelligibly represented to our understandings. This principle of evil and of good having origin from *one* source in the natural world, is beautifully illustrated by Dr. Fleming: “There is a wasteful war every where raging in the animal kingdom. Tribe is divided against tribe, and species against species, and neutrality is no where respected. Those which are preyed upon have certain means which they employ to avoid the foe; but the rapacious are likewise *qualified* for the pursuit. The exercise of the feelings of benevolence may induce us to confine our attention to the former, and adore the goodness which gives shelter to the defenceless, and protection to the weak; while we may be disposed to turn, precipitately, from viewing the latter, lest we discover marks of cruelty where we wished to contemplate nothing but kindness. These feelings are usually the companions of circumscribed and partial observation, and fall far short of the object at which they aim. It would be *impious* in us to enquire *why* the waster has been created to destroy.† It is enough if we know that rapacious animals occupy a station in the scale of being. And while we eagerly explore the various methods employed by the defenceless to secure themselves from danger, and evade the threatened death; it is suitable for us likewise to contemplate the various means employed by carnivorous animals to gain the means of their subsistence. When we see a hawk in pursuit of a lark, we are apt to admire *exclusively* the dexterity of the latter, in avoiding destruction, and to triumph when it has obtained the requisite protection in a thicket. We seem to forget that the digestive organs of the

\* The ancients worshipped *infernal*, as well as *supernal gods*—and hence it is that, what in modern phrase is called *devil*, (the word Satan, which is said to be Hebrew, means an adversary, an avenger, or *destroyer*) is in the Hebrew writings called *god*, alluding to its *falsehood*.

“They sacrificed unto *devils*, (which were not God;) to *gods* whom they knew not, to new gods that come newly up, whom your fathers feared not.”

“Of the rock that begat thee thou art unmindful, and hast forgotten God who *formed* thee.” Deut. xxii. 18, 19.

Some of the Hebrew writers consider the word translated *jealous* in the Decalogue, to mean *producing or creating*, from a Hebrew word which signifies *to hatch*.

† We must think that *the contrary* is very successfully proven by the admirable author we quote.



hawk are (*not*) fitted only for carrion; and we lose sight of the benevolence and wisdom exhibited in giving to its wings a power of inflicting a deadly blow, and rendering the claws suited for grasping, and the bill for tearing in pieces the quarry. We are not, therefore, to take confined views of the animal kingdom, if we wish to read the lessons concerning the providence of God which it teaches. He that causeth the grass to grow for the cattle, and herbs for the service of man; likewise giveth meat in due season to the young lions, which roar after their prey; and feedeth the ravens, though they neither sow nor reap. We see rapacious and defenceless animals existing, yet we do not observe the former successful in extirpating the latter. Limits are assigned to the ravages of this universal war. The excess only of the population is cut off—and this excess, on whose production so many animals depend for subsistence, is as uniform as the means used to restrain its limits.—These various circumstances, which we have enumerated as limiting the duration of animals, preserve the balance of life, restrain within suitable bounds the numbers of the individuals of a species, and give stability to that system, the wise arrangements of which can only be discovered by a close examination of *the whole*.\*

Moralists have, therefore, been taught to attribute to evils and misfortunes the benefits which frequently result from the judicious appreciation of their *causes* and *natural effects*, and of that *balance of good* which is every where perceptible.

“The *depravation* of the human will was followed by a disorder of the harmony of nature—and by that providence which often places antidotes in the neighbourhood of poisons, vice was checked by misery, lest it should swell to universal and unlimited dominion. Almost all the moral good which is left among us, is the apparent effect of physical evil.”†

We hope that the absolute *causes* as well as the direful effects of intemperance will be seriously regarded—for we believe their consideration is necessary to relieve human suffering and to remedy some of the evils which are so much complained of among us. Who can look upon incipient or confirmed drunkenness, and not be sensible that it is accompanied by physical, as well as by mental infirmity and derangements? Physicians must always treat it with such views to relieve the maniac from his insanity occasioned by excesses. To prove the disordered state of the general system in some intemperate persons, we may mention the case of a severe fracture of the leg with dislocation of the ankle joint, in a poor drunkard, who was crushed between two sugar hogsheads some years ago. The man admitted he drunk *two quarts daily*. Dr. Wistar of Philadelphia amputated the leg, and of course the ligatures and dressings were properly applied. But an alarming hæmorrhage came on, which could not be repressed at the stump. The popliteal—the great artery of the leg, was closed more than once by a

\* The Philosophy of Zoology, or a General View of the Structure, Functions, and Classification of Animals. By John Fleming, D. D., minister of Flisk, Fifeshire, &c. &c. Vol. ii. 6. Edinburgh, 1822.

† Dr. Johnson—Idler, No. 89.

ligature without successfully arresting the hæmorrhage—but at last adhesion ensued, when the vessel was taken up near the groin. The difficulty in the coats of the artery to affect adhesive inflammation, was referred, by the cautious and skilful surgeon, to *the peculiarity of the constitution, resulting from the intemperate habits* of the patient—as the vessels were not ossified. This case proves the general derangement of the system, which *throughout* its organisation must have been equally disturbed in its healthful functions—and may serve to caution those *about* to yield themselves to practices of intemperance. It may also be permitted us to state, that the stomach, brain and nervous system of this wretched person, must *necessarily* have been so much affected, that he could no more by *mere volition*, in his diseased state, have avoided ardent spirit, if it was possible to procure it, than he could, by his own will, have caused a prompt adhesion of the artery. The *incipient* and the *confirmed* stages of drunkenness require indeed very different management.\*

In cases of fractured limbs occurring in drunkards, a large allowance of the *same* liquors to which they have been accustomed, is considered necessary by some of the most conscientious surgeons, to prevent the alarming and even fatal nervous symptoms, which otherwise ensue. Some have acknowledged this result, from their own experience as a caution to others. Upon this subject, however, in *general* practice, medical gentlemen differ in opinion—and in different sections of the country, with different habits of life—food and drinks, seasons or climate—indications vary. We subjoin a letter, abstracted from one of the publications upon intemperance, which contains a very valuable suggestion, among other observations of weight and importance.

“ Worcester, (Mass.) May, 1833.

As physician of the Connecticut State Prison, I have had considerable experience on this subject, (intemperance,) for six years past. During that period more than 200 individuals who acknowledged themselves drunkards, were confined in the penitentiary, and came under my immediate observation and care; some of them had used their *pint*, others their *quart* of spirits daily, for years. Many were advanced in life, some even to 70 or more years, extremely feeble and decrepid. In *every case* the principle of total abstinence was adopted and rigidly enforced; neither wine, cider, nor any other substitute, was allowed. From all this number, not one case of delirium tremens occurred, nor any other disease peculiar to the intemperate; some suffered severely for a time, many wept like children, others plead with all the eloquence which strong desire and *horrid suffering* could call forth; yet not in a

\* M. Magendi, administered to a dog diluted alcohol during digestion; and afterwards was able to detect its presence in the blood. *Précis Elementaire de Physiologie*, vol. ii, p. 168. *Philosophy of Zoology*, i. 337.

“ The evolution of hydrogenous gas is chiefly learned from the factor of the breath; it seems to be sent off from the surface of the lungs, in a disengaged state; and is often so pure in its kind from the expirations of a dram drinker, that it is easily inflamed on the approach of a candle.” Trotter on Drunkenness, 137.

single instance was there the least indulgence allowed ; by degrees the propensity was conquered, the health restored, mental and physical vigour was reproduced. Many a convict has declared to me that his life has been saved by the rigid practice which we adopted, and was truly thankful that we had not yielded to his entreaties for strong drink. In a full practice of twenty-five years, I can truly say that I am not satisfied of having seen a single case of delirium tremens, from withholding ardent spirits from the intemperate.

This is a strong argument for *temperance asylums*, which in my opinion would be amongst the most useful *public charities* in the country ; indeed I am surprised that the experiment has not been tried before this time, when so much is doing in every other way to remove intemperance.

The resolutions of the intemperate are often the very best, *but the horror of the craving cannot be resisted*, and, while the means of indulgence are at hand, will be resorted to, to relieve the deadly anguish which pervades the whole frame. Take this wretched, half-distracted being by the hand, place him in an asylum, secure from the means of indulgence, nurse him, make him every way comfortable, remove the *diseased appetite*, and cure the malady by medicine if necessary ; soothe his "wounded spirit," sympathise with him, treat him as a man, unfortunate to be sure, but still a man, not abandoned, but *diseased* ; amuse him, employ him, tell him how to get well, and how he may avoid the evil in future, and do not doubt that in nine cases out of ten you will be successful.

Yours,

S. B. WOODWARD."

The English opium eater took as much as 8000 drops of laudanum, or 320 grains of opium, *per day*, and suddenly descended to 40 grains. He writes, "The reader may be sure, that I made attempts innumerable to reduce the quantity. I add, that those who witnessed the agonies of those attempts, and not myself, were the first to beg me to desist." 146. "Down to a certain point, it can be reduced with ease, and even pleasure, but after that point, further reduction causes *intense suffering*"—"a state of unutterable irritation of stomach." 147. "It was solely by the tortures connected with the attempt to abjure it, that it kept its hold." 152. "During the whole period of diminishing the opium, I had the torments of a man passing out of one mode of existence into another. The issue was not death—but a sort of physical regeneration." 185. "I derived no benefit from any medicine, except one prescribed to me by an Edinburgh surgeon of great eminence, viz : *ammoniated tincture of valerian.*"\* 184.

It is considered the duty of a physician to attend with care to the life and safety of the ignorant and depraved, as to others—and we are not satisfied that *any other* persons in society are exempt from the *same* obligations, to the extent of their ability. Who can declare that his own intemperance, or extravagance, in *some other shape or form*, by the encouragement it has given to unhealthful occupation, vice or infirmity, may not have promoted the very evil we are called upon to relieve.

\* Confessions of an English Opium Eater.

It is of the greatest importance to the richer and better informed classes of society, to attend to the health and instruction of the poor, and of the *vicious* also, (not to *encourage* vice, but to *control*, *prevent*, or *reform* it,) as they depend upon many such persons for the preparation of various articles of food and dress—of convenience and luxury—and how often are the most serious and fatal diseases communicated and dispersed through society from the haunts of vice and infirmity, and by the wants and ignorance of the poor and the wretched! “Poverty,” writes Dr. Johnson, “makes some virtues impracticable, and others extremely difficult!” Those who are the most neglected and outcast, are the most likely to addict themselves to intemperance, and have, we think, a just claim to our attention. Some are permitted to live so much like other animals, that they cannot feel their superiority over them; and every member of society is personally interested in, and, in some degree, responsible for, the neglect and the degradation of such.

The diverse occupations and employments of men, in toilsome labours, fatiguing and dangerous bodily exertions, and harassing mental engagements, embracing a very large compass in the present state of society, exposed to numerous infirmities of body and mind, while producing, procuring, or transmitting the various enjoyments we possess, sometimes call for additional aids when forced to increased endeavours. Hence those who use little muscular or mental exertion—and do not endure any material privations, can scarcely be competent judges of the necessities and sensations of those engaged in the severer duties. It was probably while thus reflecting that Rousseau confessed: “I am now sensible how improper it is for a *mind at ease* to judge of other men’s passions—and how foolish to ridicule the sensations *we have never felt*.”

Those in comfortable circumstances, who are well informed, have *many* means of avoiding vexation and disquiet—relieving fatigue and moderating unpleasant sensations—of which, from use and habit, they are in many instances not sensible that *others want*—such as frequent changes of clothing, better and a greater variety of food—more cordial or generous liquids—more profitable occupations—the charms of music, literature, social converse, and amusements. But to the poor and ignorant these luxuries are denied—and many natural, essential, and proper comforts too frequently wanting. When *they* feel the irksomeness of voluntary or involuntary idleness, the weariness of distress and want, [or the miseries of disease, they resort to what is *within their means of enjoyment*. They use a stimulant which has specific powers—they commit excess with an article of peculiar properties—of itself, when intemperately used, a poison, and often mingled with other deadly poisons—whose ultimate influences ignorance, insensibility, the seduction of partial relief, and the perversion of their sensations, often render them incapable of appreciating—a liquid most immediate in its impressions, most powerful in action, and most prejudicial in its influence, when incautiously taken,—*but most accessible and cheapest*.

Domestic, moral, physical, and general instruction, kind counsel, and judicious regulations of association and police, should *meet* the

evil of intemperance ; which has become a blot upon the national character—a constant blight to social happiness—and a stain which must allay our pride of country, if it continue to be pursued—

“ This heavy headed revel east and west,  
Makes us traduced and taxed of other nations.”

Disease, poverty, and grief, want of suitable employment, and ignorance, are prominent and dangerous predisposing causes of intemperance; as among those who neither possess knowledge nor health, and have not profitable occupation, there are so few resources from the other evils of life, whether domestic or of an extraneous character.

But, there are some who possess the advantages of education, and have access to the various enjoyments of society, who still, by ignorance of natural laws, too much neglected, and vitiated by the *perversions* of civil life, are insensibly led to practices of dissipation and extravagance. We need not particularise too minutely, for this evil is not confined to any class or latitude, but has been carried, by individual predisposition and propensities, to every quarter of the globe—and is now known almost universally.

The temperate use of stimulating drinks has been found acceptable to persons of the highest morality and talent—whose sensations taught them to recur to such assistances. To relieve feelings of melancholy many plans have been adopted. Dr. Johnson fled for years to wine, under his habitual gloom. In its stead, he afterwards substituted the milder stimulus of tea. Voltaire and Fontenelle, for the same purpose, used coffee. The excitements of Newton and Hobbes were the fumes of tobacco, while Demosthenes and Haller were sufficiently stimulated by drinking freely of cold water. Such are the differences of constitution.\*

The Rev. Robert Hall became a confirmed smoker—and also, in consequence of a severe pain in his back, had the habit of taking large doses of laudanum, which he sometimes took in half a glass of brandy when the pain was violent or coming on. By the examination of the body after death, it was ascertained that there were not less than ten calculi (stones) in the natural cavities of the right kidney!

During one evening, while in great agony, he took opium to the amount of two hundred and fifty drops, which he said made fifteen hundred drops taken during that day. After obtaining relief he said: “ What a merciful provision laudanum is, sir! I could not exist without it. It seems as if Providence had designed it as a specific for me: most persons complain that it affects the head, and stupifies them; it has, however, a *contrary* influence upon me; I always feel more lively after taking it.”†

It has been observed that there are certain nations which appear

\* Anatomy of Drunkenness.

† Reminiscences of the Rev. Robert Hall, A. M., late of Bristol, &c. &c. By John Greene, &c. &c., 1832.

The English Opium Eater also declares: “ For ten years during which I took opium at intervals, the day succeeding to that on which I allowed myself this luxury was always a day of unusual good spirits.” (Confessions of an Opium Eater. p. 102.)

particularly addicted to the *excessive* use of stimulating drinks ; and others, *while using* them, which are, on the contrary, generally temperate. It is by some supposed, that where wines are most abundant, they are drank with most propriety and discretion; but we wish to refer to the general manners and condition of life, as necessarily assisting the character of temperance.

“ The English,” says Cambden, in describing the events of the year 1581, “ who had hitherto, of all the northern nations, shown themselves the *least* addicted to immoderate drinking, and been commended for their sobriety, first learned, *in their wars with the Netherlands*, to swallow a large quantity of intoxicating liquor, and to destroy their own health by drinking that of others.”\* But this custom appears to have been then of short continuance ; for Fynes Moryson, who published his Travels soon after the commencement of the following century, assures us, that “ in generalle the greater and better part of the English held all excesse blame-worthy, and drunkennesse a reproachfull vice.”† It must be acknowledged, that the natives of wine countries, (with the exception, perhaps, of the Greeks and Persians,) are much less prone to intemperance than those nations for whom the attraction of vinous liquors seems to increase in proportion as they recede from the climates that produce them. It is, however, with the delights of wine as with the other pleasures of sense ;—when indulged in too freely, they lose their sweetest charm ; and they are relished most by those who have sufficient self-command to use them in moderation, and who enjoy them at intervals, amid the more important business of life.”‡

Of the nations of Europe that use wines, and other liquors containing an ardent spirit, freely, but generally temperately, we may instance the French, Spanish, and Italian. Their climate, soil, and industry, supply a large variety of the most delicious fruits and vegetables. They live much in the open air, use the bath frequently, and are thought to attend to the physical concerns of the body, with greater regularity, minuteness, and decision, than some other nations more devoted to intemperance in drinking. The behaviour of the richer and better instructed classes, in those countries, has also been described as particularly mild, amiable and considerate towards their labourers and domestics, so that the comparisons of condition, which appear natural, have less cause for exercise among them than elsewhere.

The northern nations of Europe were formerly notorious for the excessive use of wines. Among the ancient Germans, drinking was a kind of religious ceremony, upon the meeting of assemblies to adjust differences—or arrange the method of conducting a war. As drunkenness generally resulted, the consequences, with such a state of society and manners as then existed, may easily be imagined. By the improvements of the age, and in the general personal habits, with the diffusion of information and more varied comforts of life, intemperance has diminished among them. The Germans, Danes, Swedes,

\* History of Queen Elizabeth, Book iii.

† Itinerary, Part iii. p. 152.

‡ On the dietetic qualities of wine—in Dr. Henderson’s History, p. 346.

and others, are said to be now less inclined to the practice, than the Russians, who, according to accredited travellers, delight much in intoxication, more particularly that large portion of the population which is uninstructed and poor. Drunkenness takes the place of many natural and rational means of excitement, of which they are deprived by their condition and institutions.

With the aborigines of the northern part of America excess of this description\* was not known, till, the so called civilised man invited them to dissipation, and sometimes gained dishonourable advantage of its effects. Many individuals of the remote nations in the West, still, have firmness enough to resist the lure—and exhibit in their fine forms, and noble demeanor, an example, how vigorous in body and mind man becomes without the use of ardent spirit, under the influence of other peculiarities. How distinct in appearance and behaviour are they, from the ill-featured stragglers who, vitiated by intemperance and our example, sometimes appear before us as representatives of the original possessors of the land we live in! The North American Indian is almost exclusively a meat eater—although sometimes very abstemious, he is at others wanton and extravagant in the use of flesh—and is well known to have great relish for ardent spirit. The Arab is extremely moderate and regular in his food—uses tobacco but abhors wine. The Turk employs opium and tobacco, the smoke of which, as in Persia, India, and China, passes through long tubes which contain water, as if to regulate its strength, like tempering wine, that the influence over the nerves and brain may be less powerful and intense. The Turk has generally been a water and coffee drinker, eating a variety of food of wholesome quality.† The inhabitants of some warm countries, as in India, exist principally on vegetables and a great variety of fruits and grains—they *were* celebrated

\* In Col. Long's Expedition to the Rocky Mountains, ii. 194, we are informed that among the Otoes, west of the Mississippi, an unknown species of bean, or seed, called "*the intoxicating bean*," is used by certain individuals. They are in such request that a horse has been given for eight or ten of them. The North American Indians also used other stimulating articles mingled with the tobacco which was so universally smoked by them.

The web of the black spider, and of the other species also, has been found very similar in some of its effects to opium, so much so that it has been declared by reputable medical authority, "cobweb calms irritations of body and mind in a degree far exceeding any drug or remedy within the circle of our knowledge."—*Med. and Phys. Journal of Edinburgh*, vol. 21, p. 353. The Indians about North Carolina used it to cure agues, to which they were much subject; this was mentioned in James' New English Dispensatory, London, 1747, page 484.

† "The Khans and Meerzas of Bebuhan are considerable consumers of coffee, but not after the fashion of Turks, Arabs, or Europeans. It is with them a kind of *bon-bon*, eaten in a powdered and roasted state, without having had any connection with hot water. When Meer Goolam Hussein called on me, he was always accompanied by his coffee bearer, who carried about the fragrant berry in a *snuff box*—and handed it frequently to the company present. The first time it was brought to me, deceived by its colour and quality, and strengthened in the delusion by its singular repository, I took a *pinch* of the coffee and applied it to my nose, amidst the roars of laughter and looks of surprise of all the party."—*Journey from India to England, performed in the years 1831–32, by J. H. Stocqueler, Esq.*

for cleanliness and sobriety until disturbed by vicious communications, and the example of worse habits than their own. But "assafetida is much esteemed, in many parts of the East, as a seasoning for various dishes. It is said that the Banian Indians, who eat no animal food, scarcely eat any thing that is not seasoned with it; and even rub their mouths with it, as a provocative to the appetite."\*

The Chinese are omnivorous, and vary according to circumstances, in the use of strong drinks and other stimulants. In the "Journal of the Proceedings of the late Embassy to China, &c. by Henry Ellis, third commissioner of the embassy," it is mentioned "the Chinese in general like our sweet wines and cordials better than those more usually consumed by ourselves. Whatever may have been the assertion of former travellers, my experience leads me to consider them scarcely less addicted to the use of spirituous liquors than Europeans; it is only their *superior sense of decorum* that prevents them from exhibiting themselves as often in public under the influence of intoxication!" p. 148.

But upon another occasion Mr. Ellis remarks of the Chinese boatmen: "Their endurance of fatigue in this day's (4th of December, 1816,) journey is most remarkable; there was scarcely any intermission to their exertions, and with the thermometer as low as 45 or 50 degrees, they are in the water several times during the day. At night when their labours are closed, the boatmen wash their bodies with hot water; rather, I suppose, to remove the stiffness of their joints than from notions of cleanliness. The washing at this season took place in the open air. Their diet is chiefly rice, with a small quantity of animal food: the use of spirituous liquors is *not habitual*—certainly not daily." p. 269. After a game of chance, played between two inferior mandarins, it was observed "the *loser* drinks the cup of wine or spirits." p. 101.

In proportion as fruits and vegetables, with digestible and wholesome meats, and other simple food are *moderately* used—and health, intelligence, and happiness *most generally* diffused—so may the disposition for the *excessive* use of stimulating drinks be seen to diminish among nations, and individuals in society.

We have obtained the results of his experience from a medical friend, who *while a student* made experiments upon the effects of particular diet upon his own system. After living exclusively upon bread, fruits, vegetables, and water for some time, he became so indifferent to wine, which he was previously in the practice of using at dinner—that according to his expression "nothing could have persuaded him to take it;"—the sensations were so decidedly opposed to its employment, and the system so perfectly accommodated to its condition. After continuing this mode of life for several weeks, he gradually recurred to a *limited* diet of bread, meat, without fat, and water, exclusively—without either vegetables or fruits—and did not find himself inclined, at all, to recur to wine; but he thought his relish for it was provoked by a return to his ordinary mode of living in other respects. It has been thought that many of the diseases which so fatally pervade certain districts of our country may be attributed in a great degree to

\* Loudon's Magazine of Natural History, ii. 158.



the neglect or ignorance of the effects of a proper adjustment and variety of diet, and of cleanliness, both personal and *general*. It is believed that the disposition for strong drinks may be very much promoted by such inattentions—for the functions of the lungs and of the skin, as well as those of the stomach, act very powerfully over the animal economy, and influence the will.

By the experiments and investigations of ingenious physiologists and chemists, we are aware, that the principles which constitute the chief food of plants, and on which *their* existence depends, are injurious to health when *we* inhale them—and are even in some cases destructive to animal life. The animal and vegetable worlds labour for each other, with that exact economy and simple action which illustrate the wisdom of their Contriver. The effluvia and excrement of the first, are fed upon by the latter, when aided by light, heat, and moisture, to volatilise and render them susceptible of use to the leaves, which are organs of respiration and nutrition, and to the roots which supply the sap or blood of plants. In confined situations, as towns and cities, where large collections of animal and dead vegetable matter are exposed to the rays of a summer's sun, the consequences are a rapid production and elimination of those deleterious agents, which are the acknowledged offspring of heat and moisture, from such a mass—and if none, or few of the vegetable world are at hand to imbibe all the noxious exhalations, they will be diffused through the circumambient air, as the heat increases, and saturate it with the seeds of disease and death. Those who live in the country are often very sensibly affected by the difference of the atmosphere when, in the summer, they approach a crowded city; and discover a want of their usual comfort while inhaling it; they feel an oppression of the lungs and head—and the functions of the stomach become often at the same time deranged. Persons removing from towns are, in proportion, exhilarated by the purer atmosphere of the country. It is, however, only when the danger approaches very near, in the shape of active epidemics, that sufficient attention is paid to the stomach in regulating food and drink, and to the lungs, by preventing the exposure of decomposing animal and vegetable secula. Many of the autumnal diseases, which are frequently obstinate and fatal, depend upon such causes of contamination; and the leaves of plants, which are organs to employ deleterious gases, acting feebly at that time, in consequence of their approaching fall, render the necessity of general precautions more important. It is not improbable that on this account the Hebrew law directed the use of wine *after harvest time*, subsequent to the labours and fatigues of the season—to *prevent* disease.\*

\* In the second book of Samuel, 1021 years before Christ, we have an account of refreshments offered to David by Ziba the servant of Mephiboseth, who "met him with a couple of asses saddled, and upon them two hundred loaves of bread, and an hundred bunches of raisins, and an hundred of summer fruits, and a *bottle of wine*."

"And the king said unto Ziba, what meanest thou by these?" And Ziba said, "the asses be for the king's household to ride on; and the bread and summer fruit for the young men to eat; and the wine, *that such as be faint in the wilderness may drink*." Chap. xvi. 1, 2.

The *bottle* of wine above mentioned is understood to have been made of skins, such as are still used in Spain and in the East, for similar purposes.

In extreme cold countries, as Kamskatka, where there is no variety of vegetable aliment, but a constant use is made of putrid fish and the fattest flesh, filth is not esteemed a vice we are told. M. DeLesseps, in his travels through Kamskatka, on receiving a visit from some Koriacs says, "our principal care was to make them as drunk as possible, that they might give a favourable report of their reception. It was necessary to consult *their taste*, and to intoxicate them completely they considered the very essence of politeness. These people, enemies to industry, live like the Kamskadales upon dried fish and the flesh and fat of the whale and the sea wolf."

The Hebrew law and writings permit, and even *command*, the use of wine, except to the *priests* at the time of offering sacrifice, and to *rulers*—these last, in the days of Solomon, who has written upon this subject, were *judges* also! Moses directed his brother, the first high priest: "Do not drink *wine nor strong drink*, thou nor thy sons with thee, when ye go into the tabernacle of the congregation, lest ye die." Leviticus, x. 9. This command was given immediately after the death of the two sons of Aaron, who had offered "*strange fire*," which was "not commanded them." Was it in consequence of intemperance that they died?—for we must recollect that the Hebrew *offerings* were eaten or drank by the priests and their families.

It is necessary to know something of the customs of the age, and the character of the language in which the Mosaic laws were given; for many of them are designed to prevent evils which in that day were obvious and well known—and it appears that many of the practices of other nations, which were not objectionable, were maintained and continued among the Hebrews, as we continue to observe such of the statute and common laws of Great Britain, as are not altered by acts of assembly. Herodotus says of the *Egyptian priests*, whose habits and character must, of course, have been well known to the Hebrews, and especially to Moses, who was educated among them: "Each has a portion of the sacred viands ready dressed assigned him, besides a large and daily allowance of beef and geese—they have also *wine*, but are not permitted to feed on fish." i. 323. The Hebrew priests were also thus provided from the sacrificial offerings—but there was a peculiarity in the Hebrew sacrifices which distinguished them from those of the surrounding idolatrous nations; namely, that the offerings made to God were *eaten or drunk* by the priests, their families, and the people, *openly and avowedly*, as being designed for their temporal advantage, and not for the necessities of the Deity, as the heathen were taught.\* A small portion only was burnt as a "sweet smelling savour" (to man)—and as "a memorial" or *remembrancer* of the Creator who gave it. These sacrifices of the Hebrews

\* This distinction appears to be alluded to in the fiftieth Psalm, v. 10, 11, 12, where David, in the name of the Almighty, declares:

"For every beast of the field is mine, and the cattle upon a thousand hills.

"I know all the fowls of the mountains: and the wild beasts of the field are mine.

"If I were hungry I would not tell thee: for the world is mine, and the fulness thereof."

also consisted *solely* of such meats and vegetable products as the law considered suitable as food *for man*. In the twenty-third chapter of Leviticus, a drink-offering of wine is *commanded* at the sacrifice of the first fruits at harvest time.

In contrast with the hypocritical pretensions of some of the priests of the idolatrous nations, who assumed a mock gravity upon *all* occasions, which was afterwards reproved in the Jews when offering sacrifice, the Hebrew law recognised the propriety of "*rejoicing before God*," (Lev. xxiii. 40,) as it is evident from the contemplation of the various works of the creation is acceptable to Him who formed them. The peculiar law for the "*separated person*," or "*Nazarite*," either man or woman, who might be impelled by an instinctive or by a voluntary inclination to abstinence for a certain period, was very carefully drawn up, to prevent *self-deception* in the forbearance of wine or strong drink. The practices of a cruel self-denial exhibited among other eastern nations and is even now remarked among the Fakirs in the East Indies, and different ascetics in Africa—and the pretensions which were formerly made to superior holiness, in consequence of instigations perfectly natural to a depraved function—or to a *peculiar*, healthful organisation,\* may have induced these regulations.

We do not believe, with some, that the "*Nazarites*" were a *privileged* sect—the law, on the contrary, seems designed to *prevent* an assumption of superiority in consequence of such abstinence.

Since writing the above we have found a verification of the principles we have advanced, in a work published in England by Herman Hedwig Bernard, teacher of languages at Cambridge, containing selections from the *Yad Hachazakah* of Maimonides, a learned Hebrew physician and philosopher. Among the precepts relating to the government of the temper, chapter 3d, we read: "Perchance one will say: Since jealousy, lust, ambition, and the like passions, are bad, and tend to put men out of the world, I will part with them *altogether*, and remove to the other *extreme*—and in this he might go so far as even not to eat meat, *not to drink wine*, not to take a wife, not to reside in a fine dwelling-house, and not to put on any fine garments, but only sackcloth, or stuff made of coarse wool, or the like, *just as the priests of the worshippers of idols do*—this too is a wicked way, and it is not lawful to walk in the same." "He who walks in this way is called a *sinner*; for behold! it is said with regard to the Nazarite: 'And make an *atonement* for him, for that he *sinned* against the soul.' (Numbers, vi. 11.) On this the sages say: 'If the Nazarite, who refrained from *wine only*, stands in need of an atonement, how much more must he, who refrains from *every thing*?' "†

The translator remarks in a note: "Samuel says: He who abides fasting, on occasions not prescribed by the law, is called a sinner; for it is said: 'make an atonement for him, for that he sinned against

\* This is no contradiction, for we see grain ripen *first* upon the very poorest and upon the richest land!

† Solomon has directed us and said: "Be not righteous *overmuch*—neither make thyself *overwise*. Why shouldest thou *destroy* thyself?" Eccles. vii. 16.

the soul ;' but now against *what soul* did he, the Nazarite, sin? It means that he *afflicted his own soul by refraining from wine.*"\*

The commands with regard to the "Nazarite," are as follows: "When either man or woman shall separate themselves, to *vow a vow* of a Nazarite (or *separated* person), he (the Nazarite) shall *separate* from wine and strong drink, and shall drink no *vinegar* of wine, nor vinegar of strong drink; neither shall he drink *any* liquor of grapes, nor *eat* moist grapes or dried—all the days of *his separation* shall he eat nothing that is made from the vine tree, from the kernels even to the husk!" Numbers, vi. 2, 3, 4.

We consider this law of the Nazarite perfectly unintelligible without reference to the natural peculiarities, customs, and practices of the age in which it was written—which are now best illustrated by the improvements of the present. The "vinegar of *strong* drink" was produced from a fermented liquor *stronger* than ordinary wine, a knowledge of which may have been acquired from the Egyptians, who were always famous for their vinegar, which was principally made at Phoros. In this Cleopatra is said to have dissolved a pearl, which she presented in a bowl of wine to Anthony. (See Beloe's Herodotus—note to vol. i. 374.) Burckhardt says: "Cucumbers, turnips, onions, egg plants, preserved in *date vinegar*, are favourites with the Egyptians."† He also mentions, that "vinegar made of dates is used by the poorer classes in summer; to dip their bread into it."‡

Vinegar, also, it is known, is at a certain stage of fermentation *concomitant with alcohol*, which rendered it justly objectionable to him who wished to avoid excitement. Cider is always fermented to attain a certain degree of *acidity* before it is put in the still to form whiskey. We recollect once seeing a drunkard fast asleep, over a hogshead of cider, with a wheat straw in his mouth, through which he had drawn liquor enough to intoxicate him. The contents were then so *acid* that no one whose stomach was not in a similar state of derangement, and strongly demanded the stimulus, would have found it at all drinkable; but the vinegar was imbibed for the sake of the alcohol which the instinct of the stomach discerned in the mixture. Some of the other peculiarities of the law of the *separated* person are illustrated by previous explanations. We have seen that while depraved digestion exists, saccharine *fruits* may enter into the vinous or spirituous fermentation even in *the stomach*. When the *vow* of the separated person (which by the Hebrew law was *not required*, but to be respected *when made*) was accomplished, then the law declared "the Nazarite *may drink wine.*"

The figurative expressions which are frequently used in the Scriptures, render it often difficult for us "to understand a *proverb*, and the interpretation—the words of the wise, and their *dark sayings*;" (Proverbs, i. 6.) which are thus acknowledged. It is only by comprehending the *true* and *natural* causes which were very carefully observed and respected by the Hebrew writers generally *as acts of*

\* The Main Principles of the Creed and Ethics of the Jews, &c. &c. 1832. 170.

† Arabic Proverbs, or Manners and Customs of the Modern Egyptians, &c. By the late J. L. Burckhardt. London, 1830. p. 62.

‡ Ibid, 111.

*God*, and of course very accurately described in images or figures of language—and by collecting the different parts and relations of their simple expressions, that we arrive at the full developement of the intention. Thus it is that we require explanations to unfold the character of the person who is called “Nazarite,” or *separated*, and the causes why such an ordinance respecting him should be established. Solomon, who appears to have undergone an experience which led to much information with regard to the intent of the law, sometimes by his own infractions of it, says: “*Through desire*, a man having separated himself, seeketh and intermeddeth with all wisdom,”—all kind of knowledge. (Proverbs, xviii. 1.) The law of the Nazarite was to instruct him *why* he separated himself, namely, for retirement, calm reflection, and study; and to prevent him from judging too critically those whose *desire* did *not* lead them to this kind of abstinence, and whose duties did not permit a “*separation*” from the usages of general society, which were not contrary to the moral code.\*

The fact that a people whose laws *expressly permit the use* of vinous or spirituous drinks, are *less* subject to intemperance than some of those whose religion *expressly forbids the use*, is a matter entitled to our deliberate consideration; and we conceive that a regard to the physical causes of such peculiarities is very necessary to elucidate the mystery. Excess we have shown to be not uncommon among the nations of the East, whose religious institutions were expressly designed to restrain them. If we examine the statistical records of Christian countries, we shall find a great difference among them, but still great intemperance. Now, although the Jews are permitted to *use* wine, excess is neither sanctioned by their laws, *nor common* among them. “Their industry, intelligence, economy and *sobriety*,” have been remarked by numerous writers, and referred to, as the general causes of their success among some of the nations of Europe, especially during the 15th and 16th centuries, by the Chevalier Bail. (*Etat des Juifs en France, en Espagne et en Italie*. Paris, 1823.) It was urged by M. Michaelis against allowing the Jews an equality of rights in Germany—“their extreme industry—their *excessive sobriety*—are such that Christian workmen could never sustain a competition with them!” †

We may also refer to “the Society of Friends,” among whom there occur so few instances of ebriety, although wine, and sometimes stronger liquors, are used temperately by them. Their discipline inculcates maxims of physical as well as of moral precaution—it is *domestic*, peaceful and general, and their government is that of the common will and welfare. According to the London bills

\* “Its contempt of the *divine constitution* of human nature, and its outrage of common instincts,” are referred to by the learned author of the “*Natural History of Euthusiasm*,” (page 217,) as among the principal elements of the ancient Monachism, in which a *continual separation* was considered particularly acceptable to the Deity by certain orders of monks, who endured every description of abstinence, sometimes with difficulty, and sometimes with greater facility, as their natural functions were perverted.

† See Mirabeau’s Letters, during his residence in England, &c. London, 1832, vol. ii. 98.

of mortality, one half of the children born in the metropolis die before attaining their third year: while, of the Society of Friends, a class remarkable for sobriety and regularity of all kinds, one half actually attain the age of forty-seven years. It appears also from accurate calculation, that in London, only one person in forty attains the age of fourscore, while among the Quakers, whose sobriety is proverbial, not less than one in ten reaches that age.\*

On the banks of the Ohio, thirty miles below Pittsburg, is the town of Economy, settled by Germans, and generally known as "Mr. Rapp's Establishment." We confessed surprise, knowing the peculiarity and strictness of some of their regulations, to see a large distillery at work, and to understand that they permitted the occasional temperate use of whiskey, as well as the employment of beer, cider and wine, from their own brewery, orchards and vine-yards!

There is among a population of 800 or 1000 persons, almost every necessary arrangement, for the comfort and welfare of *every one*. The plainest dress—a convenient, but simple structure in building, and various advantageous provisions are equally apparent *for all*. Manufactures of cotton, woollen and silk, and other mechanical occupations, employ various dispositions and abilities. Fine flocks of sheep and other cattle, of superior description, land well and neatly cultivated, exhibit the abundance of their means, used with the most correct economy. Flowers and fruits of select kinds, are carefully and generally attended to. They are well known for the variety and quantity of the vegetables and fruits on their tables, and for their general care in the preparation of food. Music and agriculture—manufactures and honesty, kindness, *temperance*, cleanliness and industry flourish among them. These people, like the French, use ardent spirit—but their other comforts—careful instruction, moderate employments, and their usual avocations and social attentions, *prevent a disposition for intoxication*. Although tobacco is so great a favourite among the Germans generally, upon a request, some time ago, that they would omit its use—we learn that it was abandoned at once, and with ease. This exhibits a *capacity* of resistance to ordinary impressions which is not usually possessed; and to appreciate this faculty, we must investigate by comparisons, the natural as well as the moral causes which make the *power* of abstinence greater in some individuals, sects and nations, than in others.† Every one who has successfully passed through any violent disease, knows the freshness of perception and sensation which is felt after the health becomes con-

\* Anatomy of Drunkenness, 148 and 153.

† "Proceeding westward," says Marco Polo, "you enter the province of Lac, (on the maps Arcot, westward of Madras,) from whence the Bramins, (or perhaps Banians,) who are spread over India, derive their origin. These are the best and most honourable merchants that can be found. No consideration whatever can induce them to speak an untruth, even though their lives should depend upon it. They have also an abhorrence of robbery, or of purloining the goods of other persons. They are likewise remarkable for the virtue of continence, being satisfied with the possession of one wife. They eat meat and drink *the wine of the country*. They are very abstemious in regard to eating, and live to an advanced age.—Travels of Marco Polo in the Eastern Parts of the World, 662.

firmed, and may readily appreciate the differences which exist under a variety of circumstances in different individuals, to facilitate or impede their mental resolves. Many lose the desire to drink strong liquors, and are enabled to refrain after passing through a fit of sickness. The observations of the great and honest moralist, Dr. Johnson, who had ample personal experience both of free drinking and of abstinence, are very admirable, upon this topic. "Sir," said he to Boswell, "I have no objection to a man's drinking wine, if he *can* do it in moderation; *I found myself apt to go to excess in it*, and therefore, after having been for some time without it *on account of sickness*, I thought it best not to return to it. Every man is to judge for himself according to the effects which he experiences. One of the Fathers tells us, he found *fasting made him so peevish*, that he did not practise it.\* Dr. Johnson, as if describing the difficulties which he himself experienced, with all the moral aids he possessed, added—"If you drink water only, then you are sure *not to get drunk*: whereas, if you drink wine you are *never sure*." "He could practise abstinence," he said, "but not temperance," and told Boswell afterwards, "I drink sometimes—but not socially—to *get rid of myself!*" He spoke contemptuously of claret wine, and complained "that a man would be drowned by it before it made him *drunk!*" He often however refrained entirely from wine, but in his seventy-second year, he recurred to it, when in a very weak state of health." See Boswell's Life.

It may be held as very questionable—whether all the cases of crime which are attributed to ardent spirit alone, have not their *more remote* origin in bodily infirmities, induced by some *other* excesses—or wants. These derange the healthful reactions of the mind—seduce men to intemperance, and thus lead to aggravated evils. In the Hebrew Scriptures, *the relations* between disease and crime are obviously and distinctly referred to. The Almighty is spoken of as regulating by his wonderful natural acts, both health and vice.

"Who *forgiveth all thine iniquities*, and who *healeth all thy diseases*." Psalm ciii. 3.

"The inhabitants shall not say—*I am sick*—the people that dwell therein shall be *forgiven their iniquity*." Isaiah xxxiii. 24.

The *latter* sentences of these two texts appear to us to be reiterations of the first paragraphs—a practice common to the style of the ancient Hebrew writers. They refer disease directly to iniquity—and iniquity to disease—a design which the modern well instructed physiologist becomes more and more express in.

\* It is related in a recent sketch on "Chess clubs, and Chess players, British and Foreign,"—"There is no danger that Chess will lead to gambling, and still less to other excesses. Chess players, in fact, have long formed a temperance society, whose members confine themselves to coffee and cigars: and though there are many who think cards an abomination, yet chess has ever been excepted from the rigid interdict of the most fastidious. It must be admitted, however, that it frequently affects *the temper* unfavourably: there is an intellectual inferiority in defeat, extremely galling to some minds, which often gives rise to feelings of hatred and dislike, almost incredible."

The ability to resist thirst, either natural or depraved, varies very much in different animals according to the structure of the stomach, and the obvious design in their general organisation and functions. It also varies in the same class of animals in correspondence with the kind of attentions given to them. Buffon describes a lama, which, at the time he saw it, had been eighteen months without drinking, "owing to the great abundance of saliva, which keeps the mouth constantly moist." The facility in the camel, also, in this respect, is well known. "I recollect when in Egypt, my astonishment at having been told that a camel, on which I was mounted, had been fourteen days *without drink*."\*

We have seen cows confined in a close barn-yard for two, three, or more months in the winter and early spring seasons, who did not, for at least two months, drink any water—uniformly refusing it when offered to them—yielding milk in abundance, and bearing every appearance of perfect health. They were freely fed upon the succulent Swedish turnip, three times a day, with the addition of hay, straw, or corn fodder. The juices of this valuable vegetable satisfied sufficiently their thirst.†

Judicious selection, improved and altered diet, general physical attentions, and kind management, have great influence among all animals in modifying their character—and gradually, or in some instances very speedily, promoting an absolute change, of what previously appeared to be the natural and necessary disposition and form. Trials and results of this description are too well known, relative to the larger cattle, to require to be particularised. The improvements made in Great Britain (which are considered especially prominent) are founded upon a regard to natural principles, discovered by careful attention, strict observation, general comparison, and extensive experience. A very remarkable and important peculiarity is the *change in the disposition and temper*, occasioned by the alterations induced from such attentions. The *males* of some descriptions of cattle, which are known to be fierce and savage, especially at certain seasons, become more gentle and docile in the improved kinds—these are likewise generally found to require greater consideration in the supplies of food and shelter, than the ordinary stocks.

In *one* generation we have perceived very unequivocal changes in the offspring of the most common description of sheep—which especially resulted by feeding the ewes during gestation, with as much green food (common, or Swedish turnips and potatoes) during the winter as they could consume, and by carefully varying their range of pasture at other seasons. By taking in a few of the same description of ewes at different times during one winter, as an experiment, the lambs proved more thrifty and valuable in proportion to the length of time that the ewes were fed upon better food than they usually were provided with. In rearing colts the treatment during the *first* winter is of great importance.

\* Travels in Peru, by Edmond Temple, &c. i. 174.

† Caillé, in rehearsing the distress which was experienced for want of water while travelling in Africa, remarks the effects of a stimulant in relieving thirst: "Peppermint drops were distributed among us and we experienced immediate relief." Travels through Central Africa to Timbuctoo. By René Caillé. vol. i. p. 8.



A celebrated German Naturalist, (Huber,) in his treatise entitled "New Observations on the Natural History of Bees," informs us, "that, when bees have lost their queen,"\* (who with more propriety might be called their *mother*, for she alone of the female bees is employed in producing eggs for the continuance of the species) "they enlarge some of the cells of the young worms of the working bees," (which are also females but do not propagate) "and supply them not only with a different kind of food, of a more pungent taste, but with a greater quantity of it—and the worms reared in that manner, instead of changing to common bees," (as they would if managed and fed in the usual way) "become real queens"—or prolific bees. Their faculties are changed, new ones produced, or latent ones developed in consequence of greater care, more room, and a stronger diet.† The intelligence and industry of ants and bees are proverbial, and have been considered worthy of our imitation. Their active ingenuity, forethought and contrivance, and the promptness with which they meet unforeseen difficulties exhibit resolution of a high character; the result of their organisation and functions, which are suited to the peculiar necessities of their minute systems.‡ It is related that bees transported into Italy and the West Indies, where flowers are always in blossom, only collect honey as they want it, and do not lay up a store, as in the more changeable climate in which they originated—§

"They also know—  
And reason not contemptibly."

Man, although superior in many of his faculties to other animals, is impelled also instinctively, like other animals. It is his understanding which is exercised in regulating the variety of instinctive sensations constantly operating upon the mind—and it is often the *perversion* of healthful instinctive impulse which leads to the consequences we discuss. The intelligence of animals subservient to man, is guarded by the same general laws and principles as that of man; and the portion of reason, or understanding which they do possess, origin-

\* In the Saxon language *cpena*, from which the title *queen* is thought to have its derivation, signifies a wife.

† This process mentioned by Huber, has been denied by some naturalists; and lately by Robert Huish, Esq. Author of a Treatise on Bees, in the 5th volume of Loudon's Mag. of Nat. Hist.—in an article "on the Power of the Common Bee to generate a Queen." page 604.

‡ In reference to the labours of the bee and the ant, Dr. John Fleming observes—"What man considers as a high effort of his understanding may be here witnessed as the result of an instinct, unaided by experience, uniform in its results, and successful in its plans." Philosophy of Zoology, i. 256.

In Reid's Essays, vol. iii. chap. 1, we are told, "Every animal has its art by a kind of inspiration." Essay on Instinct and its Physical and Moral Relations, p. 18. By Thomas Hancock, M. D. London, 1824.

Mr. Jago has written upon the flight of swallows:—

"Through sacred prescience full well they know,—  
They feel a power, an impulse all divine,  
That warns them hence; they feel it and obey."

Nat. Hist. of the Bible.

§ See Gleanings in Natural History by Edward Jesse, Esq. Deputy of his Majesty's Parks, London, 1833, page 17.

ates from the one same Almighty Power who has endowed us with the ability to acquire an *increase* of knowledge. In all it is improved by education in proportion to the natural capacity of the individual and species.\*

The Spanish muleteers select those animals for the most dangerous passages in the mountains—"which *reason* best."—A post master in Peru while urging Mr. Temple to take a mule for the roughest roads instead of a horse, said, "I assure you this as being a right good *rational* animal." (i. 164.) Baron Humboldt describes these creatures moving their ears when in difficulty, as if reflecting, and considering attentively the safest method of proceeding. They are abandoned entirely to their own discretion, and it may be presumed that the *obstinacy*, with which they have been proverbially charged, has often proved the result of a *better sense* than they had credit for. In one of the papers of the Spectator there is a caution "Prythee do not value thyself on thy *reason*, at that exorbitant rate; and the dignity of *human* nature—take my word for it, a setting dog has as good *reason* as any man in England."

In the beautiful imagery of the Book of Job, all these wonders are attributed to the action of that Great Source, "Who hath put *wisdom* in the *inward parts*—and who hath given *understanding* to the *heart*."† xxxviii. 36.

Certain domestic animals have been taught to exhibit a disposition for strong drinks and other stimulants. Some of the tamed elephants are very fond of brandy and of wines—Bishop Heber remarks, in his Travels, vol. ii. 185, that "Elephants in India are *fed* on stimulating substances, to make them furious, when they train them for fighting."

Marco Polo relates of the Africans of the Island of Zenzibar and its neighbourhood, (among the Ethiopians—called Zengis or Blacks,) "they have no horses, but fight upon elephants and camels. Previously to the combats they give draughts of *wine* (made from rice and sugar) to the elephants." page 713.

In the first book of Maccabees, there is a description of the employment of elephants in battle, 163 years B. C. "And to the end they might provoke the elephants to fight, they showed them *the blood of grapes and of mulberries*." chap. vi. 34.

"Bang is said to be sometimes given to Indian elephants, for the purpose of rendering them furious and insensible to danger."‡

\* The French apply the term *education* in a very full and proper sense—and speak and write "de l'education des moutons"—of the *rearing, breeding, and management of sheep*.

We cannot refrain from reiterating the expression of an intelligent philosopher—"we yet hope to witness a *national system of instruction*, in which the volume of nature and of revelation shall be simultaneously perused."—Sir David Brewster's Letters on Natural Magic, addressed to Sir Walter Scott, page 314.

† Horapollo tells us (lib. i. cap. 7.) that the hieroglyphic for the *soul* was a *hawk*, which in the Egyptian tongue was called *baieth*, a word composed of *bai* and *eth*, the first of which signified, in that language, the *soul*; the other the *heart*: for according to the Egyptians the *heart* was the enclosure of the *soul*."—Dr. Warburton, Divine Legation of Moses demonstrated, ii. 174. The relations of the heart by its peculiar nervous and ganglionic connections, and the active sensations which are thereby induced and felt, amply justify such a reference.

‡ Marsden's Notes to Marco Polo. p. 716.

Sir Stamford Raffles, in his account of the bear of Sumatra, (*ursus malayanus*.) says "when taken young they become very tame. One lived two years in my possession. He was brought up in the nursery with the children; and when admitted to my table, as was frequently the case, gave a proof of his taste by refusing to eat any fruit but mangosteens, or to drink any wine but champaign. The only time I ever knew him to be out of humour was on an occasion when no champaign was forthcoming. He was naturally of a playful and affectionate disposition, and it was never found necessary to chain or chastise him."\*

Horses have learned to drink ale—and some sportsmen in England give a favourite hunter the refreshment of a bottle of wine after a severe chase.† Dr. Fleming remarks that malt is esteemed a very fattening food for fish in ponds, and the crumbs of bread steeped in *ale*.‡ In Egypt to feed young fish "they throw oil-cakes called *bokma* (made of the dregs of *hemp* oil) into ponds, and this fattens them in a short time."§ It is mentioned "in a short account of the manner in which game-cocks are bred up and trained for fighting, by an experienced feeder,"|| that "brandy or any heating drug on the day of fighting does more harm than good. They may get, however, just before they set to, a few barley corns, with a little *real sherry wine*." Another writer upon the same subject relates: "After game-cocks are weighed for fighting, sometimes they give a *little ale*."\*\* We have understood from a gentleman who witnessed the fact, and is entitled to perfect confidence, that bats have become intoxicated by drinking whiskey which was exposed in shallow vessels to tempt them. They were held in the hand and upon placing their mouths near the spirit, they spontaneously drank. He assures us he has often seen it tried without failing, except in a single instance. By a correspondent in *Loudon's Mag. of Nat. Hist.* (vol. v. p. 734,) a singular mode of stimulation is said to be used in the East Indies, to excite birds to sing—"Skylarks are abundant there, (in India,) and when taught are greatly esteemed as excellent mocking birds: their imitations are, indeed, astonishing. That of the *distant* wailing cry of the kite soaring high in air, has more than once completely deceived me, even when the lark in its cage was on a table in the room, within a few feet of me. They are taught by being carried daily to the fields and groves, in close covered cages. I have known £4 given for a fine bird. They are fed upon grass-hoppers, with millet and other small grains; *when dull they are stimulated to song by*

\* *Zoological Researches in Java and the neighbouring Islands*, by Thomas Horsfield, M. D. &c.

† "The pernicious effects of *spirits* upon horses have been very accurately ascertained, by the experiments of Pelger: and indeed they proved to be as injurious, as various poisons tried at the same time. See *Beddoe's Hygeia*, vol. ii. essay vii. page 26. Sir John Sinclair's *Code of Health*, i. 342. Some previous explanations will show the necessity of referring to the kind of spirit which was used.

‡ *Philosophy of Zoology*, ii. 364.

§ *Manners and Customs of the Modern Egyptians* by Burckhardt, p. 183.

|| From the *Code of Health and Longevity*, by Sir John Sinclair, Bart. vol. ii. 154.

\*\* *Ibid.* Appendix, ii. 283.

*a dose of marking-nut.\** This is administered very cleverly, by pricking a grass-hopper with a needle, the point of which has been previously tipped with a little of the acrid juice, and giving it to the bird to eat. The cage used is low, and the bottom covered with gravel."†

Bees, wasps and flies often become much intoxicated about the distilleries, being attracted by the sugar which abounds there—all these, however, may be *acquired* tastes.‡ But *why* is it that goats and sheep, camels§ and asses, *select* poisonous and intoxicating plants as food, which other animals instinctively avoid? Do not the distinctive impressions of their peculiar organs make the demand, uninfluenced by previous practices or any imitative process? Their discrimination in respect to food is as natural a result of distinct organic functions, as the peculiarities of the products of an acorn, a walnut, a chesnut, or an apple seed. Viewing the subject in such a light, we may perceive *the cause* of the very great diversities of conformation and function which exist to instruct us in the intentions of the one "who hath made nothing *in vain*." "Instinct guides the caterpillar to the leaf, the duckling to the pool, and the samlet to the ocean. Animals are not left to obtain a knowledge of the nourishment indispensably necessary to them from observation, nor to supply their wants by the dictates of experience."||

It has been observed that the rot in sheep, which particularly affects the liver of that animal, is much more prevalent after a wet than in a moderately dry season—this is attributed to the want of the usual *stimulus* to the bowels, of the *bitter* principle of well grown grass, which is not fully elaborated in close, warm, wet seasons, when the herbage grows too quickly. The *sensations* of cattle then instinctively lead them to search for stimulants of other kinds, as they *feel* the want of their natural and accustomed excitement.\*\*

This day (the 9th of Nov.) we see the sheep searching in the pasture for the leaves of a poplar tree which are broken off and scattered by the wind—and there is not a small cedar (in a field of twenty acres,

\* "I do not know the botanical name of the plant which produces the seed so called by the English in India. The juice is deep black, acrid, and viscid, and is used as an escharotic, as well as for *marking linen*, and printing the black outlines of some Indian chintzes."

† A Subscriber. Vale of Alford, Sept. 28, 1832.

‡ Although it appears perfectly natural with us to see horses eat oats or corn, yet in the West Indies many of them refuse grain altogether; and after smelling it, seem as little inclined to taste it, as others would to drink rum. Those horses which we have seen were mountain ponies—a hardy diminutive race, sure footed and sagacious, who are turned loose among a variety of sweet and nutritious grasses. The horses in the plains are generally taught to eat grain, and those brought from the United States bring with them and continue their country habits, and expect good oats and corn. Another peculiarity is noticed by a modern traveller:—"The Moors have large herds of oxen and camels; and others have also a number of fine horses, of which they take great care; giving them *milk*, when it is plentiful, night and morning."—Caillé's Travels through Central Africa, i. 66.

§ "Camels browse upon a prickly shrub, called *camel's thorn*, in preference to any other herb. The mastication of it produces a frothy salivation at the mouth, which appears to give great pleasure to the animal.—Vide Morier's Travels, vol. ii. chap. vii. page 115." Mignan's Travels in Chaldea, page 10.

|| Philosophy of Zoology, i. 243, 244.

\*\* See Loudon's Mag. of Nat. History, vol. iv. 472.

where there are a great many of these young evergreens,) whose top and branches have not been nipped by them and the cows. In most abundant pasturage, we have seen the lambs eat off the tops of the St. Johnswort, and of a white and yellow daisy, which are very offensive to the farmer. It is by no means one of the least curious notices upon this subject, that after considerable attention, there are some sheep in the flock which can never be detected in this practice—while others are almost continually seen to pursue it!

We see the vine, the poppy, the potato and tobacco, grow near each other from the same quality of soil, moistened by the same dews and showers—heated by the same sun—vivified by the same duration of light, and affected by the same atmosphere—but each limited to the production of a body “of a certain magnitude, form, structure, composition and duration.”

The peculiarities of the desires of the stomach are manifested in a thousand various ways, even in health, among animals of different kinds. “Mr. Ranking informs us that peacocks, in a wild state, feed on pepper pods: a fact which he ascertained in a shooting excursion on the banks of the Luckia, in Bengal, where he flushed a flock of twenty in a grass field. One which he shot, had in his crop more than a hundred pods of Chile pepper, the smallest and hottest sort known.”\* “The *Capsicum frutescens*, which, and which alone, affords when dried and powdered, the genuine *Cayenne pepper*, is commonly known in Jamaica by the name of bird-pepper, or hen-pepper, on account of its being so much eaten by birds, and especially by hens and turkeys, which will not leave a pod remaining on the bush, that is within their reach by jumping up to them. They are so fond of these pods, as to eat a great number of them at a time. These peppers are called *Chilies* in England.”†

Another writer mentions, “I once found the larva or caterpillar of a large sphinx, feeding on a tobacco plant in Jamaica. An American gentleman, who saw it also, immediately observed, that the tobacco plantations in Virginia were occasionally much infested by caterpillars, in which case, the planter turned in flocks of turkeys, which soon cleared the plants of their destroyers; and the turkeys, in place of being injured by such food, actually throve upon it. This brings to my recollection the fact, that hogs in Jamaica eat with perfect impunity the root of the *Janepha Manihot*, or bitter Cassava, which is a most deadly poison to man, unless the water be completely expressed before cooking.”‡

Another evidence of distinctive instinct of a different kind, we may also insert: “Often when I had thrown aside the useless remains of birds and quadrupeds after dissection, though the *vultur aura*, (the turkey buzzard,) would be soaring up and down all day long, still it would never descend to feed upon them, or to carry them off, till they were in a state of putrefaction.”§

\* (J. R.) Loudon's Mag. of Nat. Hist, iii. 146.

† Ibid. v. 473.

‡ (J. D.) Ibid. v. 472.

§ On the Faculty of Scent in the Vulture, by Charles Waterton, Esq. Loudon's Mag. of Nat. Hist. v. 236.

Dr. Horsfield, in his Zoological Researches in Java, &c. says, "The coffee plantations in Java, are greatly infested by the *Viverra Musanga*; in some parts of the island it has on this account obtained the name of *coffee-rat*. It devours the berries in large quantities, and its visits are soon discovered by parcels of seeds which it discharges unchanged. It selects only the ripest and most perfect fruits, and the seeds are eagerly collected by the natives, as the coffee is thus obtained without the tedious process of removing its membranaceous arillus, or shell-like covering. The injurious effects occasioned by the ravages in the coffee plantations, are however fully counterbalanced by its propagating the plant in various parts of the forests, and particularly on the declivities of the fertile hills. These spontaneous groves of a valuable fruit, in various parts of the western districts of Java, afford to the natives no inconsiderable harvest, while the accidental discovery of them surprises and delights the traveller in the most sequestered parts of the island."

The functional *perversions*, of different degrees, resulting from organic irritations or disease, (as well as some healthful instigations,) do certainly produce anomalous inclinations in men—somewhat similar to the natural peculiarities of instinctive sensation, which are obvious among other orders of animals. We recollect an instance of a demand for malt liquor, by the stomach, in an individual, who, upon ordinary occasions, could not drink it in the smallest quantity without being affected with headache—but during the very general prevalence of an epidemic intermittent fever, he felt strangely prompted to use brisk ale—he yielded to the impulse, and escaped disease. During the fatal fever on board the Macedonian frigate, a few years ago, on her return from the West Indies, one of the few cases of recovery occurred in a midshipman, who was constantly calling for porter—he was gratified in his desire, and was restored to health. These may be considered exceptions to a general rule; but we think they assist to prove the correctness of our argument upon this point. While at Batavia in 1770, Capt. Cook's crew suffered extremely with the sickness of the country. "Every individual had been sick except the sail maker, an old man between 70 and 80 years of age, and it is very remarkable that this old man, during our stay at this place, was *constantly drunk every day*."\* Captain Cook was no advocate for intemperance. The effects of physical *necessity* and custom, are well illustrated by the following, which is related by a traveller: "As by reason of the extreme heat, the country, (on the coast of Arabia,) is in a manner burnt up, and no sort of vegetable is to be seen, they accustom their cattle, cows, sheep, camels and horses, to feed upon dried fish."†

"The sea," says Niebuhr, speaking of the coast of Oman, "is so full of fish, that they not only feed their cows, asses, and other animals upon them—but also employ them to manure the fields."‡

In Vincent's excellent translation of Arrian's Voyage of Nearchus,

\* Hawkesworth's Voyages, iii. 351.

† Travels of Marco Polo.

‡ Description de l'Arabie, page 255.

we find the following passage respecting the Ichthyophagi, or Fish Eaters, who inhabit the coast between the Indus and the Gulf of Persia. "The inhabitants, however, were hospitable; they brought down fish and sheep; but the very mutton was fishy, like the flesh of sea-fowl, and the sheep were fed upon fish: for grass there was none in the country."\* Page 40.

The spicy stimulating barks of fruit trees, and the flowers and stalks of weeds, nearly mature, which other cattle will not consume, are greedily eaten by sheep. We have often remarked that the *males* are particularly addicted to the practice of barking the trees, which requires great care in the farmer who keeps sheep, to preserve his orchards. Cows also are seen to leave luxuriant pasture to bite off the leaves and ends of the limbs of apple trees—more especially in the summer, when they have obtained a pungency and bitter flavour, in which they appear to find great satisfaction. The disposition is, however, no less variable in cattle, than other propensities are in men—some being exceedingly troublesome among the trees, and others demanding much less care and attention in this respect, from their owner.

That the instinctive dispositions vary from physical causes, is also apparent, from the actions of the *same* description of animals, in a domestic and in a wild state. "In a wild state, *the appetite* for food *directs* animals with *great certainty* to the *suitable* objects of nourishment, and does not permit them to taste of those things which would injure or destroy. In a domesticated state," (when proper regard is not paid to the natural character and instigations,) "animals seem to *lose* the useful properties of this appetite, which are so essential to their existence in a wild state."†

We must not be understood as insisting that an *instinctive involuntary disposition always* incites the employment of liquors containing an intoxicating spirit—since various perverted regulations of fashion or conceit, and notions of imaginary propriety, have been known to counteract even an instinctive *indisposition* for wines; and we have stated our impression, that an healthful sensation sometimes leads to their temperate employment, which is not liable to induce improprieties; they are found grateful and salutary to those who truly require them. An invitation to drink, from a very false idea of civility, has been considered sufficient by some to counteract their natural, healthful and proper inclinations to *avoid* intoxicating liquors. Very great alterations, however, have been effected by the proper consideration of the excesses to which such customs gave origin; by a greater diffusion of comforts and intelligence; and by the combination of societies particularly founded to arrest the growing intemperance. It is however, still too much regarded as a civility to *press* a social glass among many of those who are more influenced by custom and habit, than by due reflection of their ultimate tendencies. ‡

\* See Marsden's Notes to the Travels of Marco Polo, page 732.

† Philosophy of Zoology, i. 246.

‡ "Ways the most absurd, forms the most ridiculous, are, in France, and elsewhere, under the patronage of the phrase—"It is the custom;" like the Hot-

A greater freedom and independence, in this respect, now obviously regulate society, and much credit is certainly due to the many judicious exertions of those who have placed themselves in the front, to combat a most destructive impropriety. Among the French, (who, however, since the continued madness of incessant wars and contentions on the continent, have, it is stated, lost some portion of their character for temperance,) it is the polite custom to permit the inclination of the individual to regulate the use of wines; and any importunity upon this score, is properly considered exceedingly incivil.\* Among the *causes* of the diffusion of intemperance, we may certainly enumerate the privations, distresses, and necessary depravities which follow and attend on *wars*. It is said the Crusaders were temperate, and that the Roman soldiers were not drunkards—but the intoxication of mad ambition and fanatic zeal, it will be seen by their example, may cause effects equally destructive, baneful, and unnatural, as the excessive use of wines. We may, from a reflection that great enormities have been perpetrated *with a pure water diet*, find how essential it is to regard *all* the causes which may promote every description of intemperance; and fear, lest, by charging a *passive* agent with evils which *we* perpetrate by its means, we fall into some great enormity, through the avenues we use to escape. It is an historical fact, that the introduction of negro slavery into the Americas was promoted by the *humanity* of Las Casas towards the Indians, whom the Spaniards were exterminating by their severities! (See Appendix.)

Our whole object is to exhibit what we consider very obvious analogies and proofs that in some cases the *desire* to indulge in the imprudent or excessive employment of ardent spirit as a drink, is the *result* of a depravation of instinct—the *consequence* of some peculiar deranged states of health, often connected with moral deficiencies; and our wish is to lead to some discrimination, in estimating its causes and effects, as well as of those which may be called the proprieties of its use.

In a *professional* light, vinous or spirituous liquors used in moderation, are regarded as giving “temporary exaltation to the mental faculties—when taken in large quantities they act as *poisons*—to counteract which, acetate of ammonia has been recommended.”†

tentot, who, being asked by a European, why he ate locusts, and devoured the vermin that crawled about him, answered, “It is the custom!” Mirabeau’s Letters, ii. 303.

\* Of the customs of the Persians 453 years before Christ, we read in the Scriptures—when Ahasuerus, who “reigned from India even unto Ethiopia,” made a feast to all the people in his palace, there was “royal wine in abundance,” “and the drinking was *according to the law*; none did *compel*: for so the king had appointed to all the officers of his house, that they should do *according to every man’s pleasure*.” Esther, i. 8.

† United States Dispensatory, by Drs. Wood and Bache.

“M. Dupuy, director to the Veterinary School at Toulouse, tried a curious experiment upon a horse. Having previously intoxicated the animal by injecting a demilitre of alcohol into the jugular vein, he injected five grains of the carbonate of ammonia, dissolved in an ounce of water, into the same vein, when the effects of the alcohol immediately ceased.” Anat. of Drunkenness, 121.



When inflammatory symptoms of an active type are apparent—or in some diseases where the organs of respiration are peculiarly affected—there will seldom be seen any *disposition* for the preparations of alcohol :—the use of which occasions a very uneasy sensation, and, if employed, will be found proportionately more injurious in such cases than to others. In some of the affections of the stomach, of the liver, of the brain, and other organs, similar *disinclinations* will be spontaneously shown, as well as in those who enjoy certain modifications of good health—while some other peculiarities, we believe, instinctively *invite* to their use. *Intemperance* may therefore result from the imprudent use of ardent spirit when the state of the system *contra-indicates* its employment—as well as from excesses when its peculiar condition *calls up a desire* for stimulants.

We are of opinion, that in many cases the desire to use ardent spirit, when first felt, is strongly resisted by those who do not understand the character of their sensations, from a conscientious disposition to do right—but in some instances, which we have known, the accumulation of these impressions, has borne down all capacity for resistance, because physical exertions of a counteracting nature have not been joined to aid the moral sense ; and the first delays have only caused a more aggravated impulse. The only cases of complete cure which we have known, occurred in persons who used the advantages of physical, as well as of moral, aids to assist them. The difficulties experienced by such are valuable instructions for *precaution*.

After surgical operations, or after severe fractures, in those habituated to the intemperate use of ardent spirit, a *safe* substitute is difficult to be found—and only among a class of medicines which powerfully operate upon the intellect, with an action modified indeed—but in effect promoting the same injuries as alcohol when used intemperately. In the sequelæ of intermittents, or to prevent their accession; in typhus and other fevers of a low or remittent form, preparations of ardent spirit, in various shapes, have most salutary influences. When the powers of life are exhausted, the excitement afforded to the nervous and cerebral system, by the various preparations containing alcohol, is not equalled by any substitute which we feel satisfied to call *an adequate one*—the *intemperate* use of which would not be equally destructive, mentally and physically. The employment of opium is certainly liable to the same objections. The undue employment of ardent spirit is undoubtedly to cause increased unhealthful action; but its judicious management, when uncombined with deleterious compounds, tends to many serviceable and valuable results.

“ Although when drunk without restraint, wine can only be considered ‘ a delightful poison,’ as the Persians, who know it chiefly by its *abuse*, have appropriately termed it; yet, *like other poisons*, when administered with judgment and discretion, it is capable of producing the most beneficial effects. Temperately used, it acts as a cordial and stimulant ; quickening the action of the heart and arteries, diffusing an agreeable warmth over the body, promoting the different secretions, communicating a sense of increased muscular force, exalting the nervous energy, and banishing all unpleasant feelings from the

mind. Even in this light, it is to be viewed rather as a medicine than as a beverage adapted to common use; for a person in sound health can require no such excitement of his frame; and by frequently inducing this state of preternatural strength, he must, sooner or later, exhaust the vital powers.”\*

There is probably no crime, nor any disease, which has not been heightened by the injudicious employment of ardent spirit—and, therefore, we cannot too strongly guard all with respect to the character of the dispositions which incite them to use it. Whatever differences of effect appear among individuals by its employment, still no one can command these effects after they have communicated their baneful influences over the mental functions through the body. We still, however, point to the existence of a *capacity* to resist—much of which, indeed, depends upon the healthful condition or management of that singular organ, the stomach; which is aided greatly by the judicious cultivation of the mind. It is because a sufficient degree of consideration has not been given to the physical character, differences, and connections of the body—“so wonderfully formed”—that frequent contradictions and errors occur in estimating the bearing of various acts, habits, and external influences. “From numerous facts,” says Dr. James Johnson, “which have come within my own observation, I am convinced, that many strange antipathies, disgusts, caprices of temper, and eccentricities, which are considered solely as obliquities of the intellect, have their source in corporeal disorder.”†

Throughout the structure of all animals we find means adapted to results. In some instances stimulating articles benefit by inducing activity where this is wanting—in others stimulation injuriously increases actions which are already too prominent. In some there is no doubt that wine increases the actions of the brain, facilitating thought, comparison, and imagination—in others the brain is overburdened and distressed,—the functions of other organs are demanded in excess, and irritating accumulations result, which lead to the most direful consequences—inducing crimes and disease. For these reasons, we believe with a celebrated writer on astronomy: “It is always of advantage to present any given body of knowledge to the mind in as great a variety of different lights as possible.”‡

Bacchus is represented by Hesiod as “the dispenser of joys and sorrows!” We must refer to *the individual* to comprehend why such contrary results ensue, even from the same quality of wines and other articles, without consideration of the great varieties which are recognised in *their* composition and character.

There is a description of tea used in Paraguay, La Plata, Peru, and Quito, called *mate* in Chili, to which innumerable virtues are attributed by the people of South America. “Like opium, it produces some singular and *contrary* effects: it gives sleep to the restless, and spirit to the torpid. Those who have once contracted the habit of taking

\* Dr. Henderson on the Dietetic Qualities of Wine. Hist. 349.

† Madden's Infirmities of Genius.

‡ Herschel's Treatise on Astronomy, p. 6.

it, do not find it an easy matter to leave it off, or even to use it in moderation; though, when taken to excess, it brings on similar disorders to those which are produced by the immoderate use of strong liquors."\*

"Excess in wine is not the only intemperance."†

The luxury of *iced water* received from some of the ancient writers a reproof which was only due to the general manners of the age. "To what a pitch," exclaimed Seneca, "have our artificial wants brought us, that common water, which nature has caused to flow in such profusion, and destined to be the common beverage of man and other animals, should, by the ingenuity of luxury, be converted into *an article of traffic*, and sold at a stated price! You may behold certain lean fellows, wrapped up to the chin to defend them from the cold, and pale and sickly in appearance, who not only drink, but even eat snow, putting lumps of it in their cups during the intervals of drinking! Do you imagine this to be thirst? It is a *true fever*, and one of the most malignant kind!"‡ It is thus that reasoning from *abuses* of otherwise judicious arrangements, declamations have been made in former times, against the folly of many practices and much information, which are now generally approved.

Celsius says: "The *abuse* of a thing is no discredit to its proper use." We may learn to discriminate how far the use of any thing is improper, by the infirmities, wants, and condition of the individual. A South American describes the lavas of silver poured forth by the mountains of Potosi, as "exciting to *virtue* and to *crime*—and being the source of much good, and the root of *all* evil in the world."§

An English periodical, in giving an account of the pigeon fanciers of Whitechapel, observes: "Every thing is sacrificed to *this taste*—clothes, comfort,—even his own and his children's bread, where the *fancy* reigns paramount." It is not, however, necessary to deprecate the existence of articles which prove useful when *properly* applied.

It has been much discussed by antiquarians, whether the Greeks and Romans were in the habit of taking draughts of *hot water*, *by itself*, at their meals! Martial describes a prosing pleader speaking against time, and refreshing himself with frequent draughts of tepid water in the intervals of his speech; whom he advises to drink the water of the *clepsydra*,|| and thus put an end to his harangue, and his

\* Wilcocke's History of Buenos Ayres, p. 494; from the Magazine of Natural History. Vol. v. p. 9.

† Madden's Infirmities of Genius.

‡ "Some," says Sir John Sinclair, "have gone so far as to contend that *raw water*, being the *natural* drink of all animals, ought not, on any account, to be relinquished; without considering, that *raw vegetables* were also their *natural* food, and that if the observation be just regarding the one, the use of the other is equally essential." (Code of Health and Longevity. i. 278.)

This word *natural* has led to many contradictions—for invention, discovery, improvement, comparison, combination, and ingenuity, are as *natural* to man as the use of water. Man is the only animal whose *nature* leads him to prepare his food by fire—this is an instigation of his *natural* instincts and observation.

§ Temple's Travels in Peru. i. 185.

|| An instrument anciently used to measure time by the running of water out of one vessel into another, like sand in our modern hour-glasses.

thirst together.\* “In certain conditions of the stomach,” writes Dr. Henderson, in treating this subject,† “as in that which arises from too free indulgence in the pleasures of the table, or from the use of gross and indigestible food, it cannot be denied, that hot water will allay the uneasy feelings more effectually than cold; and, as the Romans were notorious for their *intemperance in eating*, we shall probably find in this circumstance the true explanation of their frequent calls for that sort of beverage. The same usage, originating, no doubt, from the *same causes*, existed in France during the middle ages. In the ancient monasteries, as we learn from St. Bernard, when the vintage had failed, it was customary to serve *hot water* to the monks, instead of wine; and in the time of Champier, who wrote at the commencement of the sixteenth century, the *passion* for hot drinks prevailed very generally among all classes of people.”‡ We thus have another instance how far the peculiar condition of the stomach, from repletion in eating, *indicated* the habitual use of a potation which will generally be considered “mawkish and quite insufferable, except as an article of regimen to persons in an infirm state of health.”

To prove that the indisposition to use vinous liquids results in many from peculiar organic action, we refer to another observation of Dr. Henderson: “In *weak stomachs*, where the muscular action is slow, even the purest wine is apt to generate a deleterious acidity; and the stimulant powers of the alcohol, which, in persons of sounder habit, are sufficient to overcome its antiseptic tendency, are thus completely lost.” 350. “It is not to the *brandy alone* that the noxious effects of certain wines are to be ascribed. If the original fermentation has been imperfect, or if they contain *an excess of acids*, particularly the gallic or malic acids, their use becomes highly prejudicial, especially to persons of *infirm* stomachs. When such wines are placed within the temperature of the human body, a renewal of the suppressed fermentation will take place; and what *little* alcohol they have, will rather assist than counteract the acidifying process.” 352. § This action it is which obliges some persons to refer to brandy, (or to other alcoholic liquids deprived of the vegetable acids previously combined with them,) in small quantities, who cannot use wine on account of the state of the stomach. On this subject Dr. Henderson very justly remarks: “Many would doubtless be appalled at the thought of draining a whole quart of pure brandy, who feel no reluctance to swallow *an equal quantity of spirit disguised with wine*.” 352.

It is found that some of the most distressing and nauseating symp-

\* Epistle vi. 35.

† History of Ancient Wines. 103.

‡ Histoire de la Vie Privée des Français; par Le Grand D'Aussy. 2me. ed. Tom. ii. p. 323.

§ “Long continued and watchful observation induce me to conclude, that the acid qualities of fermented liquors are no less injurious than the spirit which they contain. The acid properties appear, however, to be less hurtful to youth, than the spirituous; while the reverse obtains with aged people. The free acid in a bottle of port wine, (from chemical experiments) may be roughly computed as equal to that of two lemons, or four nonpareil apples.”—An Essay on the Disorders of Old Age, &c. By Anthony Carlisle, F. R. S., &c. &c.

toms which often follow the use of opium, are prevented by taking a little vinegar at the same time with it, which is the mode pursued by the Turkish debauchees, who chew it to excess. It is probable that the grateful juices of the fruits which remain in wines, by the preservative power of the alcohol, prevent it, in certain stomachs, from possessing, in a proportionate degree, the intoxicating influences of the more concentrated, and often less palatable, liquors—while, in some other instances, these acids prove proportionably injurious. “The conjecture of Dr. Macculloch,\* also, that alcohol may be subject to *varieties of composition* analogous to those which are found in the very variable substances, included under the denomination of carburetted hydrogen gas, is very ingenious, and may possibly be one day verified by the application of more perfect methods of analysis, than those which have been hitherto employed.”†

If the *use* of wine (every description of which, as has been shown, contains an ardent spirit, as an *essential* portion of its composition) was alone the true cause of all the diseases, crimes, and evils, which have been charged to the *production* of an ardent spirit—its employment could not have been sanctioned, as it undoubtedly is, by the great moral law. It would not have entered into the sacrifices offered by the ancient Hebrews, as it is also required for the ceremonies of some modern Christian congregations—and by attempting to charge *it* with the offences which *we* commit with it, it appears that we resist Him who has given to such a vast diversity of materials, the *capacity to intoxicate*, when used with the indiscretion which He has given *us*, while in health, *the faculties to control*.

In the moral law *excess* is always distinguished from the temperate employment of the gifts of Providence, and we must acknowledge wine to be as much so as baked bread, or roasted meats. If those who know not the origin of the formation of an ardent spirit should fancy conclusions from its *use* which do not *necessarily* occur, they ought not to influence public opinion to blame *the liquid*, “any more than a man is to be reprehended for planting a tree, because some madman was pleased to hang himself upon it.”

“Virtue itself turns vice—being *misapplied*.”

\* Remarks on the Art of Making Wine, p. 143.

† History of Ancient and Modern Wines, 351.

If, while urging conclusions we believe to ensue from previous argument or facts, we oppose views which others entertain upon this topic, we do so, not for contention, but for information. The results of comparisons and the encounter of thought may prove satisfactory to all parties in a *peaceful* contest. There can be no doubt of the propriety and necessity of exertions to restrain *intemperance* in the use of spirituous or vinous liquors; the principal considerations are—*how* can excesses be prevented? and *what measures* are *best* calculated for the *permanent* benefit of society? It is with a design to show that the *causes* of intemperance are perfectly natural, accessible, and tangible, *at a certain stage*, that some of our arguments and facts have been adduced. And it is also as a precaution that we stated the *disposition* for ardent spirit to be *involuntary*, under some other peculiarities, and when judicious measures of prevention had been neglected, were unknown, or not accessible. That habitual drunkenness is a *disease*, and that it is ever accompanied with peculiar organic actions, and that these actions necessarily influence the mind, cannot now, we think, be disputed—it is only through the bodily organs that *we* can influence the mind. But the difficulty of appreciating all the causes of intoxication sometimes renders it impossible to decide, whether bodily infirmity has *preceded* such a resort, or whether the derangements of various organs result *alone* from the abuse of spirituous drinks. From much attention to this subject, we are inclined, however, to believe, that the intemperate *always have cause*. When we attempt to ascertain how far this is dependent upon themselves—how far upon others—we come into the examination of the general laws, customs, and usages of society, the influences of which early operate upon the mind, and affect the happiness and the means of existence of all.

The serious character of some of the points connected with our subject has obliged us to offer opinions upon the *degree* of moral responsibility of society in general, and of intemperate individuals forming part of that society, who are exposed to the operation of various abuses, from the moment of birth till they assume the character of what is termed *self-government*. It will be generally found that the bias given in domestic life, and the action of political institutions, very much regulate the conditions of men; and, therefore, too great care cannot be taken to establish laws and customs upon the basis of a well founded morality—and of health.

Ardent spirit can not be the sole cause of evils which have been attributed to it *alone*; but it is unquestionably capable, when incautiously used, of deranging the faculties of the brain and stomach, and necessarily influencing the mind—powers which it possesses, however, in common with various other physical agents, which disturb the organic actions, and thus embarrass those of the intellect. It is therefore essential to study under what circumstances of constitution, conformation, or condition, the most pernicious effects ensue,

and in alluding to the various poisonous combinations with which it is too frequently found, we hope to afford some useful cautions.

The pernicious drugs mingled and sold with spirituous and vinous liquors, ought to be challenged; and the public health should be guarded by judicious measures of precaution, for the benefit of the purchaser, as well as of the vender of such articles, with the same propriety as enactments are made, and officers appointed, to prevent the sale of diseased meats, or of light butter. If there is required greater delicacy of examination in deciding upon the character of drinks, than of the others, the state of chemical science now offers sufficient means of analysis, which should be resorted to. It is certainly of as much importance that the *quality* of spirituous liquors should be ascertained by scientific means, as that the *quantity* should be accurately measured by reference to scientific discoveries in mechanics. We have shown that some *pure* preparations of ardent spirit have not those deleterious effects upon the mind, through the stomach, as others which are known to be combined with poisonous drugs. (See note at the end of the Appendix.)

Some of the *poisonous plants* which cattle employ from perversion of appetite, and the results of bad husbandry, have effects upon them similar to those which ardent spirit, adulterated with drugs and used to excess, produces in men—namely, affections of the brain, stomach, lungs, and intestines, which are accompanied with derangements of the usual intelligence and behaviour of these animals.

The inclination of certain animals for stimulating foods, and their disposition even for preparations of ardent spirit, which some have evinced, we think important as analogies, to prove that the *use* of stimulants is sanctioned in them by the same general laws which our moral code teaches. The diversities of effect of the same poisonous plant on different animals, also demonstrate peculiarities which occur from variety of conformation and function; and this may also take place among those of the same class and character, from peculiar laws of constitution or arrangement.

With regard to crimes of aggression, we may perceive among some water drinking Indians, and the Turks, for instance, offences of a very rank character, and although we do not pretend that these would be ameliorated by their use of wines, still it proves that drinking water *alone* is not sufficient to cause a full respect for morality. All the carnivorous animals are water drinkers, but their Creator has endowed them with a *disposition and a capacity* for violence; we must examine carefully those acts which we know to proceed from His ordinances to comprehend the wonders of His system.

The intemperate use of ardent spirit, like many other excesses, has been too hastily assumed as the cause of all the evils we experience. Our complicated actions and endowments require a more extended enquiry, and we may find many other excesses, and other neglects daily augmenting the victims of intoxication.

We have not refrained from stating very frankly our impressions, that the *use* of ardent spirit, or the *traffic* in it, *cannot be immoral*, since the moral law enjoins and sanctions its employment; and He

who gave that law knew also the effects of its *misuse*. We are the more urged to this course, because we fear the entire interdiction or denunciation of it may lead to evils of a character analogous to those known to exist among nations, whose laws and religion prohibit its *use*.

While we have brought forward some evidence to prove the *instinctive* desire for stimulants of different kinds among animals of various capacity; and to show that men may also, in the same manner, be *involuntarily* led to seek them for beneficial purposes; we have alleged that in many cases a *depravation of appetite*, the consequence of disease or infirmity, has promoted the inclinations, to the great injury of the individual; and that where such an alleviating circumstance is apparent, modifications of judgment, often too hasty upon those subjects, should be instituted. We feel hesitation in deciding with regard to offences involuntary, though highly injurious, which may claim a less moral accountability, from the deficiencies, miseries, and punishment which *accompany* them.

While we wish to prepare all to comprehend the *many causes within our control*, which *lead* to the evils of intemperance, and the measures which should justly be used to *prevent* their full operation, we must allege the deficiencies, both moral and physical, which *instigate* intemperance, as some extenuation *towards society*. The consideration of which should induce us to pause while contemplating the conduct to be pursued towards the intemperate, not because he is guiltless, but because it may have been within *our* power to arrest the catastrophe by measures of a wise precaution, *the want of which* may also condemn us.

When the intellectual instruction, and physical comforts, which the moral law commands for the health of all classes of persons, and particularly for the poor and the ignorant, are provided; either indirectly by judicious laws, or directly by immediate charities, (which are the penalties we pay for the neglect of the former), then, *and not till then*, are we authorised to put into force the punishments which the same law appeals to, *after* judicious exertions have been made to prevent such results.

Have there not been instances where females of character and intelligence have fallen before this strange infirmity of intemperance, and when every exertion which family, self-reproach, and sex, could excite, has been made, without effect, from the necessary and unalterable limits of the will?

As there are *varieties* of intemperance, the causes, both external and internal, must also be various, and the modes of attaining relief are by no means uniform. There must be a predisposing cause, or causes, besides the existence or employment of ardent spirit, to occasion habitual intemperance. We have shown that from the earliest times, many have used it without becoming drunkards. A single act of intoxication with it, by no means always incites a repetition, but sometimes prevents the recurrence; and we have known an instance in which the interdiction of wine, by a parent, absolutely led to intemperance.



We see, then, two distinct indications to be fulfilled. First, *to consider and alleviate the condition of the absolute drunkard*; and secondly, *to provide against the causes which instigate intemperance, among the temperate, the untaught, and the young*. With regard to the latter, we seem to be placed, by the explanations of modern science, discoveries, and experience, in a position similar to that which induced some of the revolutions in ancient societies; and to need a bold reference to the *first principles* of action. The *sensations* of those who *have* fallen into habits of intemperance, ought to be considered in using efforts to reform them. We have seen much distress among the poor from an ignorance upon these points. Domestic irritations and bickerings ensue, because expressions upon one side are too frequently referred to *intention*, when *volition had little power*. *Retaliation*, however, upon such occasions is severely felt, and has sometimes led to self-destruction. If regard was had to those *gnawings* of the stomach, which we have heard referred to with great distress and sadness, and another class of stimulants, or milder palliatives employed to relieve them, conjoined with kind but firm council, *during the intermission*, and the general behaviour which this *most difficult disease* requires, we believe there would be more instances of *permanent* recovery.\*

The explanations with regard to the *involuntary* character of certain of the stages of intemperance ought, we think, to withdraw some portion of the odium attached to the drunkard; in doing so, we relieve him of the *burthen* of a too general reprobation, and enable him *more* readily to reform. This effect has been very much assisted, by some judicious efforts of the friends of temperance.

It should be generally known, that when certain diseases instigate to the temperate or the intemperate use of ardent spirit, it is a *perversion* of instinct, and its indulgence often proves highly injurious; but we cannot withhold the truth that certain other infirmities are advantaged by it. Such a discrimination we consider more likely to lead to beneficial results than an attempt to prevent the temperate employment of the preparations of an ardent spirit, which we look upon to be impossible.

This is not insisted upon in the moral laws, which we all attribute to the Highest Excellence, which indeed show that the temperate use of wines, and even "strong drinks," may be profitable to our health and happiness.

Laws forbidding the *use* of ardent spirit, or vows of entire and perpetual abstinence, may prove ineffectual, in very many cases, as a means of preventing or correcting intemperance, even with other regulations for instruction and conduct. While self-restraint is recognised as a moral obligation, self-denial may be carried to such an

\* We once advised a weeping mother to provide mustard, horse-radish, pickles, peppers, ginger, &c., alternately, for her husband who was very weak after a long course of excess, followed by the use of active medicines, self-administered. "Oh, doctor," said she, "that is what he is always complaining of, that I have no such things for him; but I would get any thing for him, if he would but treat me kindly!" The poor wife had no idea that to *enable* him to do so, she must *first* perform her part!

extent as to defeat the ends the law designed to accomplish, by passing the bounds of moderation, and counteracting desires which may be indulged without *necessarily* promoting *excesses*.

Our religious instruction teaches us that *precautions* are necessary and essential to arrest improprieties. We should never have been told to discriminate good from evil, unless such discrimination was essential to our happiness. That the food and drinks, the instruction, the cleanliness, and the profitable employment of the industrious classes, have an influence over their physical condition, there can be no doubt; and when general or domestic education and health are wanting, who will decide that the physical actions do not directly operate to vitiate the reactions of the mind? It is impossible, by disuniting such natural considerations, to effect any profitable results in society, but by their combined influences we may appreciate many valuable ordinances which have too frequently been considered intangible mysteries, delusions, or superstitions.

The whole tenor of the Hebrew and Christian laws evince *practical design*; and if this has not been duly appreciated during ages of dark fanaticism and of ignorance, we may now perceive, with the light of knowledge, the intention, *from the beginning*, has been, the *ancient*, oft repeated and neglected admonition, "Thou shalt love thy neighbour as thyself." Leviticus, xix. 18.

Our object in alluding frequently to the ancient Hebrew writings is to point out what we consider remains of a high degree of natural, exact, and scientific information, every where blended with moral inculcations, which must add to the authority of a volume, the character and intent of which have often been misconstrued.

The wonders amidst the productions of our earth, and the phenomena which distinguish every creature we see, have their origin from secondary natural causes, which, when fully understood, most distinctly exemplify the designs of their Creator.

"All things in this world were made for some express purpose. All are due to One Supreme Intelligence, who has provided organs for fulfilling the ends for which all things were created."—*Cuvier*.

## A P P E N D I X .

### NOTE—PAGE 16.

It may be worth while to notice the use of terms by the North American Indians, somewhat analogous to those employed by the ancient writers, which evince the same tendencies of the mind among a people very similar to those described as founding the language and institutions of the Greeks and Romans. In "A Narrative of the captivity and adventures of John Tanner, (United States interpreter at the Sault de St. Marie,) during thirty years residence among the Indians in the interior of North America; prepared for the press by Edwin James, M. D. editor of an account of Major Long's expedition to the Rocky Mountains, &c."—it is mentioned—"small spirits are not exactly synonymous in their application with our word *insects*, but are used to designate *all very small animals*."—p. 309. The psuke of the Greeks—the *life*, or *spirit*, signifies also a *butterfly*—*papilio*, and its synonyme *pnon* and *pneuma*, are interpreted *flatus*, *aura*, *flamen*—a breath, an air, a *flame*—conveying constantly an interpretation of concealed causes by the most familiar images. In the 5th verse of the 91st psalm, the words "thou shalt not be afraid of any *terror* by night"—in an old English translation, are literally interpreted thus: "Thou shalt not need to be afraid of any *bugs by night*." The true explanation of the word Baalzebub—"the prince of *devils*," is "lord, or master, of *flies*!" and is thought to refer to the *gad* or god-fly. "Whether *zebub*, denotes absolutely a distinct species of fly, or swarms of all sorts, may be difficult to determine. M. Sonnini, speaking of Egypt, says: "Of insects there, the most troublesome are *the flies*. Both man and beast are cruelly tormented with them. No idea can be formed of their obstinate rapacity when they wish to fasten upon some part of the body. It is in vain to drive them away; they return again in the self-same moment; and their perseverance wearies out the most patient spirit. They like to fasten themselves in preference on the *corners of the eyes*, and on the edge of the *eye-lid*; tender parts, towards which a gentle moisture attracts them." Travels, iii. 199. Baal-zebub was worshipped by the Philistines, because he was thought to protect his votaries from the flies, which infested those regions. *The god of flies*—and *the fly-hunter*, were titles ascribed by the Greeks to Jupiter, as well as to Hercules—and we find the figure of a fly upon some Phœnician medals; as also upon the statue of the goddess Diana at Ephesus. The Elians adored Jupiter, *the driver away of flies*. Mr. Bruce in his description of the *zimb*, which is the Arabic for what the Chaldee paraphrase calls *zebub*, says, "as

soon as this winged assassin appears, and his buzzing is heard, the cattle forsake their food, and run wildly about the plain till they die, worn out with affright, fatigue and pain."\* The terror of insects is one of great consideration with a shepherd people. The Tartars in the summer frequent cold situations in the mountains where there is water and verdure, and their cattle are free from the annoyance of horse-flies, and other biting insects—whose attacks are sometimes fatal, and at all times dreadful—and of sufficient importance, to them, to be enumerated among "the causes of evil." The natives of warm countries use many expedients to protect themselves from a variety of small flying insects and reptiles—and are known to have combined in their ideal theology many of the physical phenomena which surrounded them. The "potato *bogle*" which was one of the imaginative creations of the Scotch, may have derived its origin from the "*bogil*" of the Dutch, which signifies a *spectre* or phantom. Shakspeare exclaimed 'O! thou *invisible spirit* of wine—if thou hast no name to be known by, let us call thee—*Devil.*'"

"We are informed by Aulus Gellius, on the authority of Favorinus, that Archytas of Tarentum, who flourished about 400 years B. C. constructed a wooden pidgeon which was capable of flying. Favorinus relates, that when it had once alighted, it could not again resume its flight; and Aulus Gellius adds, that it was suspended by balancing, and *animated* by a concealed *aura* or *spirit*."† It is not improbable that a figure formed like some of the Chinese kites, of a wooden frame work, covered with paper, silk, or glazed linen, in the likeness of a bird, was elevated by means somewhat similar to those used to inflate balloons, and gave origin to such histories. When the Indians accompanying Black Hawk saw the ascension of an aeronaut at New York, one of them declared he must be "*a great magician!*" The ignorance of natural causes necessarily leads to the invention of imaginary ones. The New Zealanders intently observed the phenomena of the magnetic attraction in the compass—and they seemed at once to comprehend the purpose to which it was applied.—"This," said they, "is the white men's god, who directs them safely to different countries, and then can guide them home again." I found they were inclined to attach that sacred appellation to most things they could not understand. They asked if wind-mills were not gods."‡

#### NOTE TO PAGE 25.

Marco Polo, a Venitian, who, in the thirteenth century, wrote a description of "Remarkable Places and Things, in the Eastern Parts of the World," says, in giving an account of one of the provinces on the boundaries of China—"The wine is not made from grapes, but from wheat and rice, with a mixture of spices; which is an excellent bever-

\* See Nat. Hist. of the Bible, article Fly.

† Letters on Nat. Magic, addressed to Sir Walter Scott, by Sir David Brewster, page 240.

‡ A Narrative of a Nine Month's Residence in Now Zealand, in 1827, by Augustus Earle, 1832.

age.”\* At the city of Escier, or Sheher, on the southern coast, near the Gulf of Arabia, he remarks, “There is no wine made from grapes, but they prepare a liquor from *rice*, sugar and dates, that is a delicious beverage.” In his account of Zenzibar, supposed to refer to “the country of the Ethiopians,” because Zingis is interpreted *black*—he mentions, “They have no grape vines, but make a sort of *wine* from rice† and sugar, with the addition of some spicy drugs, very pleasant to the taste, and having the intoxicating quality of the other.”

In giving an account of the kingdom of Koulam, on the coast of Malabar, in India, Marco Polo also says, “*Wine* is made from the *sugar yielded by a species of palm*. It is extremely good, and inebriates *faster* than the wine made from grapes.”—Travels, page 678. Mr. Marsden in a note remarks, “What our author terms *wine* in this place, is properly *an ardent spirit*, distilled from the coarse, imperfectly granulated sugar, called *jaggri*, or *jagori*, which is itself an inspissation of the juice (*tari* or *toddy*) drawn from the *borassus flabelliformis*, called the *brab* or *wild palm* in the peninsula of India.” Pliny calls Judea, “*palmis inclyta*,” renowned for palms. Jericho was called, “the city of palms.” Herodotus in his account of Assyria, says, “The palm is very common in this country, and generally fruitful. This they cultivate *like fig trees*—and it produces them bread, *wine* and honey.” So that the expression in the Scriptures of that state of peace, when each one may “sit under the shade of *his own wine tree*,” may be, figuratively, as well expressed by the palm, as the vine! The city of Tamar (which signifies a *palm-tree*) or Tadmor, (as it is *now* called by the Arabs) built in or near the desert, by Solomon, 992 years B. C. was probably so named from the palm trees growing about it. It was afterwards by the Romans called “Palmyra,” or rather “Palmira” on the same account from *palma*, a palm tree.‡ “The *sugar cane* was not known to Europe, till the Arabians introduced it into the southern parts of Spain, Sicily, and those provinces of France which border on the Pyrenean mountains. From the Mediterranean, the Spaniards and Portuguese transported it to the Azores, the Madeira, the Canary, and the Cape de Verd Islands, soon after they had discovered them in the fifteenth century; and in most of these, particularly Madeira, it thrived exceedingly. In 1506, Ferdinand the Catholic, ordered the cane to be carried from the Canaries to St. Domingo, and cultivated there.”§ Dr. Harris thinks that the knowledge of the plant—the cane—was as old among the Jews as the time of Moses.||

“It seems worthy of remark, that the Hebrew name for *wine*, *iin* (or *ion*) has been retained, with little variation in many other languages—as in the Greek, *oinos*,—the Latin *vinum*—Italian and Spanish *vino*—French *vin*—Celtic or Welsh *gwin*—Cimbric *uin*—Gothic *wein*—old

\* Book ii. 421, Travels of Marco Polo.

† Dr. Shaw supposes that the word, *cussumeth*, translated *rye* in Exodus, ix. 32, should have been rendered *rice*. The same word is rendered *fitches*, Ezekiel iv. 9. Article *rice*, Nat. Hist. of the Bible.

‡ See Nat. Hist. of the Bible, article *Palm tree*.

§ Grainger's *Sugar Cane*, a poem, p. 2, note.

|| Nat. Hist. of the Bible, article *Sugar*.

German, *uvin*—Danish, *vien*—Dutch, *wien*—and English, *wine*.” The “mixt wine,” Proverbs xxiii. 30, and in Isaiah lxxv. 11, rendered “drink offering,” may mean wine made stronger and more inebriating by the addition of some powerful ingredients, such as honey, spice, *defrutum*, (or wine inspissated by boiling it down,) myrrh, mandragora, and other strong drugs.” Thus the drunkard is properly described, Prov. xxiii. 30, as one that seeketh “mixed wine.”\* “Wine of the pomegranates,” Cant. viii. 1, may mean either wine acidulated with the juice of pomegranates, which the Turks about Aleppo still mix for this purpose,† or rather, wine made of the juice of pomegranates, of which Sir John Chardin says, they still make considerable quantities in the east, particularly in Persia.‡ “Many are of opinion that wine was not unknown before the deluge; and that the patriarch Noah only continued to cultivate the vine after that event, as he had done before it.”§

## NOTE TO PAGE 48.

The desire for salt very strongly exemplifies one of the peculiarities of the active impulse of the stomach. The *stimulus* of salt appears essentially requisite for many animals which consume vegetable food. Its grateful effects upon the stomach are exhibited by the eagerness with which almost every description of domestic cattle lick it. It forms a means by which the most shy or timid are reconciled and tamed. A strange flock of sheep being made aware of the intention of the shepherd to give them salt, will eagerly follow and surround him to obtain it—putting aside, at once, their fears or suspicions; and soon grow so gentle as to take it from the hand. Whenever after, the person who gives the salt appears in a field where the sheep are, they hasten with loud cries from a distance, towards him. It is the same with cows, horses, and other *herbivorous* cattle. From observing these effects, it is very likely, that the Arab made salt the *symbol* of his hospitality. In some parts of Africa, mineral salt forms the medium of exchange, like gold and silver among other nations, from the general estimation in which it is held—and the children there are described, by Mr. Park, as using it with the same relish our children employ sugar. “Sometimes,” says Caillié, “I have heard them (the African merchants travelling in caravan to Timbuctoo,) say to each other, ‘It is a long time since we have had any thing good; let us have a little salt in our supper.’”|| It is a curious circumstance, which may be here noticed, that the *meat eating* North American Indians, are found indifferent to the employment of salt, although they incline much to the use of ardent spirit, after having once contracted the practice. And salt is reported by the natives of Java to be a *poison* to a small animal like the civet, called *viverra rasse*, which preserves in confine-

\* The Nat. Hist. of the Bible, article Wine.

† Ibid. article Pomegranate. Harmer’s Obs. vi. p. 377.

‡ Russell’s Nat. Hist. of Aleppo, p. 107.

§ Nat. Hist. of the Bible, article Vine.

|| Caillié’s Travels in Africa, i. 389.

ment the natural ferocity of its disposition undiminished, and preys on small animals of every description with a high degree of sanguinary appetite.\* The Mosaic ordinance may have had reference to some such well known facts, where it required, (not improbably as a means of correcting *perversions* of the stomach, which it is very obvious many of those laws were provided for,) "with *all* thine offerings, thou shalt offer *salt*;" Lev. ii. 13. And in allusion to the customs of the Eastern nations, it is called "the *salt of the covenant* (or agreement) of thy God."

It appears from the translation of certain parts of Scripture, that *the stomach* is sometimes used as a type of *the soul*, by a figure of speech not unusual among the Hebrews, authorised by its well known powerful influences. Thus it is written, when the children of Israel murmured in the desert, "And the people spake against God and against Moses, wherefore have ye brought us up out of Egypt to die in the wilderness? for there is no bread, neither is there any water; and *our soul* loatheth this light bread." Numbers xxi. 5. "Do not despise a thief," says the Hebrew proverb, "if he steal *to satisfy his soul, when he is hungry.*" Prov. vi. 30. It was permitted by the Mosaic law, to those who lived a distance from Jerusalem, to exchange the tithe of corn, of wine, of oil, and of the firstlings of the flocks and herds into money—which might be more easily conveyed there than the products of the farm. The law reads, "And thou shalt bestow that money for whatsoever *thy soul lusteth after*, for oxen, or for sheep, or for wine, or for strong drink, or for whatsoever *thy soul desireth*; and thou shalt *eat* there before the Lord thy God, and thou shalt *rejoice*, thou and thine household. And the Levite that is within thy gates, thou shalt not forsake him: for *he hath no part or inheritance with thee.*" Deut. xiv. 26, 27. We understand always that such a license was limited to the employment of those things which were held lawful. The words also demonstrate that the intent of the institution of tithes (which in modern times have been strangely diverted from their original purpose) was for the advantage of *the people*, and for the support of a class of persons, who were expected to officiate as *physicians and teachers*, who were not permitted to hold lands; but were entirely *dependent upon the people* for support and sustenance, the reward of their *useful* services. Sir Richard Phillips relates, "The tithes were granted, in England, by Offa, in 797, for the bishop, the church, *the poor*, and the resident priest, in consequence of its being announced by the clergy, that *infernal spirits* ate all the grain in the ear, and that to keep *them* off, it was necessary to devote a portion of the crops to religion and charity!"

#### NOTE TO PAGE 72.

Of the influences of physical want and destitution in promoting the use of stimulants, (besides other excesses and perversions,) to allay the pain and mental suffering which they induce, we have many evi-

\* Dr. Horsfield's Zoological Researches in Java.

dences. "Some years ago, on passing through Manchester, I was informed by several cotton manufacturers, that their work-people were rapidly getting into the practice of opium-eating : so much so, that on a Saturday afternoon, the counters of the druggists were strewed with pills of one, two or three grains, in preparation for the known demand of the evening. The immediate occasion of this practice was the *lowness of wages*, which, at that time, would not allow them to indulge in ale or spirits!"\* The Opium Eater says of himself, "It was not for the purpose of creating pleasure, but of mitigating pain in the severest degree, that I first began to use opium as an article of daily diet—caused by *extremities of hunger*, suffered in my boyish days."† Sir Richard Phillips mentions "The *dear corn* years, from 1809 to 1818, swelled the list of crimes from 5350, in 1809, to 14,254 in 1818 ; and so changed the habits of the people, that in 1826, the criminals were 16,164 ; in 1827, 17,921 ; and in 1828, 16,564. There is ten times the religion, or the show of it, in England, that there is in France, and five times the education, yet twelve times the crime, or breach of law ; then, as neither religion nor education can be a cause of crime, it is obvious that the causes are political economy, and false, ignorant and illiberal legislation."‡

The New Zealanders, (according to Earle's Narrative of a Nine Months' Residence in New Zealand, in 1827,) have the utmost *aversion* to every kind of wine or strong drink, but are equally fond of tobacco. They *eat human flesh*, the origin of which custom, one of their chiefs attributed to *the want* of all other kind of animal food.§ Shipwrecked sailors have sometimes been driven to similar involuntary excesses ; and we have known instances where the like perversion of appetite and instinct occurred in domestic cattle, which has been attributed to the want of those stimulants to which their nature inclines them. In the 14th chapter of Jeremiah, there is an allusion to a grievous famine, with reference to its effects upon animal instincts. "The hind dropped her calf in the forest-field, and *forsook it*, because there was *no grass*." verse 5. That the same causes every where produce the same effects, is evidenced by the denunciations which Moses uttered against the neglect of the physical and moral laws he enjoined. "And ye shall eat the flesh of your sons, and the flesh of your daughters shall ye eat." Leviticus, xxvi. 29. This unnatural and abhorrent propensity is fairly explained to be a *necessary consequence* of severe privations. From the whole description given in the Scriptures, and the recollection of what *has* taken place during the revolutions and wars within the last century, we believe these results *had been* witnessed *before* the days of Moses—and were therefore held up to the Hebrews as historical facts well known among them. Modern revolutions have

\* Confessions of an English Opium Eater, p. 7.

† Confessions, page 15.

‡ "A Million of Facts, connected with the studies, pursuits, and interests of Mankind." p. 460.

§ The scarcity of food had become so general, in one part of the island, that "parents destroyed their children, rather than witness their sufferings from famine." Page 204.



exhibited some such fearful images—"The tender and delicate woman among you, who would not adventure to set the sole of her foot upon the ground for delicateness and tenderness, her eye shall be evil towards the husband of her bosom, and towards her son, and towards her daughter. And towards her young one that cometh out from between her feet, and towards her children which she shall bear—for she shall *eat* them, *for want of all things*, secretly, in the siege and straitness wherewith thine enemy shall distress thee in thy gates." Deut. xxviii. 56, 57. Such records are terrible—but they are *facts*. In the early part of the first French Revolution, the *want of bread* and "of all things," may have urged in a great degree some of the primary acts of desperation among one of the most civilised and most amiable people in Europe. Their cry at one time was "bread or blood!"

#### NOTE TO PAGE 107.

The Roman soldiers, who have been lauded for their temperance, are said to have used vinegar as a refreshing beverage on their toilsome marches. But there has been an attempt to prove that the correct interpretation of the word *acetum*, is, an *acidulous wine*, and not *vinegar* properly so called. Dr. Henderson thinks, however, that the mode in which the term is used by Pliny, and other writers of repute, can leave no doubt of its true meaning, as vinegar. He observes notwithstanding, "The *posca* of the Romans is generally believed to have been a mixture of vinegar and water; but it would appear that the name was *sometimes* applied to other sorts of liquors; for we are told by Suetonius, that Asiaticus, the favourite freedman of Vitellius, after he first quitted the emperor, had become a vender of *posca* at Puteoli; and it can hardly be supposed, that the mere mixing of *vinegar and water* could by itself have formed a distinct branch of trade."\* In speaking of the Surrentine wines, which were recommended for the use of convalescents in Italy, Tiberius used to allege that the physicians had conspired to raise their fame, but that, in his opinion, they only merited the name of "*generous vinegar*."†

The *temperance* of the primitive Romans is rather equivocal, when we at the same time remember their ferocious excesses *in war*. "During the early ages of the Republic, it is doubtful whether the Romans were much accustomed to the use of wine; for the constant predatory warfare with the neighbouring states in which they were engaged, must have prevented them from giving that attention to their vineyards which was necessary for bringing the produce to any degree of perfection." Romulus directed milk to be used for the libations to the gods; and a posthumous law of Numa forbade the sprinkling of the funeral pile with wine, merely, as Pliny conceives, *on account of its scarcity!*‡

\* Hist. of Ancient and Modern Wines, 73.

† Ibid.

‡ History of Ancient Wines, 81.

## NOTE TO PAGE 114.

We received, too late for insertion in its proper place, a letter from an engineer of eminence in Scotland, to a friend in the United States, which describes an original community in the Highlands, who, while using spirituous drinks, do not display the vices which are thought to result solely from their employment in other communities.

“ *Strathconon, by Dingwall, 25 Sept. 1825.*

“ For a few weeks of last autumn and since midsummer, I have been at work in the survey of a Highland estate, the extent of which may be perhaps 90 or 100 thousand acres. On it there is a population of about 1200 persons, very few of whom speak in English. There is not a blacksmith, a joiner, a mason, a shoemaker, a tanner, a cooper, a brewer, a merchant, or a shod horse among them. Nor a road accessible to a wheel carriage. The whole tract is a congeries of hills, with one valley, or strath, and a few other deep ravines. There are not only houses, but hamlets, that are not for five months visited by the direct rays of the winter sun. Most of the houses are mere huts, built of sod and covered with turf, without a pane of glass, and without any other chimney than a hole in the roof. The cattle enter by the same door, and in many cases, occupy the same apartment with the family. Their agriculture is on a small scale, and performed in the most slovenly way imaginable. Women do most of the hard work, as threshing the corn, cutting the hay with the sickle, (walking on their knees all the while) carrying peats and heath for fuel from the hills, on their backs. Although there are three considerable streams, (what we call rivers here) in the estate, there is not a bridge on any of them; in summer and winter the people wade. The chief employment is making *smuggled whiskey*, the only operation in which they are expert. Hitherto, excise officers have been able to do little in counteracting them. The people, though poor, and subjected to many privations, are kind, hospitable, and high spirited; they do not submit to any sort of direct taxation of the government, nor to road tax. During all the wars that Tory ministration has engaged in, no native of Strathconon is believed to have lost a drop of blood in the quarrels, and no emigration is known of. Indeed they neither leave their native hills, nor often have strangers domiciliated among them. They continue the true aboriginal people of the country. Previously to 24 years ago, a foot post passed across the island in this direction, and the letter carrier occasionally passed a night in the strath. In those times, a man who reads English, perused a paper and related the news to his neighbours; but of late the people have been deprived of even this scanty means of information. Since coming here, an Edinbrgh newspaper addressed to me has lain so long in the post town, that, I believe, before I saw it, numbers of the same impression had been read in New York. I have heard of no law suit among them, and when cited before court for evasion of revenue, they do not take the

trouble of attending. *No person among them has been tried for crime, except, I believe, one for resisting an exciseman. No case of murder or other capital crime is transmitted by tradition; and like you, the people sleep with unlocked doors. For ten years past, only two illegitimate children have been produced here. On the whole, you must see that this little but interesting community have but a hard living. I wish that they were all planted in the back woods of America."*

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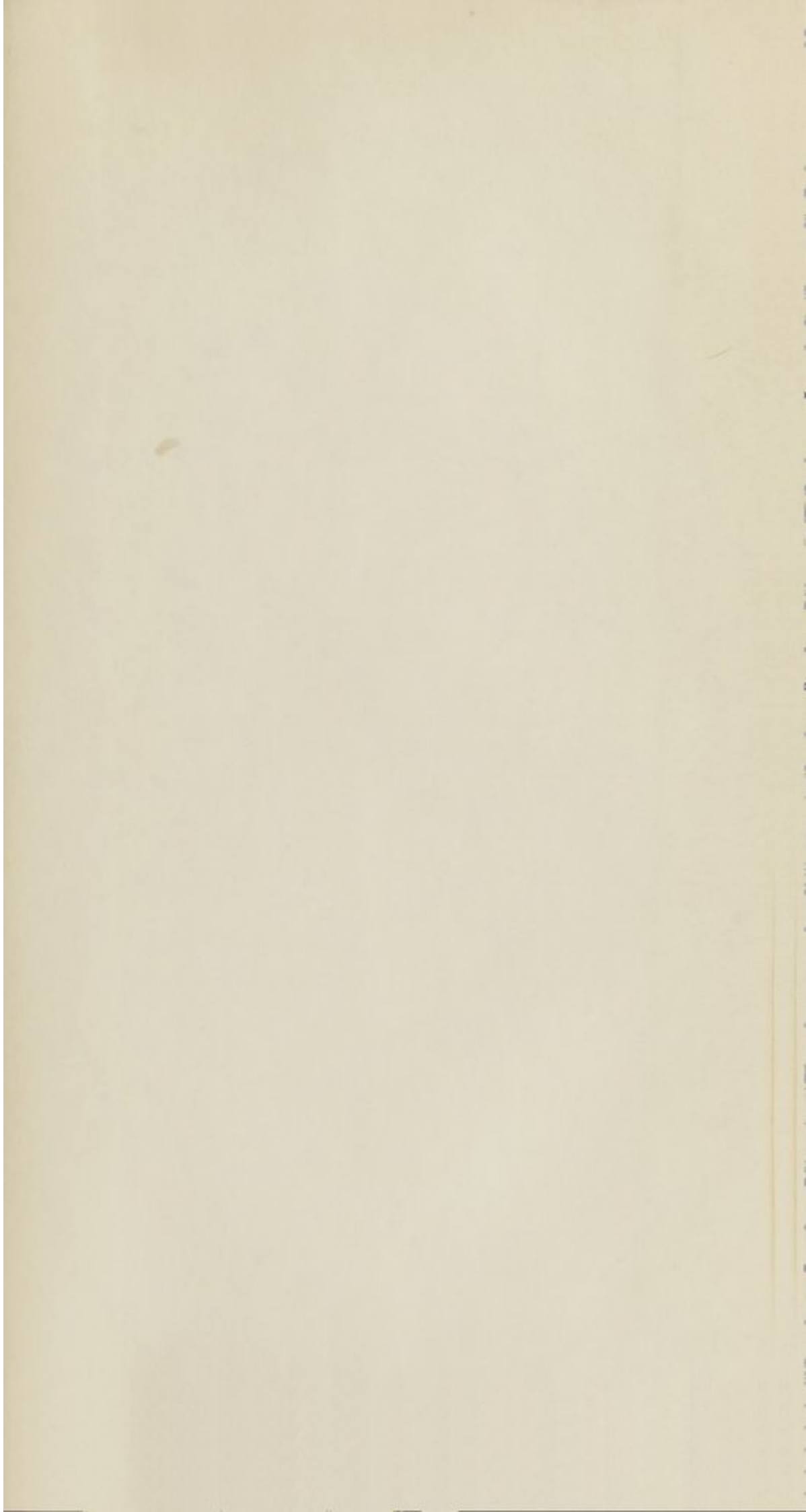
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ERRATA.

- Page 11, line 30—for "treating" read *treading*.  
 " 13, " 8—for "flavour" read *flavours*.  
 " " 12 of the note—for "Duttalde" read *Duhalde*.  
 " 23, " 1—for "or" read *for*.  
 " 51, " 17—for "prevention" read *precaution*.  
 " 63, " 22—for "Laubert" read *Lambert*.  
 " 64, " 3 of note—for "Neuman" read *Neumann*.  
 " 66, " 43—for "rome" read *some*.  
 " 69, " 30—for "effects over" read *action upon*.  
 " 85, " 1 of note—for "Magendi" read *Magendie*.  
 " 94, " 12—for "instinctive" read *involuntary*.  
 " 104, " 8—for "continually" read *daily*.

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