

THE AIR WE BREATHE.

Dr. Angus Smith has gathered together and published the results of his investigations into air and rain, and those of the experiments made to determine their relative purity or impurity in various parts of the British Isles and on the Continent.

Numerous observers have experimented on the air and calculated the amount of oxygen it contains, and although formerly results differed, owing probably to defects in the *Modus Operandi*, latterly the analyses have come much nearer to agreement and minute accuracy. Gay Lussac and Humboldt gave the mean as 21.0 volumes per cent of oxygen. Cavendish, by making a series of 500 analyses, arrived at the conclusion that 20.833 was the mean amount, and later experiments have shown that he was not far out, Graham and Liebig both giving 20.9. Dr. Angus Smith found, from repeated analyses, the following percentage, which we extract from his table as characteristic situations:

On the N. E. shore and heaths of Scotland.....	20-999
Outer circle of Manchester (not raining).....	20-947
Open places, London, summer.....	20-950
In a sitting room, which felt close, but not excessively	20-890
In a small room with petroleum lamp.....	20-840
Theatre gallery, 10-30 p. m.....	20-860
Theatre pit. 11-30 p. m.....	20-740
Backs of houses, and about closets.....	20-700
Court of Queen's Bench.....	20-650
Under shafts of metal mines (average of many).....	20-424
When candles go out.....	18-500
Worst specimen found in a mine.....	18-270
Difficult to remain in.....	17-20

The cursory reader who does not stop to examine what these figures really mean will probably exclaim: What difference capable of affecting health can there be in the air of London and that of Scotland—20-999 against 20-950 per cent of oxygen? It is quite true that a mere deficiency of oxygen to the extent of 49-1,000ths may affect us but little, but that deficiency means something more than a mere absence to that extent of oxygen; it involves a question as to what has taken its place. Even so slight a difference as that between 20-999 and 20-980 is equal to 190 in a million, and if we put impurity into water at this rate, it amounts to 13.3 grains in a gallon. This amount, says Dr. Smith, would be considered enormous if it consisted of putrefying matter, or any organic matter usually found in water. But we drink only a comparatively small quantity of water, and the whole 13 grains would not be swallowed in a day, whereas we take into our lungs from 1,000 to 2,000 gallons of air daily. We must remember, too, that the blood receives the air and such impurities as are not filtered out in its passage, whereas the stomach has powers of disinfection and destruction which render harmless many organic impurities contained in water. But if we take the air found in the pit of the theatre, we find that the difference amounts to 2,500 in a million, and the importance of the minute analysis becomes evident.

In the course of his experiments, Dr. Smith constructed a leaden chamber in which the experimenter could shut himself up from the external air. This chamber contained 170 cubic feet of air when furnished with a table and chair, and occupied by one person. On a day when the temperature was 45° F. no difference in the air breathed was perceptible for 25 minutes; but when drawn from the top by moving an umbrella up and down, it seemed like a soft wind capable of producing a slightly pleasant feeling, being, however, utterly without the property of producing that cheering and exhilarating effect to which we are accustomed in a gentle breeze. The air was moist, and a specimen of it deposited water. After an hour, the well known organic smell noticed in a crowded school room was perceptible on moving about rapidly, and at the end of the experiment, which lasted 100 minutes, had an unpleasant flavour and strength, and persons who entered immediately the door was opened pronounced it very bad. Still, Dr. Smith says he did not feel uncomfortable, although the percentage of oxygen must have been reduced below the average found in the ordinary circumstances of daily life, showing the seductive and insidious character of breathed air. After a stay of 2 hours 20 minutes in the chamber, however, long inspirations became more frequent, and the air was found much less agreeable when breathed at the upper part by standing on a chair; at the end of three hours, the amount of oxygen was reduced to 19.61. In an experiment with burning candles, it was found that the amount of light was sensibly diminished, and when the candles went out, the percentage of oxygen was found to be 18.80°, and of carbonic acid 2.28. On entering the chamber with candles and a spirit lamp, the lights were speedily extinguished, and it was found impossible to rekindle them with matches, the ordinary wooden ones refusing to ignite. Still, it was possible to breathe without difficulty, although a feeling of discomfort was soon experienced. Afterwards gas was lit and burnt brilliantly; but on entering with candles after the gas had gone out, they were instantly extinguished. Nevertheless, it was still possible to breathe, although when Dr. Smith stood on a chair, he experienced a feeling similar to incipient faintness; "but the senses were not annoyed by anything beyond a feeling of closeness, by no means so unpleasant as a school room." This is an important fact, as Dr. Smith says, showing almost conclusively that organic matter is the cause of the unpleasantness to the senses on entering a school room; for there was comparatively little organic matter in the chamber, and the school room would have more oxygen than the chamber, the percentage found in the latter, after allowing the door to open for three persons to enter, being found to be only 17.45. The conclusion to be drawn from these experiments, therefore, is that the senses are bad and inefficient guides to the wholesomeness of air as regards the amount of oxygen and carbonic acid, save when the former is reduced and the latter increased to such an extent that the lungs seem to refuse to expand and the whole vital action is threatened with paralysis. Rooms, badly ventilated, which contain less than 20.7 per cent of oxygen are very unwholesome, and the necessity of taking into consideration the proportion of oxygen and carbonic acid in the sanitary inspection of factories and workshops is abundantly evident from the results obtained by Dr. Smith.

* Candles placed in a tin box over water, however, were found to burn till the oxygen was reduced to about 15.5 per cent; but in the lead chamber the candle is extinguished by the tallow refusing to melt. For this reason, miners incline their candles so that the flame may melt the grease.

Some of our readers who have sufficient leisure may amuse themselves by translating the following verses:

TONIS AD RESTO MARE.

O Mare cæva si forme;
Forme ure tonitru:
Iambicum as amandum,
Olet Hymen promptu;
Mihi is vetas an ne se,
As humano erebi;
Olet mecum marito te,
Or eta beta pi!

Alas, plano more meretrix,
Mi ardor vel uno;
Inferiam ure artis base
Tolerat me urebo.
Ah me, ve ara scilicet,
Vi laudu vimen thus!
Hiatu as arandum sex—
Illuc Ionicus.

Heu sed heu vix en imago,
Mi missis mare sta;
O cantu redit in mihi?
Hibernas arida.
Averi vafer heri si,
Mihi resolves indu:
Totius olet hymen cum—
Accepta tonitru.

Incerti Auctoris.

SENTIMENT.—In the *Atlantic* for May, Dr. Holmes treats us to this able defence of sentiment: We poets, you know, are much given to indulging in sentiment, which is a mode of consciousness at a discount just now with the new generations of analysis who are throwing everything into their crucibles. Now, we must not claim too much for sentiment. It does not go a great way in deciding questions of arithmetic, or algebra, or geometry. Two and two will undoubtedly make four, irrespective of the emotions or other idiosyncracies of the calculator; and the three angles of a triangle insist on becoming equal to two right angles in the face of the most impassioned rhetoric of the most inspired verse. But inasmuch as religion and law, and the whole social order of civilized society, to say nothing of literature and art, are so founded on and pervaded by sentiment, that they would all go to pieces without it, it is a word not to be used too lightly in passing judgment, as if it were an element to be thrown out or treated with small consideration. Reason may be the lever, but sentiment gives you the fulcrum and the place to stand on, if you want to move the world. Even "sentimentality," which is sentiment overdone, is better than that affectation of superiority to human weakness, which is only tolerable as one of the stage proprietors of full blown dandyism, and is, at best, but half grown cynicism, which particeps and noun you can translate, if you happen to remember the derivation of the last of them, by a single, familiar word.

An Englishman and his wife, not speaking a word of German, but having some knowledge of French, determined to visit the capitals of Prussia and Saxony. They had been recommended to an hotel at Berlin, and were proceeding to it in a hired vehicle, when suddenly the lady espied an imposing-looking building, on which was inscribed in large letters, "Hôtel Radziwill." She immediately exclaimed, "There's a fine hotel, and what a nice open situation!" "Well, should you like to go there?" "Oh, yes!" No sooner said than done; the driver was made to set them down there. Several persons were around the door of the hotel, but no one that spoke English or French; they were made to understand, however, that the luggage was to be taken within doors, and with much ceremony they were introduced to an apartment. The lady made signs to be shown a bedroom, which was done, and, on her return, she said, "Well, I never saw an hotel so charmingly furnished as this! I should like you to step up and look at the bedroom; and such a dressing-room." The husband, also, was full of admiration; he had been examining the few paintings which hung upon the walls, and pronounced them valuable pictures. Having made some necessary changes of apparel, they rang the bell, and made the attendant acquainted that they would dine at five. On their return from a promenade, a gentlemanly-looking man entered the *salon*, bowed, and said something in German, which was not understood, and the Englishman, thinking his manner somewhat free, carelessly replied with a "Good morning—how'd'ye do?" and the stranger retired. A sumptuous little dinner was served, and wine of a *recherché* character, and in due course coffee, and a *chasse-café* of some delicious *liqueur*. When the two servants had left the room, the husband observed, "This is all very capital, my dear; I only hope we shall be as well satisfied when we see the bill." His wife rejoined, "I'm sure this is a very first-rate hotel, and very expensive; if I were you I would have the bill to-morrow morning, that we may know how we are going on." They went on, however, for a day or two, delighted with everything, and then the lady's prudent warning so far prevailed, that the bill was directed to be brought the following morning at breakfast. Breakfast came, but no bill, and it was then peremptorily demanded, and when the room was cleared, the husband said, "I begin to partake of your suspicions. I don't half like this reluctance to bring the bill, and I expect when it does come it will be enormous." Very shortly the same personage who had made his appearance on their first arrival entered the room, and advancing towards them, the following dialogue took place in French:—Stranger: "I am the Prince Radziwill."—Englishman, rising and presenting a chair: "To what may I ascribe the honour of this visit?"—Stranger: "You have evidently taken this to be a public hotel."—Englishman: "Undoubtedly!—what is it then?"—Stranger: "It is my private hotel."—The Englishman was so petrified that he made no immediate apology, but explained the affair to his wife, who looked perfectly aghast, and began assuring the prince in English that they saw "Hotel" written on the front of the house, and of course they supposed it to be one. The prince saw, and no doubt secretly enjoyed, their confusion, but expressed himself highly delighted at having had the opportunity even by mistake, of extending his hospitality to a gentleman and lady from England, the inhabitants of which country, he was pleased to say, were always objects of interest and esteem. The Englishman having made a suitable reply, or attempted

it, for his ideas continued somewhat confused, the prince went on to say that, if it met their convenience, he should be very glad if they would favour him with their company for a few days longer, when they would be more immediately his guests. The lady, however, declared to her husband, aside, that she shouldn't recover herself until they were out of the house; the invitation, therefore, was politely and gratefully declined. The Englishman contrived to give a handsome *douceur* to the domestics, and the prince insisted on sending them to their hotel in his carriage. On being asked afterwards if he had given the prince his card, the Englishman replied, "No! what was the use of presenting him with a card with 'Mr. Jones' upon it?"

WOMAN SMUGGLERS.

Women are frequently smugglers of fine laces, but rarely of jewels. On the "Italy," however, some valuable jewels were recently seized, having been found quilted into an underskirt. A quiet-looking *Frau*, recently landed from Bremen, had a double-quilted petticoat filled with Shetland shawls, caps, and stockings. Another on the "Westphalia" had a quantity of the finest silk bindings, two valuable watches, two silk dress patterns, two dozen silver spoons, a dozen silver forks, and eight pieces of silk gallow quilted into a skirt of serge. A companion on the same steamer had seventy three bundles of sewing silk and twenty-nine pairs of kid gloves secreted on her person;—scarcely concealed, however, as the foolish *Fraulein* had tied strong cord about her hips, and the smuggled articles were suspended in such a way that she was scarcely able to reach the dock.

The muff is a very ordinary cover for smuggled laces. An English woman, recently landing from one of the Inman steamers, had the cotton removed from her muff, and its place filled with valuable laces. The muff was strapped to her person, where it stood for *embonpoint*.

In one petticoat of this lady were found gloves in quantity; in the facings of her dress, cigars; and in the voluminous gathers of a second petticoat were meerscham pipes in sections.

A Frenchwoman, extravagantly dressed, and moving about suspiciously, was invited into the room of the Inspectress recently. Her petticoat proved to be nine yards of superior black velvet, one selvedge being gathered into a waist-band, which also held a dress pattern of Ponson silk. The facing of the velvet petticoat, which was put on with the nicest care, was well padded with Chantilly laces, cunningly run together; and the ruffle on the bottom of this imperial under garment consisted of five rows of rich Chantilly flouncing, caught together, quite likely, in the hope that it would be taken for one piece. An immense seizure of English open-faced watches has recently been made upon the person of a well-appearing American woman, who had them neatly incased in the tucks of a heavy flannel petticoat.

Sometimes the German women seek to evade the tariff dues in the most awkward manner; as, witness the stupidity of hanging nine watch-chains about one's neck, with a valuable watch at the end of each chain. *Frau Stumpf* said she had been told that watches were worn by the passengers, and the officers did not take them.

A desperate-looking woman, coming on one of the English steamers lately, on being examined exhibited an amusing spectacle, with a silver cake-basket lashed to each hip, and two huge dress patterns festooned as "filling" there and thereabouts. On being detected, this woman, in a terrible rage, drew a knife on the Inspectress.

Some of the smuggling expedients are, of course, extremely amusing. A *spirituelle* little Frenchwoman had on her husband's red flannel drawers, and these were tied in puffs, here and there.

On being "unpacked," there came forth a Bohemian glass toilet set, two dozen salt-cellars, three dozen silver spoons, three dozen silver forks, several little articles of *bijouterie* in bronze and crystal, and some Swiss wood-carvings; all of which were put up in the softest tissue-paper and paper-shavings, that they might not strike against each other. When the little body was unloaded, no one laughed more heartily than she.—*Scribner's for July*.

The *Court Journal* says that a new insurance company has advertised itself—where, deponent saith not. Its advertisement is headed "Insurance against Thirst." After a preamble the fact is arrived at that good Normandy cider will be sold this year at so much the cask

The Concentrated Water of Tivoli is specially recommended for Ladies. It imparts a peach-like bloom to the features, and emits a most fragrant perfume. For invalids the Concentrated Water of Tivoli is invaluable. Business men will find this *Bath* a great boon. Its invigorating powers are immense, after which it produces a calm soothing effect, very grateful to the man of business during the sultry summer months. Price \$1.00 per case, being 4 cents per bath. Sold by all druggists throughout the Dominion of Canada. Sole Consignees in Canada and United States, Gordon & Co., Manufacturing and Wholesale Chemists of Glasgow and London. Branch Depot, 32 St. François Xavier Street, Montreal. 5-25 d

The Hon. JAMES SKEAD, Senator of Canada, says: "I am satisfied the Nutritious Condiment is a good food for Horses, and I know of nothing equal to it when the object is to get up the condition of the animal as rapidly as possible. Ask your Druggist for a 25 cent package to try it, or send to the Montreal Depot, 32, St. François Xavier St., for 200 feeds which will be delivered free for \$3.00 to any part of Canada." 5-23d

HOW THANKFUL WE SHOULD BE.—Almost all disorders of the human body are distinctly to be traced to impure blood. The purification of that fluid is the first step towards health. The Indian Medicine widely known as the Great Shoshonees Remedy and Pills commend themselves to the attention of all sufferers. No mistake can be made in their administration. In Scrofula, Bronchitis, Indigestion, Confirmed Dyspepsia, Liver and Lung Complaints, Rheumatism, &c., &c., the most beneficial effects have been and always must be obtained from the wholesome power exerted by this Indian Medicine over the system. Persons whose lives have been restored to ease, strength and perfect health by the Great Shoshonees Remedy and Pills, after fruitless trial of the whole pharmacopœia of physic, attest this fact. 5-22 e