

wrong because there is only one pressure which is the same in all three airways. The pressures worked out for each airway separately are practically the same and but for the cutting out of decimals they would be exactly the same. The one pressure of 1.86 lbs. is exerted on every square foot of all the three airways at once, if this were not the case it would be madness to split air at all. This can easily be proved.

Units of work in first airway was 131600.

∴ 131600 eq. 1.882 practically the same as the 69870

pressure worked out for the separate airways.

Here we have conclusive proof that the formula and the authorities are right beyond all hope of upsetting the theory. Whenever a number of splits branch off from the same place the pressure available at that place is exerted equally on all and not divided between them. The challenger is the only person I ever met who would not admit this, yet he is consistent enough to use the relative quantity formula which is based on the assumption that the pressure on each split is equal. The formula is derived as follows:—

$$P \text{ eq. } \frac{K S V^2}{A}$$

$$\therefore P \text{ eq. } \frac{K S Q^2}{A^3}$$

$$\therefore P A_3 \text{ eq. } Q^2 \frac{K S}{A^3}$$

$$\therefore \sqrt{\frac{P A^3}{K S}} \text{ eq. } Q$$

Now for any number of splits Q eq. $\sqrt{\frac{P A^3}{K S}}$ in each.

Suppose we have two,

$$\sqrt{\frac{P A^3}{K S}} \text{ eq. } \sqrt{\frac{P A^3}{K S}}$$

K is same in both airways. P 's same in both airways.

$$\therefore \text{by cancellation } \sqrt{\frac{A^3}{S}} \text{ eq. } \sqrt{\frac{A^3}{S}}$$

or relative quantity varies as $\sqrt{\frac{A^3}{S}}$

If this formula is right as the challenger admits when he uses it, how can different pressures be possible on separate splits?

This is the only point to the whole argument and I think that there are very few mining men who will not admit that the pressure on the splits is equal and the same in each case when the splits branch off at the same place.

Germany's industrial system is to day regarded by many observers as the ideal one in its organization, its manual training, features, its efficiency. It is continually being held up for the emulation of British and American employers. Whatever merits or demerits it may embody, Germany's system is military to the point of paternalism. She trains her worker, puts him into the factory, keeps him employed through state bureaus, insures his life, pensions him in old age or disability, boards and lodges him while out of work, letting him pay either in money or labor, assigns him to relief construction when dull times come, helps him to secure a home in prosperity, treats him in sickness and loans him money on his belongings. In fact, the state goes almost to the point of coming round every night to tuck the German workman into his bed.—Canadian Machinery.

The latest contemplated addition to the skyscraper, (says the New York Fire and Water Engineering Journal), is the fifty-storey tower of the Metropolitan Life Insurance Company's building at Manhattan, New York. Till some more ambitious structure arises, this will be the highest building in the world. Its style will be early Italian Renaissance. Its dimensions are as follows:—Frontage in Madison Avenue, 75ft; frontage in Twenty-fourth Street 85ft; height above sidewalk, 658ft; height of cellar floor to top, 680 ft; total height from foundation, 690ft; height of clock face above side-walk, 346 ft; height of loggia floor above side walk, 392 1-2ft; top of loggia balustrade and offset, level above side walk, 453ft; floor of look-out—forty-sixth storey,—above side walk, 603ft; centre of window over look-out (highest point of observation above sidewalk, 633 ft; number of storeys above sidewalk in tower 48; number of feet in building, 16,287.034; total floor area—about 25 acres.—1,015,633 ft. The clock will be 23ft. in diameter, with hands 12ft. in length each, and figures 4ft. in height each. The tower will, of course, be fire proof, and furnished with standpipes, hose and equipment. But, if that style of construction is to continue, aerial machines will have to be resorted to for fighting fires that may break out in such buildings.

Electric appliances have been recently so far developed as to make them practicable and efficient for every use. Among them are electric stoves and grids for general heating and cooking purposes, such as heating water, toasting, and the like; electric broilers, the only perfectly proper device for broiling, because by all other methods the gases and products of combustion are necessarily absorbed by the meat, while in the electric broiler meats are dressed in their own juices, none of which are lost. The electric oven is provided with three different degrees of heat control, and the circulation of the heat is uniform. Some makes have glass fronts and thermometers, allowing for perfectly accurate regulation. In a coal range much of the heat goes up the chimney or into the room, instead of the oven. In a gas range free circulation of air in the oven is necessary to support combustion, and the air carries off considerable heat. In the electric oven, however, heat is generated right in the oven, just when and where it is wanted, and there are no products of combustion to be carried away. In addition to its domestic function, it is useful for baking purposes in the industrial arts.

An electric frying pan has been perfected recently, and it is wonderfully convenient for light house-keeping. For an early breakfast it has no equal—fried eggs in three minutes without lighting a fire.

Intercolonial Railway.

Tender.

Sealed tenders addressed to the undersigned and marked on the outside "Tender for Machine Shop, Riviere du Loup," will be received up to and including SATURDAY, SEPTEMBER 14th, 1907, for the construction of a concrete and brick machine shop and boiler house at Riviere du Loup, P. Q.

Plans and specification may be seen at the Office of the Station Master, Riviere du Loup, P. Q., and at the Chief Engineer's Office, Moncton, N. B., at which places forms of tender may be obtained.

All the conditions of the specification must be complied with.

D. POTTINGER,

Railway Office, Moncton N.B. Aug. 27, '07. General Manager