3,5 Afdeeling, eller $^{3,5}/_{80}$ Grad; saasnart Trykket ophørte steeg den til 232,5 eller 6 Afdeelinger. Antager man at Stempelets Tilbageskruning, tillige med Iagttagelsen over Stillingen af Vædsken i Røret, efter hævet Tryk, medtog $^1/_2$ Minut, og at Vædsken i denne Tid steeg $^1/_2 \cdot 3{,}5 = 1{,}725$ Afdeeling, saa blev af de 6 Afdeelinger kun tilbage 4,375, hvilket afviger overmaade lidet fra Middeltallet 4,36. I et andet Forsøg lod jeg Trykket vedvare 3 Minuter uforandret. Vædsken i Haarrøret steeg imidlertid fra 240,5 til 247, altsaa 6,5 Afdeeling. Ved Trykkets Ophør steeg den til 252, altsaa 5 Afdeelinger høiere. Antage vi her atter at Gjenoprettelsen af Ligevægten med Atmosphæren varede $^1/_2$ Minut, og at Stigningen imidlertid udgjorde $^1/_6 \cdot 6{,}5$ eller omtrent 1,1, saa bliver tilbage 3,9, som vel er længere fra Middeltallet end det forrige, men dog kun 0,47 Afdeeling, hvilket endnu ei udgjør fulde 6 Tusinddeele af en Grad.

ON THE RELATIVE COMPRESSIBILITIES OF DIFFERENT FLUIDS AT HIGH TEMPERATURES

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COMMUNICATED IN A LETTER TO DR. BREWSTER

(THE EDINBURGH JOURNAL OF SCIENCE, CONDUCTED BY DAVID BREWSTER, LL. D. VOL. VI. P. 201—202. EDINBURGH 1827)[1]

Copenhagen, December 30th 1826.

Having in the course of last summer performed a very great number of experiments on the compressibility of different fluids, and particularly on the compressibility of water at high pressures, I am now about to calculate the corrections which must be introduced for the variations of atmospherical pressure, temperature, &c. As sôon as the paper is finished I will send you a

[1] [Also to be found in: *Schweiggers* Journal für Chemie u. Physik. Bd. 51. P. 112—114. Halle 1827. Bibliothèque universelle. Tome 36. P. 127—129. Genève 1827. — Ann. de chimie. Tome 37. P. 104—105. Paris 1820. — *Poggendorffs* Annalen der Physik. Bd. 9. P. 603—604. Leipzig 1827. — Det kgl. danske Videnskabernes Selskabs Oversigter 1826—27. P. 12—13. Kiøbenhavn. All the essays from the »Videnskabernes Selskabs Oversigter« will be found at the end of this volume.]

translation of it. The following results, however, will not be much affected by these corrections.

1. As far as the strength of my apparatus has permitted me to push the compression of water, (viz. seventy times that of the atmosphere) the compressibility is in proportion to the compressing powers.

The compression produced by one atmosphere, as already stated by Canton, is about *forty-five millionth* parts of the volume. Mr. *Perkins* has obtained by a pressure of one hundred atmospheres, a compression equal to 0.01 (one hundreth of the volume) which is much more than could be expected from my experiments. From calculations founded on the results of experiments made with pressures beneath seventy atmospheres, I have obtained only 0,0045 for 100 atmospheres.

In consequence of this great discrepancy between my results, and those of that highly distinguished inventor, I have repeated them with great care, and, from their simplicity, I believe there is not much room to doubt of their accuracy.

2. In so far as I have tried the temperature of compressed water (to forty-eight atmospheres) *no heat is liberated by its compression.*

3. The compressibility of *mercury* is not much greater than *one-millionth* of its volume by one atmosphere.

4.[1] The compressibility of *sulphuric ether* is nearly *thrice* that of *alcohol;* nearly *twice* that of *sulphuret of carbon,* but only *one and a third* that of *water.*

5. The compressibility of *water* containing *salts, alkalies,* or *acids,* is less than that of *pure water.*

6. The compressibility of glass is exceedingly small, and very greatly beneath that of *mercury.*

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[1] [This passage must have been misunderstood; it should read as follows: The compressibility of sulphuric ether is nearly thrice, that of alcohol nearly twice, that of sulphuret of carbon only one and a third that of water.]