

The following interesting relation is brought out in the above table. The diminution in tensile strength is almost exactly proportional to the diminution in the heat of solution. Thus, in reheating to 600° the heat of solution has fallen from 802.1 to 663.9, or 138.2 calories, while the tensile strength has fallen from 96.8 to 42.1, or 54.7 kilos per square mm., or the tensile strength has been reduced at the rate of 0.395 kilos per square mm. for each calorie diminution in the heat of solution. That this holds very nearly, is shown by the results obtained by reheating to 400°. The heat of solution has diminished 51.5 calories, which, if the tensile strength diminishes proportional to the falling off in the heat of solution, would indicate a tensile strength of 76.46 kilos, whereas the actual results gave 74.2 kilos.

If the increase in tensile strength accompanied by increase in heat of solution of this wire is due to allotropy in the iron induced by cold working, then the hardening of steel cannot easily be attributed to the same allotropic change, since the drawn iron wire has a higher heat of solution and hence presumably a higher proportion of non- $\alpha$ -iron than any of the hardened steels, and yet the wire is comparatively very soft, while many of the steels are hard enough to scratch glass easily.

Although a number of interesting facts have been brought out in the above work, the data obtained are yet too few to enable reliable conclusions to be drawn in regard to phenomena complicated by so many factors as are present in the work under examination.

We hope to continue the work along the lines indicated in the present paper and to obtain results more satisfactory than those herein described.

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#### NOTE.

The Fifteenth Annual Report of the Committee on Indexing Chemical Literature, just received from the chairman, Dr. Bolton, shows very great progress. Dr. Bolton's pioneer work has borne good fruit. Most books on chemistry now issued make some attempt at a bibliographic account of the subject-matter greatly to the benefit and convenience of the reader. Copies of the report may be obtained of the chairman, Dr. H. Carrington Bolton, Cosmos Club, Washington, D. C.