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Physics. — "*A method for obtaining narrow absorption lines of metallic vapours for investigations in strong magnetic fields.*"

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In the summer of 1911 we intended to make together some observations concerning magnetic double refraction of metallic vapours.

The magnetic double refraction of some vapours was first discovered (and -predicted) by VOIGT, afterwards commented upon by ZEEMAN and GEEST.

In the paper of the last named authors the interesting region between the components of the magnetically divided sodium lines was investigated and the results represented by drawings.

It seemed desirable to extend this investigation using very narrow lines, which can be maintained constant during a long time and to fix the result by photograms.

Our investigation never passed the preliminary stage and has become now superfluous by the paper of VOIGT and WAGNER which has since appeared.

During our preliminary observations we tested a great number of methods of obtaining narrow and constant absorption lines. It seems to present some interest to record one of our results.

The absorption lines of sodium were obtained beautifully narrow by using small glass tubes charged with a little metallic sodium, then sealed to the vacuum pump and evacuated. A tube some centimeters in length was placed vertically between the poles, the magnetic field being horizontal.

It is quite possible to use tubes of *an external width of some millimeters*. Of course much of the light of an arc lamp is reflected and diffused by the tube, but *enough remains to observe the inverse magnetic effect* with a large ROWLAND grating. The magnetic resolution of the narrow lines can be splendidly seen and photographed in a reasonable time.

The heating of the tube can be done by a flame, but preferrently electrically.

Of course tubes with other volatile metals can be prepared in the same way ¹⁾.

¹⁾ The method has been since applied with success in an investigation by Mr. WOLTER in the Amsterdam laboratory; the results will be given separately.