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ARSENICAL POISONING FROM DOMESTIC FABRICS.

PHYSICIANS long ago associated a certain class of symptoms with the presence of arsenic in the wall papers of the rooms inhabited by their patients. Of course, so long as the question was in this condition there was abundant room for mistake, and all that had been observed might be explained by some chance coincidence. It now appears that whenever the class of symptoms referred to are well marked there is arsenic present in the urine. It further has been shown in a number of cases that when the suspected wall paper was removed the arsenic disappeared from the urine of the patient, and the symptoms disappeared as well. The number of cases is large in which these points have been made: a certain class of symptoms, arsenic in the wall paper, arsenic in the urine of patients, wall paper removed, arsenic disappears from the urine, symptoms disappear in proportion.

Of course this is not absolute proof that the arsenic came from the wall paper, but, after a large number of cases of the same sort, the evidence amounts to moral proof, and it is rare in medicine to obtain evidence that is more conclusive.

How the arsenic gets from the wall paper to the patient is another question; but, although it would be satisfactory to establish this point, the proof of the *modus operandi* is not essential so far as the legal aspects of the case are concerned. Without this last proof it is easy to throw dust in the eyes of those not versed in such inquiries, but protective legislation has been taken again and again in cases where the risk is far less than here.

"The question how the injurious effects are produced by arsenical colors in our domestic fabrics is a moot point, some thinking it arises from arsenical dust, others holding to the gaseous theory."[1]

A New York chemist testified in a hearing on the subject in Boston, "I found that a botanist named Selmi, in experimenting on mould, found it produced a little hydrogen, and he invented the suggestion that the mould on the back of wall paper might produce a little hydrogen, which might unite with the arsenic on the front of the paper, and produce arseniuretted hydrogen, which might account for the popular idea that arsenical wall paper was dangerous."

This "botanist named Selmi," who may have the advantage of a knowledge of that science also, is an Italian chemist of first-class reputation, who has been publishing his work for at least eighteen years since 1874, and has devoted himself lately more especially to physiological chemistry. He is mentioned in Henry Watts's "Dictionary of Chemistry," Third Supplement, p. 122 (1879), by this reference, "On the detection of Arsenic in Toxicological Investigations, see Selmi (Gazz. Chim. Ital., II. 544)." An interesting paper has lately been issued by the Italian Ministry of the Interior from the scientific laboratories of the Bureau of Health, under the direction of Professors A. Monari and A. Di Vestea, prepared by one of Selmi's countrymen, Dr. B. Gosio, assistant in these laboratories, the following translation of which I am sure will interest your readers and assist in the solution of this problem. GEORGE S. HALE.

Action of Microphytes on Solid Compounds of Arsenic: A Recapitulation, by Dr. B. Gosio.[1]

It is well known that, under certain conditions, poisonous products may be developed from wall papers and tapestries colored with arsenical colors (Scheele's green, Schweinfurth's green), and experience has repeatedly demonstrated the serious evils that may arise from their use.

But as to the internal mechanism by which the said coloring-matters become hurtful, many doubts remained, and on certain points perfect obscurity. The idea advanced by Selmi met with favor, viz., that poisonous gases may in such cases be produced by the vital processes of microphytes; but in view of the small range of his experiments (some of which gave results adverse to his theory although tried on a large scale) the preference is given, on the whole, to the theory of William Forster. He says that wall-hangings and tapestries containing arsenical colors are poisonous by reason of the solid particles that are mechanically set free from them and penetrate the organism when inhaled in the form of fine dust. The same conclusion was reached by Giglioli of Naples after eight months of experiment on mould-cultures in earths (both solid and broken up in water), mixed with arsenious anhydride; and he explained his ill success by saying that probably arsenic is not compatible with the life of those germs that would be capable of developing hydrogen, and, therefore, the reducing mechanism was wanting.

On the other hand, the partisans of the parasite theory, while they draw from their observations only general criteria, have not been able, thus far, to point out what microorganisms are peculiarly suited to bring about the modifications of substance to which they refer; nor have they determined whether all the compounds of arsenic, or, if not all, which of them are most susceptible of these modifications. Thus, Bischoff relates that it was noticed that from a mixture of flour and common white arsenic (which had been used to poison a horse for purposes of revenge) a gas was developed which had the smell of garlic and the characteristics of arseniuretted hydrogen. But he neither states how it was found

[1] Lecture on our Domestic Poisons, by Henry Carr, London, Health Exhibition Literature of 1884, Vol. IX., p. 189.

[1] This study was communicated in advance to the last Congress of Hygiene, held in London, where the preparations were also exhibited.