

THE PRINTING DEPARTMENT.

NEWSPAPERS WITHOUT INK.

THE recent announcement of a discovery in science that, when improved and developed, may lead to the printing of newspapers without ink, causes an English paper to remark: "Think what it will mean. First, in cleanliness. When printing ink is abolished from the printing office one of the dirtiest parts of the business goes. An even more important cleanly effect will concern the readers of newspapers, for no longer will our fingers be made black and dirty by a copy of the paper hot from the press, on which the ink lies thick. There is no pigment in the new printing.

A further revolution will be caused by the cheapness of the new method. For there is no new expense to correspond to the money which is at present expended on ink and rollers, and those two items are very heavy ones. It is reckoned, too, that printing can be done at much greater speed by the new process, because the type will not have to be covered by ink each time. But how is the paper to be printed without ink? That is the question. The long and short of it is that all paper which is to be printed without ink will have to be treated with special chemicals, and in that lies a fortune for someone. Then an electric current is passed through the type, causing the paper when it touches it to change its color at the point of contact. The effect is practically the same as that produced by the sun on a photographic negative. The paper is made sensitive, and so records any electrically-charged impressions which may be made upon it. In the new printing process there is, of course, no subsequent development, as there is in photography. When the type touches the paper the operation is completed. At present, two colors are obtainable by this process—a black and a brown. Other colors will doubtless be secured in due time. It will not be a difficult matter for the chemist to decide what chemicals will become blue, red, green and so on, when under the influence of electricity. The electric current, it should be said, is connected with the printing-cylinder and also with the form which holds the type. One is positive and the other negative, and the action of the machine completes the circuit at each operation, thus creating "the vital spark" which is to burn up all printers' ink and rollers. It would be of little advantage for a printer to save on ink and rollers if he had to pay more for a specially-prepared paper. But it so happens that the chemicals which are necessary to make printing paper sensitive to an electric current do not add materially to the cost of the paper.

If this method, then, is once proved to be really practicable and adaptable to our great newspapers and weeklies, we ought to see some extraordinary results. Paper for printing will no longer have to be damped, and, as a result, there will be no "set-off"—the wet ink of one sheet will not come off on to another, and make it impossible to read it. Electricity has made many wonderful scores this century, and is "not out" yet; but it seems as if this latest application of the "winged lightning" would be one of its greatest triumphs.

Another invention is also just announced which promises to have equally great results in another direction. At the present

time, if one wishes to print a picture which contains seven colors, the picture has to go through the machine seven times—once for each color. But an ingenious Russian has just made a machine which will print any number of colors at one operation.

PRINTING IN SEVEN COLORS.

In referring to the possibility of printing without ink, a contemporary also refers to the Russian invention of a press for printing seven colors at once. A model of it has recently been set up in London. A representative of The English Stationery Trades Journal says of it: "We saw the press at work recently in London, and it certainly performed its task very satisfactorily, so far as the set of blocks used on this occasion were concerned. We noticed, however, that these blocks were somewhat of a stencil-like nature, in which overlapping colors were evidently avoided as far as possible, and the blocks were engraved, not "processed." What we should have liked to see would have been a set of three or four-color half-tone blocks. It is claimed that there is no doubt about the machine printing such work, but we must reserve our opinion as to the complete merits of the machine until we have seen this performance. Nevertheless, the machine is highly ingenious, and even wonderful, in the perfection of its mechanical arrangements, and we must express our great admiration of the evidently painstaking work of the inventor in bringing a most intricate idea to a successful realization. Briefly described, the printing surfaces are ordinary blocks, but are curved around a large cylinder, and in addition to one block for each color to be printed there is another block, which is simply a plain copper-plate. Each block, after being inked, transfers its impressions to a large composition roller. When this has received all the impressions it transfers the complete color design to the plain plate before mentioned, and this in turn transfers the picture to paper. These operations go on continuously, delivering a colored print about every three seconds. The only doubt we have as to the practicability of the machine is whether wet colors can be printed upon others still wet, a difficulty we referred to last month, but we must say that we can find no fault on this score with the print we saw run off. The sheet is held on the cylinder very securely by a pneumatic gripping arrangement, but it is to be noticed that the accuracy of feeding in the sheets is not of great importance, as the colors are all transferred at one impression. There is no chance of the register being at fault owing to bad feeding, unequal shrinkage of the paper, or any other of the usual causes."

SUBSTITUTES FOR CUT-OUT OVERLAYS.

W. J. Kelly, in The American Pressman, seems to have given the gist of most of the secret overlay processes now in use. The shellac overlay consists of 1 oz. of white lac dissolved in 2 oz. of methylated spirits, forming a pasty mass, which may be reduced to the proper consistency by the addition of 2 oz. of