

the muffle furnace, and to withdraw from the fire an incandescent picture of the most exquisite description, all these appear to be operations of a very delicate nature. Not at all; the whole process is, in fact, perfectly simple. Some study was, of course, necessary to bring out a perfect result in the first instance, but now that the road has been discovered, nothing remains but to follow it. If, therefore, the operator reads this book attentively, and adheres closely to the practical details, he will regularly obtain successful results, provided he always employs good negatives, and, above all, good positives."

"Art must not be confounded with photography. It is unnecessary to be a talented artist in order to produce a perfect enamel; one need merely be a skilful workman. Chemistry controls certain reactions, and even the most ignorant person, endowed with a little taste and patience, may, after a few trials, become a master in the art, and obtain results with which he will be the first to be astonished."

"In photography, the exercise of the mind is unnecessary when working in the beaten track; a certain amount of skill is requisite to give a natural and graceful pose to the model, and to choose a judiciously lighted situation. One ought, besides, to know the value of shadows, and to possess a superficial knowledge of the compounds and mixtures employed, and also to be able to judge of the opacity of a film necessary to produce a good negative. There is nothing else to learn, and when this has been acquired, you are master of the subject. All the rest is mechanical, and the reactions which astonish you so much would be produced without you, or, rather, without your co-operation. It is the same with your heart, that beats independently of your will, and with the crystals which are forming in the saucer under your eyes, and which require no aid from you, for the laws of attraction suffice to bring about the change. We do not mean, however, to deprecate photography, nor those who practise it. On the contrary, this beautiful invention renders every day the most important services. We merely say the truth, that the first comer, without any lengthened tuition, may become as skilful as, or even more skilful than, the most consummate artist; for when the latter employs the camera, he abdicates the kingdom of art, and receives the title of photographer."

"Enamelling is certainly one of the most interesting phases of photography, and the pictures produced by it possess one great advantage over other photographs, viz., that of permanence. All prints produced during this century by means of salts of silver will inevitably perish; but the results obtained by heliography and the enamel process combined are incapable of any alteration. This is the true path whither the amateur and the photographer should bend their steps, and we desire, therefore, to make everyone acquainted with this interesting section of photography, which has hitherto remained the secret of a very few. Several theories of the process have been published, but in a somewhat unintelligible form, and silence has always been preserved in regard to detailed operations which, as in other processes, constitute the whole proceeding, and without a knowledge of which it is impossible to succeed."

"If the ancients had been acquainted with this process, it would not have been so difficult for us to reconstruct history. Medals half devoured by rust have saved the name of many a great man; the lines have altered, although the souvenir remains; but if enamel had been in use, we should have had a likeness, together with the precise date."

"The pictures of the old masters are perishable by fire and by age, and those among them which date the farthest back already require to be retouched; the stained windows of our churches, on the contrary, have retained the original lines and colours which the artist fixed upon them; and the old enamel medallions upon shrines and coffers of the middle ages have lost nothing of their freshness, and still attest the immense advantages possessed by a material unalterable by time. Before the present century it was very difficult, and

within the reach of but few, to reproduce and fix, by burning in, the features of a historical personage, and thus produce an imperishable picture. Besides, those who painted on enamel were generally but little skilled in this kind of work. At the present day, thanks to photography, the question is changed, and it is possible, without difficulty, and even without talent, to fix upon vitreous matter the most striking likenesses, which are alike proof against fire and age."

After entering upon an explanation of the difference between producing monochromes upon enamel and coloured photographs, the latter necessarily requiring the assistance of a skilled painter upon porcelain, the authors conclude by saying:—

"We warn our reader not to pay attention to any directions he may elsewhere receive, or to any objections which may be made to the process we indicate, under the pretext that such and such a photographer operates in a different manner. It is clear that all paths cannot lead you to the goal, but, at the same time, it is perfectly possible to arrive at the same point by different ways. We advise our readers to follow our method, for it succeeds every day in our hands, and we promise them a similar success."

Scientific Gleanings.

A NEW SILVER ORE.—A new mineral, called parizite, was discovered in the district of Mono, California, by Dr. Paris, in 1865; it has recently been analysed by Professor Arents, and yields 6.12 per cent. of oxide of silver. It is found in amorphous masses of a yellowish colour, or blackish, with a conchoidal fracture; its sp. gr. = 3.4; it melts easily to a black slag, and dissolves partially in acids. It contains—

Oxide of antimony ...	...	...	...	47.65
" copper ...	...	...	...	32.11
" silver ...	...	...	...	6.12
" lead ...	...	...	...	2.01
" iron ...	...	...	...	2.33
Water ...	...	...	...	8.29
Arsenic ...	...	...	...	traces.

This important mineral forms nodular masses in layers of one-third to upwards of one yard in thickness, accompanied with silver lead ore.—*Scientific Review.*

THE SOLAR HEAT: HOW TO MAKE THE POT BOIL.—M. Mouchat, who has been experimenting on the utilisation of the solar heat, lately sent a paper on this subject to the Academy of Sciences. He states that, according to his experiments, upwards of three-sixths of the solar heat might be gathered at a small cost. At Paris a surface of one square metre normally exposed to the rays of the sun receives, on an average, at any time of the year, on a fine day, ten units of caloric per minute. Such a quantity of heat would make a litre of water at freezing-point boil in ten minutes, and is equivalent to the theoretical action of a one-horse power. He further states that he had proved the possibility of keeping hot-air machines going by means of solar rays, and had succeeded in making a few litres of water boil by exposure to the same agent; and in June, 1866, he had made a small steam-engine work by converting water into vapour with the assistance of a reflector one metre square.

A NEW REACTION FOR ALBUMINOUS MATTERS.—Herr Froede has recently found a very simple test for the presence of nitrogenous matters, such as albumine, fibrine, caseine, &c. When a solid substance containing such compounds is moistened with sulphuric acid, in which some molybdic acid has been dissolved, they take an intense blue colour. Cereal grains and muscular fibre are very remarkable in this respect.—*Scientific Review.*

CONVERSION OF WOOD SPIRIT INTO SPIRIT OF WINE.—A most important discovery is announced as having been made by Herr Siersch, an analytical chemist at Lemberg—namely, the conversion of methylic into ethylic alcohol; in other words, the transformation of wood spirit into spirit of wine. Up to the present moment we do not know the details of the process, nor whether it can be carried out on a large scale.—*Scientific Review.*

CLARIFYING ACTION OF SULPHATE OF ALUMINA ON TURBID WATER.—Whatever be the nature and quantity of the