

definition; so that the results seen vary very much according to the focus of the glass or to the eye of the observer. This source of error is corrected when the object is exposed to the impartial judgment of photographic delineation. I may mention that among the earliest workers in microscopical photography was Dr. Julius Pollock, son of our esteemed President; and several of the results of his work are preserved in the books on the table.

The value which attaches to the proper rendering of expression and subtle indication of any notable peculiarities in face, feature, or contour, is recognized by all photographers, and has a special bearing on the subject to which I invite your attention. In cases of insanity, photography becomes of inestimable value if, by its use, the characteristic expressions can be so delineated that the student may gather information from studying the resulting pictures.

The late Dr. Conolly, the highest authority on this subject, not only studied attentively numbers of photographs of different forms of insanity brought under his notice, but actually wrote a valuable series of papers, in which the varieties of insanity were described by reference to photographs. These were taken by Dr. Diamond from cases then under his care, and are comprised in the collection now laid on the table for your inspection. I have also placed a work containing a lithograph of one of these cases. It is entirely destitute of all those minute points of expression which alone could give any value to such an illustration; but it was the best thing of its kind, and a comparison of it with the photograph by Dr. Diamond of the same case will indicate, better than words can tell, the great intrinsic value of photography in thus reproducing minute characteristics of expression.

The variation of these in the human face, typifying some kind of mental disorder, requires exceptional skill for its representation. But the variations of form, and character of feature, which constitute the ethnological differences between various races of the earth, can be shown with absolute accuracy by the camera, even in unscientific hands; although here also a delicate appreciation of special characteristics adds greatly to the value of the result. Ethnology is, I need hardly say, an offshoot of medical research, and cannot be thoroughly cultivated without a fair knowledge of anatomy, human and comparative. Very closely akin to medical science is the study of the physical characteristics presented by different races of mankind, and by the various tribes comprised in each race. The obvious distinctions which now make ethnology an interesting study are rapidly losing their significance by the blending of races which ensues with the advancement of civilization. A century hence, the red man of America, the aboriginal Australian, and the pure blooded representative of an Indian caste will probably be a tradition. London Bridge will exist long after the extinction of the Tasmanian tribes; and the only objection to the famous prophetic picture sketched by Macaulay is, that before London is in ruins the race of New Zealanders will be extinct.

The Indian Government (I believe at the suggestion of one of the medical staff) have taken the initiative in providing anthropological science with reliable representations of the physical characteristics which distinguish, often in a very decided manner, the different native castes. The success with which photography is cultivated among Indian amateurs may be estimated from the excellence of many of the photographs which I am privileged to submit for your inspection. The volume contains the first part only of the valuable series. The pictures have been for the most part taken by officers, military and civil, distinguished for their photographic skill. Each was commissioned to illustrate the castes and tribes in his own district; how well "each change of many-coloured life he drew," how valuable is the contribution to ethnology and medical science afforded by this spirited action on the part of the Indian Government, may best be gathered from the volume which is now before you.

REMARKS ON "AIDS TO CLEAN MANIPULATION."

BY ALEXANDER ASHER.*

IN speaking of aids to clean manipulation I propose to confine myself principally to some details of the wet collodion process, mixed with a few stray hints connected with photography that may be of general interest. But I am afraid I can say very little that can be considered at all *new* on the matter, for everything connected in the slightest way with the art of photography has been so often discussed and rediscussed in photographic societies, or through the medium of photographic journals, that it is almost impossible—twist it which way you will—to say anything new on the subject; or, if we do fancy we have discovered some "grand secret," and rush into notice with it, why, in all likelihood, some Mr. Claimeverything new pounces upon us, and offers to prove (and sometimes does it), from indisputable facts or evidence, that he has long since been practising that very same "wonderful discovery" we so fondly imagined to belong to ourselves, and through the promulgation of which to the photographic world we hoped to attain such great fame, and perhaps be looked up to as a benefactor by our brethren of the "black art." At the same time, all honour is due to those experimentalists who devote much time, labour, and expense in their endeavours to extend the capabilities and usefulness of the photographic art, which, associated with artistic taste and judicious management, has a power that will triumph in any field it is applicable to be employed in.

In this paper I do not intend to say anything on apparatus, or much upon processes of any particular description, but simply to try and state, in as few words and plain a manner as possible, what seems to me really necessary to aid us in securing clean and brilliant pictures; and although I have nothing brilliantly original to offer you in these remarks, they may be of some service to the young practitioner of our favourite art, and perhaps serve also as a refresher to those of us who may be disposed to style ourselves "veterans" in the service. A photographer desirous of securing the best results will have his mind unshackled by any doubts as to the faithful performance of any of his chemical solutions, by personally attending to all the petty details of his process, and seeing that everything is in proper order for the successful manipulation of his pictures, before attempting to take a negative of any description; and by so doing will be able, at the proper time, to give more attention to the artistic element of his picture; a most important point, and one that too often fails to receive that careful study and attention so necessary to constitute a really perfect picture.

In the so-called "dark-room" there should be plenty of light (of the right sort), and so we avoid many blunders caused by attempting to work literally in the dark. I am sure you will all agree with me that the dark-room should be as large and lofty as space or circumstances will allow. Many professional photographers have suffered in their general health and from special maladies, the effects of being immured for hours daily in small and ill-ventilated dark-rooms, which are not only prejudicial to health, but have many drawbacks to clean manipulation. A good dark-room will, therefore, be provided with suitable means of ventilation, and also for securing a moderate degree of heat throughout the room during the winter months. Gas stoves in dark-rooms should be avoided as an abomination, and they are by no means a friend to aid in securing clear pictures, a hot water system—when practicable—being decidedly the best and cleanest, if not the cheapest, in the end.

In the selection of glasses for negatives, preference is generally given to patent plate, as being freest from scratches, blobs, and inequalities of surface, very important for small

* Read before the Edinburgh Photographic Society.