

collected from a non-luminous gas-flame, in which the most perfect attainable combustion takes place, has since been found to contain more dust particles than that from any other source.

The method of testing by which our most recent knowledge has been obtained, is due to the genius of Mr. Aitkin, and is characterized not only by the most remarkable accuracy but by the greatest simplicity. It is well known that mists and fogs are produced by the condensation of moisture on minute dust particles, and it was known at least a century ago that a fog is produced by saturating air with moisture and then partially exhausting it under the receiver of an air pump. This exhaustion cools and also supersaturates the air, and the separated moisture, instead of appearing as dampness on the sides of the receiver, condenses on the dust particles as a fog or mist.

Under ordinary conditions a fog is produced, the individual particles of which are so small as to remain suspended for a considerable time; but when the number of dust particles is small, and the moisture is, therefore, deposited in larger amount on each individual, a kind of "Scotch mist" is formed, which settles as a fine rain on the bottom of the receiver. By counting the number of the rain drops which fall, the number of dust particles may be ascertained—in fact, this method of operating bears some resemblance to that of Hesse, already described.

Mr. Aitkin arranged a graduated plate of polished silver at a known distance from the top of the receiver, so that the number of drops falling upon a given area, as ascertained by means of a magnifier, would indicate the number of dust particles in the column of air above it.

As the particles are usually so numerous as to produce a true fog whose settlement in drops would take an indefinite time, it is usual to mix the air to be tested with a large proportion—often two hundred times its bulk—of air which has been freed from dust by filtration through cotton wool. By proper "dilution" with pure air a mist may be produced whose individual particles rapidly settle and are not too numerous to be counted.

In one series of experiments Mr. Aitkin found in the open air 2,119,000 particles per cubic inch in fine weather, and 521,000 after much rain. In air collected at random in a room where gas was burning, 30,318,000 particles were found, while in air drawn from near the ceiling, over 80,000,000 were found. Air collected from a non-luminous gas-flame, in which combustion is more perfect than in a luminous flame, contained no less than 489,000,000 particles per cubic inch! These cubic inches of such air may be said to contain roughly as many particles as there are inhabitants on the earth.

On the other hand, the air on Ben Nevis, the purest air examined, contained only an average of

113,000 particles, the maximum in the summer and autumn.

So far as the writer is aware, no analysis has been made of the particles deposited from the air in these tests, but an examination of the dust which formed the nuclei of snow crystals and deposited itself upon the surface of snow on the great St. Bernard (over 8,000 feet high) has shown the presence of silica and magnetic particles containing iron. This and other evidence points to the probability that atmospheric dust is largely of volcanic and meteoric origin, and when we remember the extraordinary effect which the Krakatoa eruption produced on the sunsets even at enormous distances, there appears to be considerable evidence in support of that view.—*Phar. Jour.*

STERILITY.

This patient brings to your notice a complaint for which your advice will be often sought in private practice. She is twenty-four years old, has been married four years, and has never been pregnant. The reason for this has been differently explained to her, she informs us, at the two hospitals at which she previously attended. There can, however, be little doubt, when we examine her, that the condition which is at fault is that which is one of the most common causes of congenital, as opposed to acquired, sterility. You find that the cervix is long and conical in shape; it appears to be just within the vaginal orifice, and there can be no doubt that this condition, which in this case is also accompanied by an equally important obstruction of the cervical canal, is the cause of her complaint. The condition is, of course, congenital, and is due to the abnormal development of the cervical part of the uterus to the detriment of the proper development of the body of the organ. It is most commonly associated with some thickening or constriction of the cervical canal, and in this instance, you observe that when I draw the cervix outside the vaginal orifice—as you see I can easily do by means of this blunt hook—it is impossible to pass through the cervical opening even the smallest metal sound. Indeed, you observe that I can only pass this ordinary probe through the cervix with some difficulty, and the stenosis of the canal which therefore exists is in itself a simple mechanical explanation, as I will hereafter point out to you, for the occurrence of the sterility. But, in this instance, now that the cervix is in view, you observe that the tissue is congested and granular—a condition which probably has been caused by the unfulfilled function of conception, and the consequently unsuccessful irritation to which the cervix has been exposed. Now we will allow the cervix to retract itself to its normal