Cloud Forms.¹

By CAPT. C. J. P. CAVE.

MOST writers on clouds put forward their own system of classification, much to the confusion of the subject; Mr. G. A. Clarke is

cumulus, some giving details of structure, and some whole skyscapes of these the most beautiful of all the forms of clouds. Very

FIG. 1.—Lenticular cirro-cumulus at sunset. From "Clouds."

therefore to be congratulated on adhering to the international classification in his recently published book. He says that even to divide the recognised types into sub-types makes the classification unwieldy, and is open to the objection that, "particularly in the case of the cirrus . . . one sub-type may be transformed into another and then perhaps return to its original form all within the space of a few minutes." He even suggests that any change should rather be in the direction of further simplification. In chap. ii. the international classification is given in full, so that for English readers Mr. Clarke's book may well supersede the Cloud Atlas, for the former contains all the essentials to be found in the text of the latter, and the illustrations cannot for a moment be compared. Where the atlas gives a few illustrations, some very indifferent, of each type, Mr. Clarke gives numerous examples that for variety, wealth of detail, and excellence of production easily surpass previous pictures.

There are many plates of cirrus and cirro-

noticeable is the plate of cirro-stratus, "a thin whitish sheet of clouds," and therefore very difficult to depict satisfactorily. Mr. Clarke has carefully studied lenticular clouds and gives many examples, while in the text will be found a discussion of these extremely interesting and hitherto rather neglected forms of cloud; an example, perhaps the most striking photograph in the book, shows such a cloud with its front edge lit up by the setting sun, while part of its under surface, also in sunshine, is broken up by a double set of ripple marks (Fig. 1). There is no doubt that the cloud sheets have been rendered by Mr. Clarke better than has been done in any previous publication; but some of the photographs of cumulus leave something to be desired, chiefly owing to the use of a lens of too narrow an angle

for the size of the clouds; pictures of cumulus gain in effect if the main cloud does not fill up the whole of the picture. The most remarkable

FIG. 2.—Rainbow on screen of rain falling in middle distance. From "Clouds."

plate in the whole book from a photographer's point of view is that which shows a rainbow on the shower from the base of a cumulo-nimbus cloud (Fig. 2); to show a rainbow, three super-

¹ "Clouds." By G. A. Clarke. Pp. xvi+136+40 plates. (London: Constable and Co., Ltd., 1920.) 21s. net.

numery bows, a secondary bow, and the lighter space inside the primary bow requires a photographic technique of a high order. It is with regret that we miss a chapter on cloud photography from the hand of such a master. Everyone has a slightly different technique, but Mr. Clarke unfortunately gives no hint of his own methods. The series of plates ends with some fine photographs taken by Capt. C. K. M. Douglas from an aeroplane.

There are also several coloured plates and drawings; the frontispiece is a delightful coloured sketch of a beam of a searchlight revealing two layers of fine condensation before striking the main cloud sheet; it vividly recalls a phenomenon which must have been noticed by many meteorologists during the war. Another very beautiful plate shows a halo, sun pillar, mock sun ring,

and two arcs of contact. The four sketches showing stages in the history of a line squall cloud are interesting as diagrams; but as pictures they make the clouds look too solid.

If more notice has been taken of the plates than of the text, it is because they form the most striking part of the book; but the text contains much interesting matter. Cloud forms are described, and use is made of recent researches into upper-air temperatures in explaining cloud phenomena. There are chapters on cloud distribution, and the association of cloud forms with weather types. Mr. Clarke has produced a standard book on cloud forms, not only for the meteorologist, but also for the general reader, who will surely find it an incentive to a further study of the weather. Author and publishers are to be congratulated on the excellence of the work.

Unveiling the Senussi Shrines.

By ARTHUR SILVA WHITE.

THE story of Mrs. Rosita Forbes's journey to the oasis of Kufra, situated in the heart of the Libyan Desert, constitutes the "something new out of Africa" of which few vestiges remain to be revealed. The three instalments recently published by the *Times*, under the title of "Secrets of the Sahara," contained the latest, and in some respects the only, information from a locality in the Libyan Desert unexplored since the visit of Gerhard Rohlfs in 1879.

Rohlfs made two attempts to reach Kufra. On the first he was turned back (although travelling under the protection of a *firman ali* of the Sultan of Turkey) from Aujila and Jalo because the Mojabra (slave traders) refused to give him a guide without Senussi's consent; and on the second attempt, when he succeeded in reaching Kufra, he was made captive and barely escaped with his life. Where Gerhard Rohlfs failed, and found no European successor for forty years, Mrs. Forbes has succeeded; but, it is to be noted, the reason for this remarkable achievement is to some extent explained by the total change of circumstances. In the interval between the two adventures, the Great War has resulted in the military conquests of France and Britain in that region of Africa and in the overthrow of the Senussi domination. Moreover, Mrs. Forbes had the supreme advantage of entering Libya at the psychological moment of complete accord (the ratification of a treaty) between Italy and the Grand Master of the Senussi Confraternity, whose personal support she obtained, and of travelling, not as a European, but as a Moslem in the interests of Islam—that is to say, practically as a Moslem convert or Senussi propagandist, since the Senussi commonly employ women in that capacity. That Mrs. Forbes could have kept up

this disguise through all the vicissitudes of travel and the dangers encountered is in itself one of the stories out of Africa which deserve to be remembered.

Mrs. Forbes, accompanied by Ahmed Bey Hassanein, an Egyptian (son of Sheikh Mahamed Hassanein el Bulaki, a professor at El Azhar University), started from Benghazi, the maritime terminus of the ancient trans-Saharan caravan route, and rode eighty miles south to Jedabia, where the desert journey began. Here she was hospitably received by Sidi Rida (brother of Sidi Idriss, the Sheikh es-Senussi or Grand Master), who made himself responsible for her caravan. But the usual delays, leading to divided counsels among the Senussi brethren (Khuan), necessitated a midnight flight in Bedwin disguise without a guide. After wandering round Jedabia for three hours, the fugitives found themselves only one mile away in the open desert when day dawned. Riding south for two days, accompanied by two trusted Senussi, they were joined by two black soldiers unprovided with rations. The party, numbering six, were saved from starvation by meeting with a Mojabra caravan, and together they travelled by short stages to the oasis of Aujila. Here they were caught up by the caravan prepared by Sidi Rida, who sent also a letter of introduction to the Kaimakam at Jalo, near by, the gate of the Libyan Desert.

The caravan, now fully organised, comprised eighteen camels, nine black servants, two slave-girls, a guide (Abdulla el Zawia), three Bedwin, Ahmed Bey Hassanein, and Sitt Khadija—"a Moslem of half English, half Egyptian blood"—otherwise Mrs. Rosita Forbes. For so large a party eighteen camels were far from adequate, especially as these were in bad condition, for a