

upon gaseous bodies; M. Dauzère, 2000 francs, for his work on the cellular vortices of Bénard; M. Gard, 2000 francs, for the publication of a work and atlas dealing with the material left by the late M. Bornet; M. Chevalier, 4000 francs, to meet the expenses necessitated by the classification of the botanical material collected in the course of his travels in western and equatorial Africa, and the publication of memoirs on the flora of these regions; Paul Becquerel, 2000 francs, for the continuation of his physiological researches relating to the influence of radio-active substances on the nutrition, reproduction, and variation of some plant species; Le Morvan, 4000 francs, for the completion of his photographic atlas of the moon; M. Pellegrin, 2000 francs, to aid him in the pursuit of his researches, and to publish his work on African fishes, more particularly those of the French colonies; M. Rengade, 3000 francs, for his proposed systematic examination of mineral waters for the presence and distribution of the rare alkaline metals; M. Alluaud, 3000 francs, for facilitating the study and publication of documents collected by M. Jeannel and himself on the alpine flora and fauna of the high mountainous regions of eastern Africa; M. Lormand, 2000 francs, for the purchase of a sufficient quantity of radium bromide to undertake methodical researches on the action of radio-activity on the development of plants; A. Labbé, 2000 francs, for the study of the modifications presented by various animals passing from fresh to salt water or the reverse; de Gironcourt, 3000 francs, for the publication of the results of his scientific expeditions in Morocco and western Africa; M. Legendre, 3000 francs, to assist him in the publication of the maps and documents dealing with his travels in China; H. Abraham, 2000 francs, for the determination, with Commandant Ferrie and M. A. Dufour, of the velocity of propagation of the Hertzian waves between Paris and Toulon.

THE EDUCATION OF EUROPEANS AND EURASIANS IN INDIA.¹

THE reality of the problem dealt with in the report before us calls for no demonstration. The Hon. Mr. Madge, himself a member of the community, as also of the conference which, at the invitation of the Government of India, met at Simla in July, 1912, was stating a sober fact when he said on that occasion that to his community education was a matter of life and death.

The problem has been said to have two phases, of which one is concerned with the future of the lower stratum of the Eurasian community—the crux of the half-caste question at its worst. The problem in its other phase does not necessarily involve the difficulties inseparable from mixed descent. Undoubtedly every European resident in India is anxious to send his children "home" for at least a part of their education, but there is a substantial and increasing body of Europeans in India who must educate their children there. It is in this body that this phase of the problem centres. Dr. Graham, of Kalimpong, once wrote that one of the saddest experiences was to trace the gradual downcome, generation by generation, of the descendants of men who had helped to build up the British Empire in India.

The more specifically Eurasian problem is clearly not yet solved, for Sir Harcourt Butler, the President, told the conference that according to the best calculation available there were some 7,000 children who were receiving no education, and a Roman Catholic priest stated that there had been recently 134 appli-

¹ Report of the Conference on the Education of the Domiciled Community in India, Simla, July, 1912. Pp. iv+202. (Calcutta: Superintendent Government Printing, India.) Price Re. 1 or 1s. 6d.

cations for four vacancies in a Roman Catholic Orphanage. Compulsion was discussed, and, though the President made it quite clear that Government had no present intention of legislating to make attendance at school obligatory—the administrative difficulties involved would be very great—the conference passed a resolution pressing upon Government its opinion that the introduction of compulsory education was necessary to secure that certain classes of the community attended school, adding that it was recognised that this would involve the introduction of free education for all who could not pay fees.

The report shows that the conference realised that the solution of the second of the two phases of the problem lies primarily in the provision of efficient secondary schools, as such institutions are defined in the regulations of the English Board of Education, and now generally understood in this country, but the somewhat nebulous discussion which took place on the grading of schools suggests that those who in India are tackling the problem would be well advised to define more exactly the terms, such as "elementary," "secondary," and "collegiate," which are now becoming current there.

The European schools in India are provided and maintained by the denominations, the local governments assisting with grants and generally supervising the working of the system. This system will, and should, remain, for Government could not possibly undertake the task, and it is a mere waste of time to make vague proposals for Government schools. If, however, there is a danger to which the present system is prone, it is to be found in the tendency to attempt in a considerable number of schools work which could be done more efficiently in a few. The difficulties resulting from this quite natural tendency would decrease if there was less confusion as to the respective functions in the community of the elementary and the secondary school. It may be, as was suggested at the conference, that there is no place in the domiciled community for merely elementary education, though with 7000 children without any education at all this sentiment would seem to savour somewhat of aspiration.

In England we are beginning to appreciate the utility of teaching a child certain rudiments and then at the age of fourteen setting him adrift to find for himself. It is one thing to admit this; it is quite another thing to proceed as if it were within the scope of practical politics that every child should go through a secondary-school course, and to belittle in consequence the function of the school of the higher elementary type. The value to the community of a particular type of school does not depend upon the name by which that type is designated, and as one member of the conference pointed out, no one type of school is really higher than another. If one of the results of the recent Simla conference is the elimination from the minds of managers of the sway of "motives of fictitious prestige," a real advance will have been made.

THE MOUNT WILSON SOLAR OBSERVATORY.

THE Mount Wilson Observatory received from the Carnegie Institution of Washington the grant of 254,075 dollars, or 50,815*l.*, for the year 1912, for construction investigations and maintenance, and the report of the director shows the magnificent way in which this great sum is being utilised. It is impossible in a short note to give an adequate account of the very admirable report of the director, which covers forty-one pages of very condensed matter. On

the first page Mr. Hale modestly states, "among the results of the year's work the following may be mentioned," and then he follows this with brief paragraphs, *thirty-five* in number, each of which is a piece of valuable research work far-reaching in its aim and an important thread in the web which comprises the complete knowledge of stellar distribution and development. Some of the results of these researches have been published in *The Astrophysical Journal*, and received notice in our astronomical column.

The past year has marked the completion of the 150-ft. tower telescope, and great things are expected of it in the future. The work so far done with it has proved that it is perfectly stable and on no occasion has trembling of the image been recorded. It may be mentioned here, and it is not generally understood, that the girder work forming the visible tower is really in duplicate, each girder containing another one inside completely independent of it, and not touching it, and thus forming a complete second but invisible tower. The outside girder work is thus designed to protect the inner one from vibration caused by the wind. The cœlostat and secondary mirror placed at the top of the tower are fixed to a

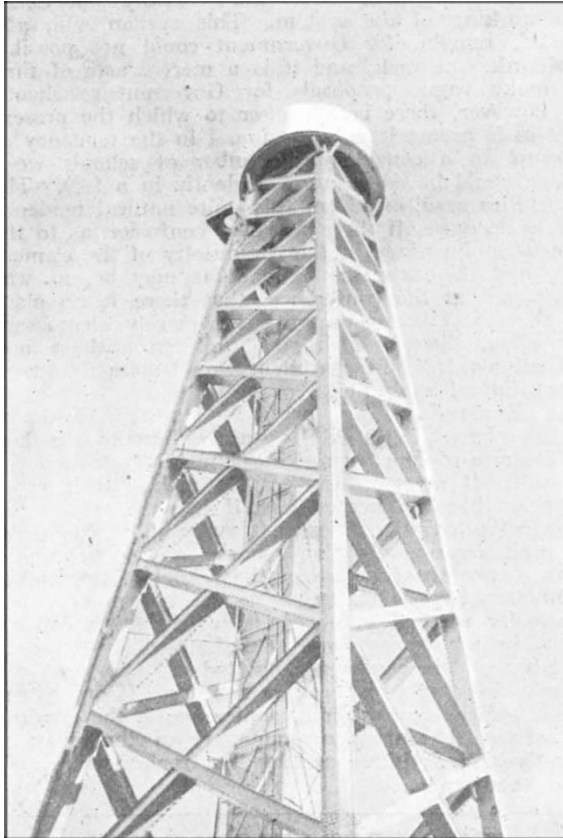


FIG. 1.—The tower telescope as seen from immediately below, showing the platform and dome at the top.

platform resting on the inner tower. The definition of the solar image is stated to be better than that of the Snow telescope after the early morning hours in consequence of the protection of the beam. In our astronomical column for March 20 a statement was quoted from *The Observatory* for March that the 100-in. mirror, when tested, was found to be probably useless. Mr. Hale, in his report, states that the tests

indicate that it may become necessary to discard the disc, but in a footnote adds that "since the above was written. . . There is now every reason to believe that the present mirror will prove suitable for use in the telescope." It may be that the information in *The Observatory* refers to a further examination subsequent to the footnote. The 60-in. reflector has a very large programme of work allotted



FIG. 2.—The observing house is directly below the tower and above the spectroscopes, which are situated in a deep vertical pit in the mountain.

to it, and mention is made that Prof. Barnard would prefer it for visual work on the planets to any of the large refracting telescopes with which he is familiar. This report will be a revelation to those who work at astrophysics or solar physics this side of the Atlantic, and will probably make some workers very down-hearted when they compare their own means of research with those available at Mount Wilson.

CHEMIO-THERAPY.¹

IT must be a great pleasure and a special honour for all of us to meet here personally on British soil for a scientific purpose, in order to take part in the great work which will be of benefit to the whole world. Are we not here in a country that has produced two men who must be considered among the greatest men of all times, Jenner and Lord Lister? Like a star in the darkness of his age, Jenner's great achievement, which broke the power of such an awful public plague as smallpox, still shines with peerless splendour. And on the occasion of the last congress which was held here we gathered with wondering admiration round Lord Lister, who through his introduction of antiseptics brought about a revolution in surgery which stands alone in the history of medicine. Here in England the first example of a modern Institute for Tropical Diseases, which is a model for

¹ From an address delivered before the seventeenth International Congress of Medicine at London on Friday, August 8, by Prof. Paul Ehrlich.