of tons. The amount that could be gathered at such times is practically unlimited. As railroads now touch the shore of the lake, the problem of supplying this salt to manufacturers is simplified.

The Soda Lakes, situated on the Carson desert, Nevada, about fourteen miles east of Wadsworth, have already been utilized as a source of sodium carbonate, which is being shipped to San Francisco. These lakes occupy the craters of extinct volcanoes, and the mineral matter they contain has been derived mainly from the leaching of the lapilli and lacustral deposits surrounding them.

Mono and Owen's lakes are now quite accessible by rail, and are capable of furnishing immense quantities of sodium sulphate and carbonate. From data obtained during a recent survey of Mono Lake, it has been estimated that it contains,

Potassium chloride (KCl).....	8,998,856 tons.
Sodium chloride (NaCl).....	73,524,285 "
Sodium sulphate (Na_2SO_4).....	40,636,089 "
Sodium carbonate (Na_2CO_3).....	78,649,194 "
Total of salts in lake.....	209,233,488 "

It has been estimated by Dr. Oscar Loew that Owen's Lake contains about twenty-two million tons of sodium carbonate, and a little less than one-third of this amount of sodium sulphate.

Summer and Abert lakes, situated in southern Oregon, are remote from railways, but are extremely valuable brines on account of the potash salts they contain. These lakes occupy depressions in the bed of an ancient lake of large size, now nearly desiccated, and are very similar in character. Abert Lake alone has been analyzed, but it is probable that its companion has nearly an identical composition. Abert Lake is about fifteen miles long by five miles broad, and has an average depth (varying with the seasons) of approximately ten feet. Summer Lake is perhaps a third larger, and is also shallow; but its average depth is unknown. The percentage of potassium salts in Abert Lake is greater than in any other lake the composition of which has been published, amounting to five-sevenths of the total of solids in solution.

With these abundant resources at hand, the alkali industry of the far west unquestionably has a great future; and it is to be hoped that it will soon receive the attention that its importance demands. I. C. RUSSELL.

CHOLERA MORTALITY IN EUROPE DURING 1885.

CHOLERA as an epidemic has now for some time almost entirely disappeared from southern Europe, and hence the following results of the serious outbreak of the past year, from the *Lancet* of Dec. 26, will be of interest: From the mainland no further record of cholera is forthcoming; but in the Christina Islands to the south, near the mouth of the Guadiana River, recurrences of the disease are still said to take place. The actual number of deaths recorded in the provinces and cities named is less than that which really occurred; for the official lists were not published with sufficient regularity to insure accurate records day by day, and outbreaks in some localities were never announced at all. The following is the list of places attacked, with their respective cholera mortalities; the capitals of the several provinces being, except where otherwise noted, included for statistical purposes within their provinces: —

Locality.	Deaths.
Province of Castellon..	4582
" Valencia..	13400
" Madrid....	2228
" Murcia....	3580
" Saragossa.	10954
" Cuenca....	2877
" Alicante ..	4361
" Toledo....	2289
" Teruel	4932
" Tarragona.	1258
" Albacete..	2047
" Jean	1398
" Badajoz...	337
" Segovia..	351
" Cadiz	368
" Granada...	9162
" Cordova. .	825
" Almería...	2514
" Malaga....	635
Province of Zamora....	451
" Soria.....	521
" Ciudad Real	905
" Barcelona.	791
" Lerida	821
" Gerona....	215
" Navarre...	2691
" Valladolid	1482
" Guadalajara	261
" Logroño...	541
" Burgos....	199
" Huesca ...	69
" Palencia...	374
" Santander.	194
" Salamanca	84
Aranjuez, pr. of Toledo	835
Gibraltar (English).....	24
Gibraltar (Spanish lines)	191

In France the disease was all but limited to Marseilles and Toulon, and to scattered cases in the south, until November, when an outbreak occurred in Brittany, Brest and its immediate neighborhood being affected. The total cholera deaths at Marseilles were just short of 1,000, and at Toulon just short of 200. The number at Brest has not been made known. In Italy only scattered cases occurred at several places on the mainland; but in the city and province of Palermo, in the island of Sicily, a considerable epidemic occurred, the total mortality there reaching at least 2,430. There was also a rumor of cases as late as the present month in the province of Venice.

BURMAH, PRESENT AND FUTURE.

MR. HOLT HALLETT, in a recent address before the London Society of arts, on 'Burmah,' said: In these days, with foreign competition getting keener every day, and hostile tariffs not only shutting the Europeon markets against us, but in a lesser degree American and English colonies also, with the race for fresh colonies and new markets among European powers, it is of importance that we should avail ourselves of our present opportunity for an inland connection and

commercial alliance with Indo-China and China, and thus acquire new markets of transcendent promise.

Burmah and the Burmese Shan states are highly favored by their geographical position. They lie in the course of the monsoons, and are gifted for the most part with a plentiful rainfall.

The Irrawaddy is a river which discharges about 420,000,000 metric tons of water during the year. The river is about 900 miles in length, the last 240 being in British territory. As far south as Akouk-toung its bed is rocky; farther down it is sandy and muddy. New sand-banks are continually forming, and old ones being removed, which renders it necessary for the steamers plying between Rangoon, Mandalay, and Bhamo, to have a service of pilots upon the river. In the rainy season, steamers and large boats enter the main river from Rangoon by the Pan-Hlaing Creek; but during the dry season they have to descend the Rangoon River for some distance, and proceed by different routes into the Irrawaddy.

The Khyeng-dwen is navigable for the largest boats plying on the Irrawaddy, and for steamers certainly as far north as Kendat, and most likely as far as the rapids which occur a little above the junction of the Ooroo River. A great deal of grain is grown in the lower portion of Khyeng-dwen valley, and likewise in that of the Ooroo, near the sources of which are the serpentine mines. The lower portion of the river passes through a broad, populous, and fertile champaign, and presents an almost continuous horizon of palmyra-groves, always in Burmah a sign of population and culture. From these there is a considerable manufacture of palm sugar. The sugarcane is generally used by the Burmese merely for munching; but, according to Colonel Yule, a little sugar is made from the cane in the neighborhood of Ava.

Bhamo, on the course of the Irrawaddy, is the entrepôt of trade for north-western Yunnan, and will certainly become under our rule a place of great importance, as it is the terminus of the shortest caravan routes into western China. For some time it was proposed by many of our officials to improve the caravan route by the construction of a wheeled road, and even a railway; but subsequent explorations have shown that although Bhamo, which is 430 feet above sea-level, is only 250 miles distant in a direct line from Talifu, yet a railway would have to be 600 miles in length to connect these places. The cost of a railway connection by this route would be at least four times as great as that proposed by Mr. Colquhoun and myself, which, besides, has the great advantage of terminating at a seaport instead of at a town 840 miles up a river, of opening up the whole of central Indo-China, and of passing through a much more fertile and better populated region than would be traversed by the other route. Bhamo will no doubt, before long, be joined by rail, *via* Mandalay, to our Rangoon and Tounghoo railway, and subsequently to the Indian system at Dibrugarh; thus tapping the whole of the passes leading from the west of the Shan states, and completing one of the schemes long ago proposed by my colleague and myself.

The inhabitants of Burmah, owing to the excellence of the climate, are robust and healthy looking. They attain the average length of human life, and children especially thrive in the country. The registration returns show that in Burmah the deaths of children under five years of age are in the proportion of 27 to 85 of the total deaths at all ages, whereas in England they are 40 per cent. Concerning the characteristics and peculiarities of the Burman, much need not be said. His virtues, which are many, and his failings, which are not a few, are much the same here as in every part of his extensive country. He here, as elsewhere, displays much spasmodic energy and general laziness; much love of feasts and shows; much disregard of the sacredness of human life, and much tenderness for the lives of inferior members of the animal kingdom; much arrogance and inconsiderateness when placed in high position; and last, though not least, much general truthfulness, and, among unsophisticated villagers, the very un-oriental trait of being quite unable to tell a specious falsehood, — a trait which is as honorable to himself as it is agreeable to those who have the government of his country. His occupations are cultivation on a small scale and petty trading. Actual poverty is almost unknown, but riches are never accumulated. The Burman is strongly distinguished from the Indian races by his love of sport and amusement, and his strong turn for the ridiculous. The Burman is in every way a marked contrast to the Hindoo. Their women-folk mix freely in all social gatherings on perfectly equal terms, and form a very important factor in society.

Proceeding to speak of British Burmah, Mr. Hallett said that only one-half of the area of that country is culturable, and only one-seventh of that half is under cultivation. Taking the present population at 4,000,000, there is room for 24,000,000 more without overcrowding the province. Even now about 1,000,000 tons of rice are exported every year, after feeding the population, cattle, and elephants.

It is therefore certain, that, if all the reclaimable waste lands were brought into tillage, Burmah would be unrivalled as a granary. The population of British Burmah has increased from 2,747,141 in

1872, to 3,736,771 in 1883. Trade has more than kept pace with the advance of population and revenue, as the following figures will show: In 1874 the imports were £1,859,095, and in 1883, £3,772,887. In 1874 the exports were £3,480,407, and in 1883, £7,039,525. The relative increase of the imports is somewhat greater than the increase in exports; but, with the balance of trade so strongly in favor of the province, its capacity as a consumer of British manufactures is very imperfectly measured by the actual value of the imports. Again: the comparatively small amount of those imports demonstrates conclusively that upper Burmah has acted as an effectual and insurmountable barrier between the port of Rangoon and those illimitable commercial requirements of western China and the Shan states which it has been the hope of the government and merchants alike to ascertain and to satisfy. Rice represents 80 per cent of the total exports. The other chief exports are teak, cotton, jade, petroleum, spices, tobacco, hides, horns, ivory, India-rubber, shellac, cutch, and drugs. Of these, teak forms 7 per cent of the total exports, and cotton 2½ per cent.

The statistics of the province show that one of the chief wants is population, — a want which our connection with India and China would make it easy for Madras, Bengal, and China to supply, thus adding materially to the producing capacity and general prosperity of the province.

SOME RECENT TEXT-BOOKS ON METHODS IN MICROSCOPIC ANATOMY.

THE rapidity of the improvements recently made in methods devised for carrying on all kinds of zoölogical investigations has resulted in the establishment of journals largely, or even exclusively, devoted to the diffusion of information in technic. The amount of valuable experience already acquired over a field much broader than that covered by the older text-books on histology has rendered it imperative that the sources of this widely scattered information should be systematically reviewed with the purpose of collecting its important and really valuable elements, and putting them into a shape convenient for use both by beginners and by such investigators as are wise enough not to waste time by remaining content with the scanty methods and appliances of twenty, or even ten, years ago.

The value of the text-book which summarizes the present acquisitions in this field will depend upon several things, but principally upon the critical knowledge and experience which its author brings to bear on the selection of material, and the method of treating his subject.

Since the publication of the first part of Fol's 'Lehrbuch der vergleichenden mikroskopischen anatomie,'[1] in 1884, there have appeared several books having this general purpose in view. The immediate aims of the three mentioned below[2] are not quite identical: each fills a place not fully occupied by either of the others. The first is primarily intended for the beginner, to whom sources of difficulty and their remedies are explained; the third, while intended first of all for 'the instructed anatomist,' also aims to be of use to the beginner; the second takes a middle ground between the other two, in that it does not aim to be 'an exhaustive treatise of the subject in any of its aspects,' but endeavors to meet 'the every-day needs of a zoölogical laboratory.'

In a small pamphlet of about forty pages, Kükenthal has brought together concise practical directions covering the more important of the recent technical methods employed by zoölogists. The statement in the preface that this little book contains nothing essentially new is realized. At the same time, it meets very satisfactorily the needs of a beginner: for the selections made are, on the whole, judicious; and the descriptions, though brief, are intelligible and to the point. About one-third of the book is devoted to the processes (illustrated) of embedding (chloroform-paraffine), sectioning, and affixing sections; but the space devoted to embedding in gum, albumen, and celloidin, is too brief to be of much service. Its compact and unpretending form puts this little pamphlet within easy reach of every beginner, and those to whom German is no impediment will find it serviceable.

Whitman's work is an immediate outgrowth from his editorial labors, in connection with the department of microscopy in the *American naturalist;* but it is much more than a compilation of matter already published there. Although the book is called '*Methods* in microscopical anatomy,' etc., its scope is somewhat broader than that of the two other works, for '*material* and *methods*' sums up the author's view of the needs of the zoölogical laboratory; and upon both points he aims to be of service.

Part i. deals with general methods, which are

[1] For a review of Fol's book see *Science*, vol. v. p. 510.

[2] *Die mikroskopische technik im zoologischen praktikum.* Von Dr. WILLY KUEKENTHAL. Jena, *Fischer*, 1885. 16°.

Methods of research in microscopical anatomy and embryology. By CHARLES OTIS WHITMAN. Boston, *Cassino*, 1885. 8°.

The microtomist's vade-mecum; a hand-book of the methods of microscopic anatomy. By ARTHUR BOLLES LEE. Philadelphia, *Blakiston*, 1885. 12°.