reason it cannot become a universal economic system. The same human nature that interferes with so many other beneficent schemes, interferes with this. "Co-operative concerns fail because of a failure to co-operate," is the universal verdict.

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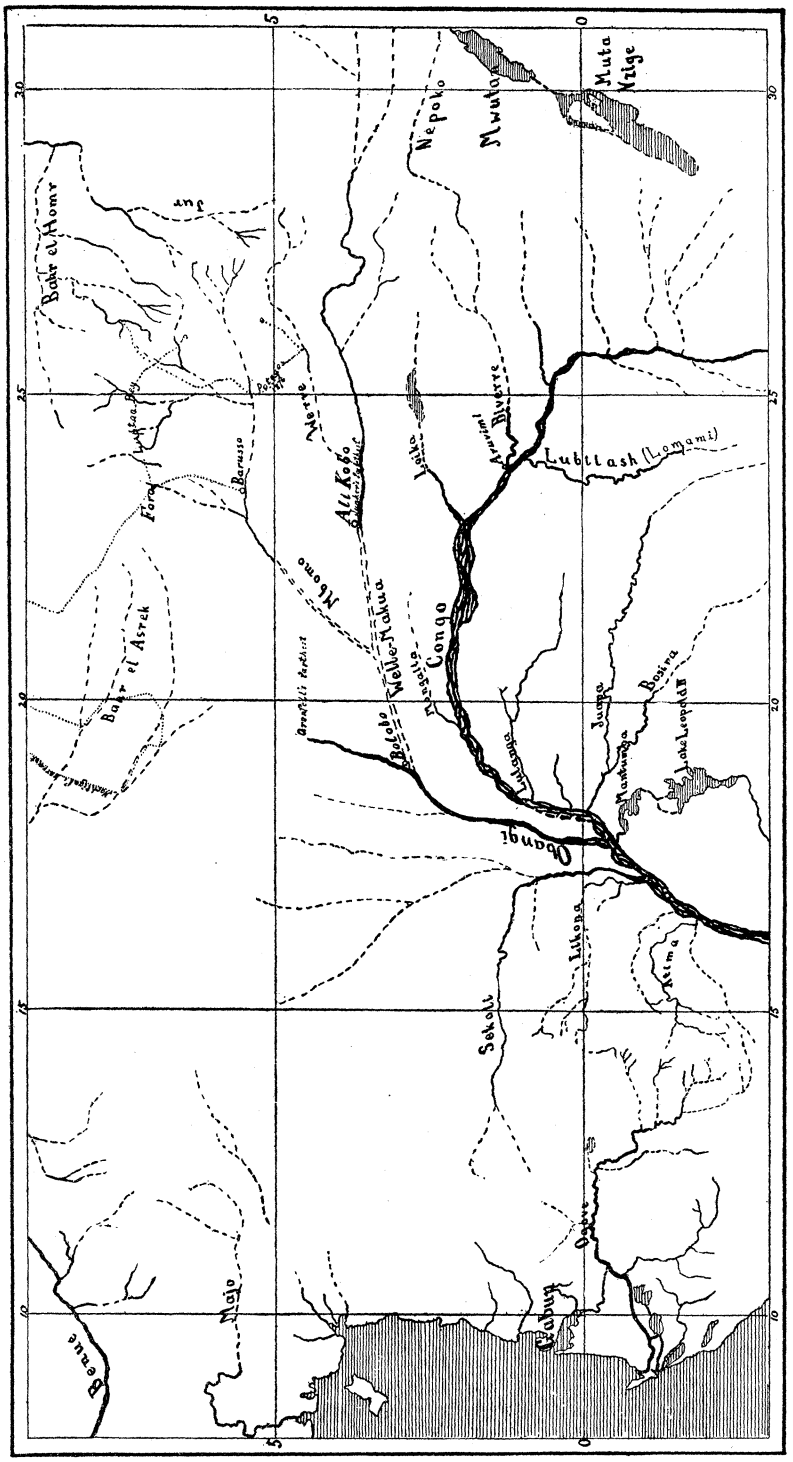
It is but fair to point out that the data gathered from the latter part of the period of which Mr. Bemis writes, are more favorable to co-operation. Increased experience may have something to do with this. From the tables compiled by the author, it appears that productive co-operation in twenty companies in New England shows a business of $1,000,000 a year; co-operative stores have a trade of over $1,750,000; co-operative creameries do a business probably of $1,000,000; and about $3,250,000 are invested in co-operative banks. So that, apart from co-operative insurance companies, the annual business of the co-operative companies of New England amounts to about seven millions of dollars. In Massachusetts the conditions seem to be specially favorable to co-operative companies, as the state has a general law for their incorporation. The capital stock of such a company is limited to $100,000, and must be more than $1,000. No one person can hold more than $1,000 worth of stock, or have more than one vote. It is further provided that there shall be an annual distribution of profits among the workmen, purchasers, and stockholders; but ten per cent of the net profits must first be set aside for a contingent or sinking fund, until a sum equal to thirty per cent of the capital stock shall have been accumulated. The word 'co-operative' must form part of the corporate name, and shares to an amount not exceeding twenty dollars are exempt from attachment and execution. The credit of the company and security of the stockholders are further increased by a full report made annually to the secretary of state. The last section of the monograph is devoted to profit-sharing, and brings forward some interesting instances in which it has been put in operation. The best known, perhaps, is that of the Peace Dale manufacturing company, where profit-sharing was begun eight years ago. An average dividend of four per cent on the wages was paid to the workmen for four years, but since 1883 no dividend has been declared. From none of the cases of profit-sharing adduced by Mr. Bemis can we deduct any arguments which meet the objections of Mr. Aldrich, on which we commented last week.

*THE EXPLORATION OF THE WELLE.*

SCHWEINFURTH has recently sent a letter to the editor of *Le mouvement géographique*, from which we take the following abstract: The Welle-Makua has been crossed by Junker at six different points. At Ali Kobo, in the country of the Basange, his farthest point west, the river attains such dimensions that he could not estimate its size, particularly as it is blocked up by islands, which are not only densely populated and highly cultivated, but afford ample room for herds of elephants which abound there. Junker could not stay here longer than four days. Only a comparatively short distance from the Kongo, he was compelled to return, as Lupton Bey, the governor of the Egyptian province Bahr-el-Gazal, sent him word of the rapid spreading of the mahdi's power. Eight days' journey beyond the extreme point reached by Junker, the Mbomo empties itself into the Welle. The Mbomo runs east and west, and has many tributaries, which come from the watershed between the Kongo, the Shari, and the Nile. In February, 1883, Junker reached Abi Kobo. Junker's 'Nepoko' is probably the upper course of the Biverre. He heard another river mentioned, the Nava, which, however, he did not see. Schweinfurth is of the opinion that it may be the upper course of the Biverre, while the Nepoko may be that of the Mburu. The quantity of water in the latter is, however, so small that its source must be looked for farther west.

Wauters's hypothesis of the identity of the Welle and Obangi becomes very probable by Junker's new discoveries, as will be seen by the accompanying sketch-map. Wauters supposes that Grenfell, who explored the latter river, passed by the mouth of the Welle without seeing it. The remarkable form of the right bank of the Obangi, the appearance of the first hills at the place of the supposed confluence, the dotted lines by which Grenfell indicates the left bank at this point, and the suddenly increasing shallowness of the river, all support Wauters's hypothesis. This new information is of great importance for the progress of Stanley's expedition for the relief of Emin Pasha. He may either ascend the Obangi and Welle, the Biverre-Nepoko, or start from Stanley Falls. It is doubtful whether there are any rapids in the Welle that might obstruct his passage. As Grenfell passed the rapids of the Obangi in latitude 4° 30′ north without any difficulty, and those of the Kongo at Rubungu do not prevent the passage of steamers, it is possible that no serious difficulties of navigation exist.

We may be allowed to call to mind at this place the sources of our former knowledge of this district. After Schweinfurth's discovery of the




SKETCH-MAP SHOWING RECENT EXPLORATIONS ON THE WELLE.

Welle, Nachtigal was the first to give some new information. In 1875 he published a map from his surveys and from information obtained in Dar For and Wadai. Junker explored, in 1876 and 1877, the western tributaries of the Bahr-el-Abiad. In the same years a Greek physician, Panagiotes Potagos, travelled over a great part of the district. As, however, he made no astronomical observations, and his itinerary is very primitive, the results of his journey are not reliable. This is still more the case with Bohndorff's journeys. This man, a goldsmith, who had been in the service of General Gordon, travelled in the region of the head waters of the Welle. Later on, when Junker started on his second journey, he took Bohndorff for his servant, and in January, 1880, they left Khartum. The first summer was spent in the Niam-Niam country, and since that time Junker has travelled in Mombuttu and in the district of the Welle and the other rivers running west. Lupton Bey and his agents made many important journeys, the expedition of Rafai Aga being of particular interest. He is said to have reached the lake on the Lokoi. The northwestern tributaries of the Bungu, as shown on the sketch-map, are from Flegel's reports, who learned about them on his journey in Adamaua. The central part between the regions traversed by Flegel, Nachtigal, and Junker, is still totally unknown.

## *THE HEALTH OF NEW YORK DURING JANUARY.*

THE population of New York City at the beginning of 1887 may be approximately stated to have been 1,461,466. The deaths during the month of January from all causes were 3,507, which is but 5 more than during the preceding month, although the population was greater by more than 3,000. Of this number, 140 died on the 5th, the greatest mortality of the month (see page 228). Diarrhoeal diseases caused 48 deaths, a reduction of 17 as compared with December, and the lowest mortality from this cause since March, 1886. The deaths of children under five years of age amounted to 1,523, differing but little from the preceding month. Consumption caused 524, diphtheria 204, and scarlet-fever but 46 deaths. The mortality from the last-named disease was double that of December. In November there were recorded 166 deaths as due to measles. In December this increased to 271, and in January the mortality rose to 294, exceeding by no inconsiderable figure the combined deaths from diphtheria and scarlet-fever, emphasizing, what we have already directed attention to, that measles is not a trivial disease, but one in regard to which all precautions relating to isolation and disinfection should be promptly and thoroughly taken and maintained.

The maximum temperature of the month, 62° F., was reached at 4 P.M. on the 23d. This was nearly ten degrees above the average for the past ten years. The lowest point reached by the mercury was 4° F., at 12 P.M. on the 18th, and again on the 19th at 2 A.M. The average for the decade is 3.1° F., although during the same month of 1879 it fell to —4° F., and in 1882 to —6° F. The rainfall for January was 4.42 inches, included in which are 6.625 inches of snow. The average rainfall for this month for the ten years commencing 1878 is 3.82 inches, so that more than the average fell during January. The largest amount of snow which fell during this period in the same month was 17.5 inches, in the year 1882. Since then, in but one year, 1885, has less snow fallen than during January of 1887: the average has been nearly 10 inches. There were four snow-storms during the month. In that which occurred on the 5th and 6th, 2 inches fell; that of the 9th and 10th resulted in a fall of 4 inches; while the others were insignificant.

## *GEOGRAPHICAL NOTES.*

### *Africa.*

Dr. Hans Schinz gives the following report of the present state of Lake Ngami. The lake has not dried up, but is gradually decreasing in size. The Okavango, or Ombuenge, forms, north-west of the lake, an extensive swamp, and during the dry season the lake receives only a small quantity of water from it. During the rainy season, however, the small brooks swell up and form a large stream, which empties itself into the lake. The Tamulakan, which branches off from the Ombuenge in latitude 18° 40′ S., empties itself into the Botelet, not into the Zambezi.

Gottl. Ad. Krause has succeeded in entering the territory south of Timbuktu. Since Barth's expedition in 1853, no white man has visited this district. On the 7th of July, Krause left the large city of Salaga on the Volta, and later on reached Mosi, whence he started on Oct. 26 for Timbuktu. The district through which he has travelled has been known only through information obtained by Barth. Our knowledge of the district between the fabulous Kong Mountains and the most northern part of the Niger is still extremely imperfect, being founded only on information obtained from natives.

Under the auspices of the secretary of state of France, Camille Douls is going to explore the Wad Draa, which empties itself near Cape Noon. This periodical river runs at some distance along the