American Chamber of Commerce for the Levant.

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Eliot Grinnell MEARS, Washington, D. C. . *Honorary Vice President*
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VOL. IX. DECEMBER, 1921 No 12

Levant Trade Review

PUBLISHED MONTHLY BY THE

American Chamber of Commerce for the Levant.

(INCORPORATED)

Resignation of Mr. Oscar Gunkel as President of the Chamber and Election of Mr. Miller Joblin; Other Changes.

On December 9th at the Meeting of the Board of Directors of the *American Chamber of Commerce for the Levant* the resignation of Mr. Oscar Gunkel as President was accepted and Mr. Miller Joblin, Assistant General Manager of the Standard Oil Company of New York in Constantinople, was chosen President in his place.

The following letter has been sent to Mr. Gunkel in behalf of the Board of Directors:

In Conformity with the unanimous resolution of the Board of Directors of the *American Chamber of Commerce for the Levant*, in regular meeting assembled, December 9, 1921, its committee hereby expresses the deep regret of the Board and of the entire organization at your resignation as President of the Chamber.

It is recalled that you were elected a member of the Board of Directors at the second annual meeting of the Chamber on January 24, 1912; that you were elected Vice President of the Chamber at its fourth annual meeting March 25, 1914; that you were elected President at a Special Meeting of the Board, October 18, 1916, and that you have remained in charge ever since.

We are mindful of your constant solicitude for the Chamber's best interests. We are particularly aware of your invaluable services to it during the war. Your courage and your faith coupled with your tireless and energetic personal activity in behalf of the Chamber, both in the matter of its financial needs and in the fulfillment of its corporate program, contributed essentially and fundamentally towards its success in weathering the storm.

It is impossible, on this occasion, to forget or to omit mention of the peculiarly pleasant personal relations which have existed in the Board under your inspiration. In your guidance of the affairs of the Chamber you have won the devotion of the Board of Directors and its warm admiration.

These sentiments of loyalty, born during excessively trying times, will endure.

Extending to you our heartfelt and abiding thanks for your priceless services to the Chamber and with every good wish, we remain in behalf of the Chamber,

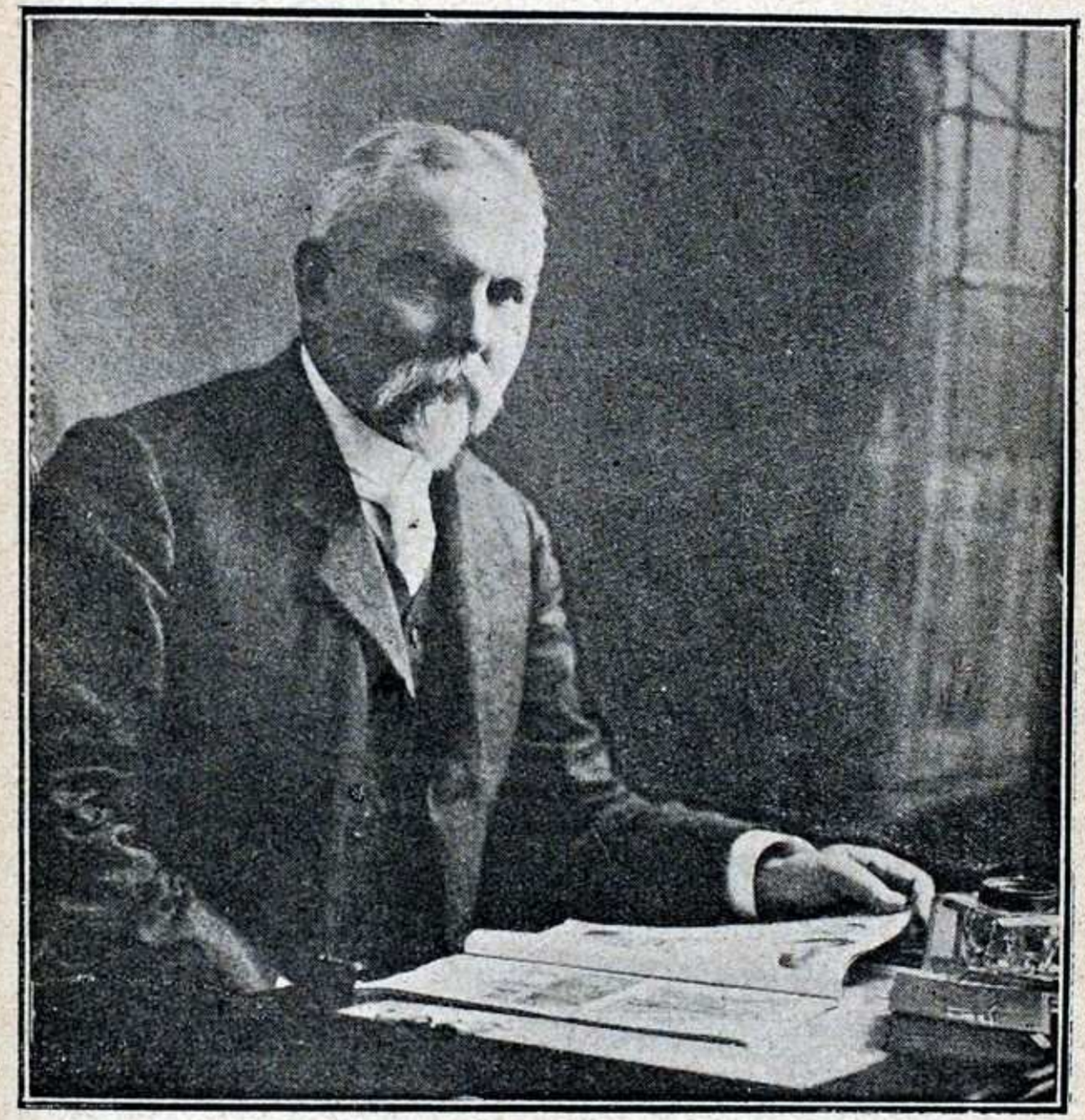
Very respectfully yours,

(Signed) G. B. RAVNDAL
GEORGE H, HUNTINGTON
THEODORE N. CURMUSI

This letter expresses, in so far as it is possible to express, the feeling of the Chamber at the close of Mr. Gunkel's decade of labors in its behalf. In the years of his presidency were included the difficult months from April 1917 to November, 1918, when the activities of the Chamber were temporarily suspended. To those who were intimate with the Chamber before that period but who were away from Constantinople during the war months it was a matter of great satisfaction to realize that the Chamber always had its President in Constantinople. They felt that thereby there was no lapse in the existence of the organization.

In the *Levant Trade Review* for the June Quarter, 1916, the following tribute was paid to Mr. Gunkel:

"The man at the head of the Levant branch of the Standard Oil Company of New York is Mr. Oscar Gunkel. The *American Chamber of Commerce for the Levant* is glad to speak of him in these pages. He is "one of the family", having been a Director and Executive Officer of the Chamber since its foundation. But as we cannot lay too much stress on Mr. Gunkel's devotion to the interests of the Chamber—his untiring energy in its behalf, his generous expenditure of time and counsel—so alike we cannot speak too highly of his abilities in his arduous position. By his rare personal qualities, his idealism, perseverance and all-conquering good humor, he has achieved success where failure would have been the lot of many a perfectly capable business man. Mr. Gunkel is large in frame, and his heart is in perfect proportion. There are few members of the American colony in Constantinople who have not experienced his kindness in one form or another. Besides his active interest in the *American Chamber of Commerce for the Levant*, he likewise gives his time freely as a member of the Board of Directors of the Constantinople Chapter of the American National



Mr. OSCAR GUNKEL

General Manager for the Levant of the Standard Oil] Company of New York.

Red Cross and as a member of the Board of Directors of the Constantinople Young Men's Christian Association.

"As for Mr. Gunkel's business career, he has served the Standard Oil Company for a quarter of a century. He has been in one capacity or another connected with the Company in Mexico, central Europe, Java, South Africa, Roumania, and, during the last six years, Constantinople. He is a good American and one of the pillars of the American community in the Ottoman capital, so that not even the most partizan Yankee could begrudge him the satisfaction of having been born on the banks of the Rhine."

With the fulfillment of five more years since the above was printed we can only reinforce these words.

In the next number of the *Levant Trade Review* there will be further mention of the Chamber's new President. The Board of Directors has already given him hearty welcome to his new office and from a letter of Consul General Ravndal to Mr. Joblin we are permitted to quote:

"I wish to congratulate you upon your unanimous election as President of the *American Chamber of Commerce for the Levant* and to express my very real pleasure at your acceptance. There is no doubt in my mind but what the Chamber is entering upon a new era of usefulness to American interests in the Near East and, upon the conclusion of peace, will fulfill its mission in a largely increased measure. Its relations with the American Section and with Sections in the East have been definitely established in principle. Undoubtedly, under your administration, these relations will be further consolidated and rendered more fruitful in practise. The Chamber's aim, as I take it, is not only to make propaganda for and protect and promote American trade and investments in the Levant and the Balkans but also to expose and suppress any commercial practises in these markets on the part of Americans, which reflect upon the fair reputation of American dealings abroad and thus constitute a hindrance to the expansion of American trade and influence both here and elsewhere".

At the same meeting of the Board of Directors at which the resignation of Mr. Gunkel was accepted, Mr. J. Wylie Brown, who presided, offered his own resignation as 1st Vice President. This was accepted and Mr. R. E. Bergeron, Manager of the Constantinople office of the American Express Company was elected in his

AMERICAN CHAMBER OF COMMERCE FOR THE LEVANT

AMERICAN SECTION, Inc.

Offices: 29 Broadway, New York.

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DONALD FROTHINGHAM
CHESTER S. ALLEN
NEAL D. BECKER
PETER S. STEENSTRUP

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L. I. THOMAS, *Director*, Standard Oil Company of New York.

place. The Chamber is glad that this change will not mean the loss of Mr. Brown's services on the Board of Directors. Mr. Brown has been in the work of the Chamber since 1914. Mr. Bergeron had already been welcomed to the Board, as director, and it is a further pleasure to receive him as 1st Vice President.

Membership in the Chamber

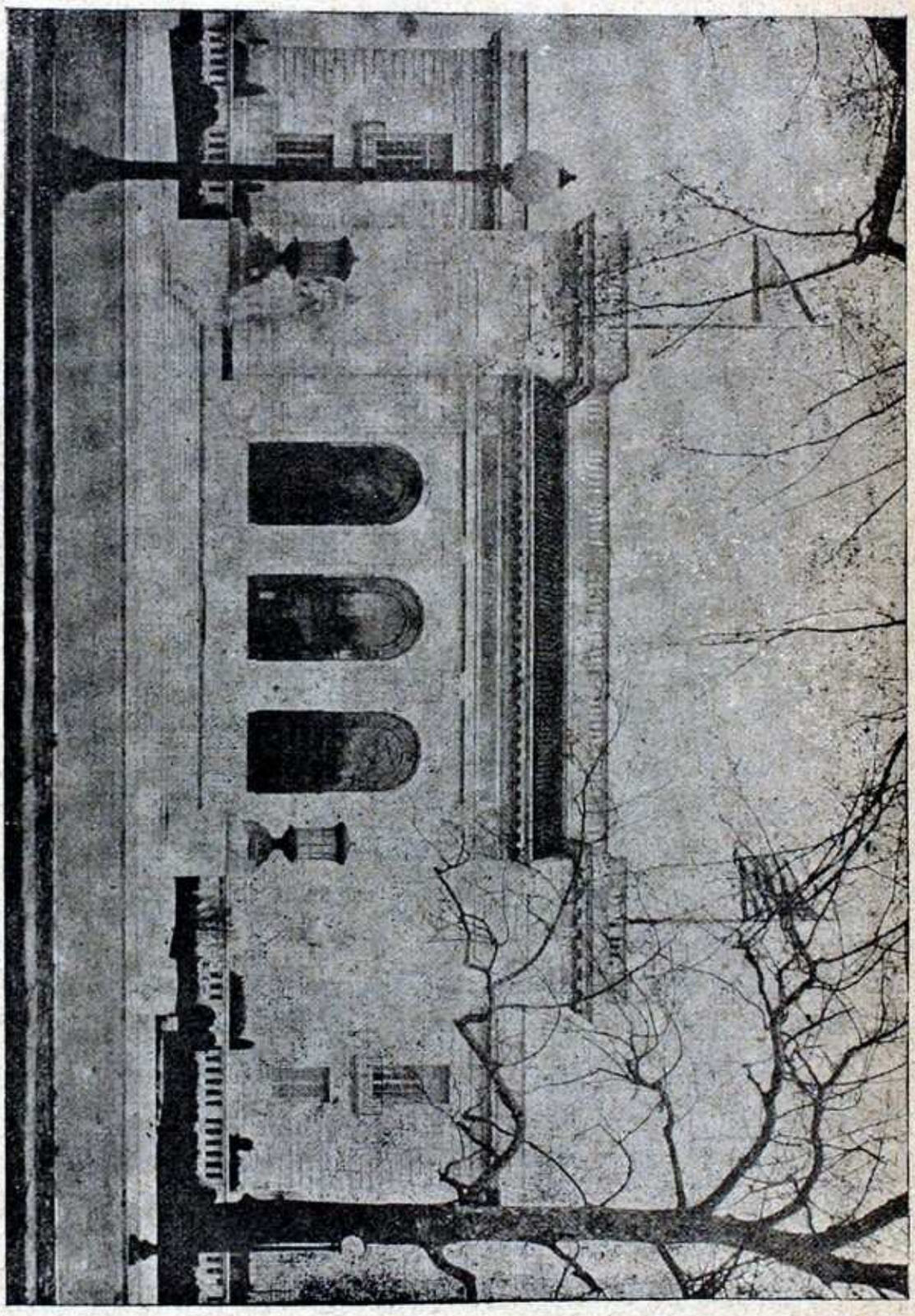
At the meeting of the Board of Directors of the *American Chamber of Commerce for the Levant* on December 9th, it was voted for the second time, as required for a change in the By Laws, that membership in the Chamber be divided into two classes, active and associate. Annual dues were established for active members at $ 20; associate, $ 10. Associate members will enjoy all the privileges of the Chamber except those of voting and holding office. The fee for life members is raised from $ 100 to $ 200. Non-resident membership in the parent Chamber, open only to persons who do not live in the district of a branch of the Chamber, remains at $ 6 per year.

THE ACHIEVEMENT OF WIRELESS TELEPHONY

The words spoken at the burial of the American Unknown Soldier at Arlington Cemetery on Novembre 11 were carried to people assembled in New York City and in San Francisco on the Pacific coast. This was made possible by amplifiers. The achievement is described by Col. John Carty, vice-president of the American Telephone and Telegraph Company:

"The achievement of Armistice Day," said Colonel Carty, "was the fruit of two years of preparation. The slightest error, the most trivial oversight at any point in the thousands of miles of line meant failure. And failure would take from the ceremonial all its solemnity, all its deep religious and patriotic significance.

"To make sure that there should be no flaw at any point in the lines, we stationed a tried and trusted man every seventeen miles along each of the lines between Washington and the Pacific coast. From Washington to Denver (two-thirds across the continent) via New York we had three lines arranged so that at any point one line could be substituted for another. Beyond Denver there were two lines.



The Building of the Pan-American Union at Washington, D. C., Scene of the Conference on the Limitation of Armaments.

"At Madison Square Garden in New York City and at the Auditorium in San Francisco great amplifying horns were installed and pointed where they would spread the sound to the greatest number of persons. The sounds were absolutely simultaneous with those from the speaker's mouth at Arlington, just as simultaneous as those heard over an ordinary telephone. For they were really heard over a telephone, only magnified.

"To reproduce every sound so much more perfectly than is usual with an ordinary telephone and yet magnified more than a million times, it was necessary to make a telephone receiver so delicate that there was no imperfection to amplify. We did this, but the instrument was then so delicate that the voice it sent over the wire was inaudible. Therefore, we placed an amplifier under the receiver in order to magnify the voice to a size sufficient to pass over the wires. This, then, had to be magnified again in order to make it loud enough to be heard by hundreds of thousands. So at New York, Chicago, San Francisco and other points at which the crowds assembled, the amplifier and horns were installed. At fourteen points along the line we established repeater stations. At each of these the electric current carrying the sound waves was restored to its original intensity by telephonic relays.

The amplifying apparatus is based upon the introduction of vacuum tubes. These have the quality of taking sound waves borne on an electric current and greatly enlarging them while still retaining their exact form. The great horns that direct the sound out over the crowd perform just the same service that a horn placed on a phonograph performs. The sound comes from them in curving waves, like segments of a sphere, curving outward in all directions and not in a straight stream. Therefore, it is not necessary to stand in a direct line before the horn in order to hear. Each horn distributes the sound over a certain area, and so by grouping many horns it is possible to carry the sound to any number of persons indoors or out.

«The invention will work a revolution in lecturing and political campaigning. The President can make a speech to which the entire population of the United States can listen simultaneously. Orators can go about in wagons with instruments upon them and address the entire populations of the towns in which they speak. A general can address an entire army. We have only to string wires over Canada, Central and South America to make it possible for a statesman to stand at Washington, Buenos Aires, Ottawa or any other city and speak to every inhabitant of the Western Hemisphere."

THE WORLD: "I WANT TO LET GO!"

—Thomas in the Detroit *News*.

THE AMERICAN CORN CROP AND THE WORLD'S MEAT SUPPLY

Promise of a corn crop of 3,152,000,000 bushels in the United States and recent favorable reports on world wheat and rice crops suggest, says the Trade Record of The National City Bank of New York, that the world's supply of bread and meat will be little below normal, despite the shortage in the wheat fields of Russia. A 3,000,000,000 bushel corn crop in the United States alone means probably 4,000,000,000 bushels for the entire world, for the United States usually produces three-fourths of the world's corn outturn.

A large corn crop means an unusually big meat supply, especially of pork, for a large part of the corn of the United States is fed to swine on the farms where it is grown and the meat thus produced is distributed to all parts of the world. With the changed conditions of production and transportation in Europe resulting from the war, the demand of the world upon the United States for bread and meat has continued.

In nine months of the current year for which figures are now available, the United States has exported more corn than in any full year since 1906, while the quantity going in the form of pork products in the current year is twenty per cent greater than in the same months of 1920, though the value is probably less by reason of the reduction in prices. Even at the reduced prices of wheat and corn the exports of pork products, chiefly produced from corn, will be nearly $ 300,000,000 in value and the corn exported in the natural state approximately $ 10,0000,000. The value of the pork products exported from the United States in the past decade exceeds $3,000,000,000 and of corn in the natural state about $4,000,000,000. The wide distribution of American corn in the form of pork is illustrated by the fact that the exports of bacon in 1920 went to 90 different countries and colonies, hams to 85, lard to 88 and sausage to 83.

The American corn crop accounts for the fact that the United States has far more swine than any other country, for swine are the most convenient process of transforming corn into human food, especially for exportation. Corn is the most useful food for swine, except for the production of the «bacon hog» which is chiefly fed on the smaller grains, wheat, rye and barley, with an admixture of dairy products. As a consequence the «bacon hog» producing areas are those lying north of the corn belt of the world but producing ample supplies of the smaller grains. This close relation of the number of swine to the supply of corn as their best food for

fattening purposes has resulted in a growth in the number of swine. The United States has about one-half of the swine of the world, while it produces about three-fourths of the corn of the world.

It is only in very recent years that the American corn crop has crossed the 3,000,000,000 bushel line or that of the world's crop output the 4,000,000,000 bushel mark. The world was slow in adopting this new food grain which Columbus carried back from Haiti under the native name of «mahiz» on his first return voyage, but it gradually spread through southern Europe where it was designated as «maize» in recognition of its Haitian title. After its introduction in southern Europe it extended slowly over the other continents. At present the corn crop of the world is normally: United States 3,000,000,000 bushels, Europe as a whole 500,000,000, Argentina 300,000,000, Asia as a whole 100,000,000, and Africa about 75,000,000. The corn crop of the United States has been stated as holding first rank in farm products, hay ranking second, cotton third, and wheat fourth.

THE WORLD TRADE CRUISE

The transatlantic liner ST. LOUIS is being prepared for her world trade cruise, beginning in January, 1922, and ending the following December. During that time she is expected to carry the exhibits of 300 to 350 American manufacturers into the four quarters of the globe.

The contract for conditioning the ST. LOUIS was made early in October between the Todd Shipyards Corp. and the Anderson Overseas Corp., New York, owner of the vessel. The cost will run into many thousands of dollars.

According to the specifications of the contract, the ST. LOUIS will be converted into an oil burner and will be equipped with every modern device known for the comfort and safety of her passengers. The arrangement of the ship will differ to some extent from what it was at the time when she was the crack ship of the American Line. Because of the climatic conditions to be met during the 11 months' cruise, a ventilation system which will serve all the inner and lower rooms in hot countries, and a heating system which will make the same rooms and quarters comfortable in cold countries, has been fully arranged for.

A fully equipped hospital, with isolation ward, operating room, etc., is also included in the plan. On account of one entire deck having been reserved for exhibition purposes, as well as portions of three other decks, great care had to be exercised so that the comfort and safety of the passengers would not be interfered with. One exhibition deck, however, will have uninterrupted space for exhibits of about 550 feet in length. This does not include the automobile section, which will carry practically an automobile show around the world.

Accommodations and space on the ST. LOUIS for the world trade cruise are being actively acquired, most of the large cities in the United States having taken a keen interest in the project with the aim of having their industries well represented and their cities advertised.

The ST. LOUIS was the first 100 per cent all steel American steamer ever built, and at the time was the fastest ship afloat. She was christened by the former Mrs. Grover Cleveland at the yards of the William Cramp & Sons Ship & Engine Building Co., Philadelphia, President Cleveland and his cabinet attending.

Over a measured course she averaged 22 knots an hour. The term "ocean greyhound," was coined to describe her. In 1898, the ST. LOUIS rescued the passengers and crew of the Dutch steamer VEENDAM 940 miles from Southampton. Due to her swiftness, she became an auxiliary cruiser during the Spanish-American war, and one of her achievements was the finding and cutting of the telegraph cables to San Juan de Puerto Rico, Santiago de Cuba and Guantanamo. She was engaged in this work until the Spanish armada appeared off Santiago, sailed in and found themselves bottled up, and communication with Madrid cut off. She was present at the action incident to the attempt Admiral Cervera made to take his fleet out of Santiago harbor, and after this seabattle took Admiral Cervera and his officers aboard and conveyed them to Portsmouth, N. H.

From 1914 until the beginning of the world war the ST. LOUIS made regular trips between American and English ports, and in 1917, shortly after Germany's declaration that open warfare was to be carried on against any ships between certain restricted areas, she took the first American guns to Europe. In 1918, she was taken over by the cruiser and transport force, and her name temporarily changed to LOUISVILLE, to avoid confusion with the U. S. S. ST. LOUIS.

Washington Conference on Commercial Arbitration

With a view to making the system of arbitration in trade disputes within the United States and with foreign countries more universal, effective, expeditious and economical, a conference was held on November 15th at the Department of Commerce in Washington. Executives representing fifteen trade organizations were present. Herbert Hoover, Secretary of Commerce, addressed the conference. The conclusions of the conference can be summarized as follows:

All merchants doing an interstate and foreign business seek a method whereby disputes arising in their daily business transactions can be speedily, economically and equitably disposed of. Arbitration offers the best means yet devised, but the arbitration laws of the various States of the Union are not in uniformity and often are in conflict, and the laws of any given State are not applicable in other States. The Conference therefore recommends:

"*First.*— That the Department of Commerce urge all Chambers of Commerce and other business organizations, not only in this country, but in foreign countries as well, to create Arbitration, Mediation, and Conciliation Committees in their respective organizations, for the handling of business disputes.

"*Second.*— That the Secretary of Commerce be urgently requested to use his best endeavors in aiding in the passage of a Federal law making arbitration clauses, voluntarily entered into, in written contracts valid, enforcible and irrevocable.

"*Third.*— That the Secretary of Commerce urge the Secretary of State to negotiate at the earliest possible moment: Treaties with foreign countries with which our country does business, which shall provide that arbitration agreements in commercial contracts made between their respective nationals shall be valid, enforcible and irrevocable; that such treaties contain provision for reciprocal enforcement of such arbitration agreements by the courts in the countries party to the treaties; that in such treaties it be covenanted that, reciprocally, arbitration decisions in the countries party to the treaties be honored and enforced; that such treaties provide that arbitration agreements in foreign trade bind the American merchant when they are equally binding upon the foreign merchant in his country."

Migration Service Bureau at Constantinople

The Y. W. C. A. has opened a Migration Service Bureau in Constantinople, similar to bureaus already established at Antwerp, Cherbourg, Marseilles, Havre and New York City.

The Constantinople Bureau, at No. 7 Merkez Richtim Han, Galata, is in charge of Miss Ruth Larned, Secretary. The aim of the Bureau is to protect emigrants against the many hardships which arise through ignorance and through the misinformation of unscrupulous people. In a circular which has just been issued, persons are warned not to sell property or give up work with the view of emigrating, before finding out if they are admissable to the country to which they hope to go. The Bureau is ready to furnish complete information about the laws of admission to the various countries which attract immigrants. The Bureau also explains the intricate requirements in regard to procuring passports.

There is no charge to those who come to the Bureau and the workers will accept no fees for any help which they render. Persons are aided irrespective of their race, religion, or nationality.

Flour Association at Constantinople

The millers and the flour dealers in Constantinople have founded an organization under the name of the "Association des Minotiers et des Négociants en Farine et en Céréales de Constantinople", in order to encourage solidarity and friendliness among the persons connected with the flour industry. The administrative council is composed of the following: MM. Jean Abazoglou, President; Habib Zia Bey, Vice President; Elie Bolanaki, Secretary; Basile Jordanides, Treasurer; Simon Cosmetto; Moustaffa Bey Zegmen Zadé; Moustaffa Carassoul Anastassiades.

The association will undertake arbitration of all matters connected with the flour trade. The temporary headquarters of the association are in the offices of the "Minoterie d'Orient", Omer Abed Han, Galata.

The part that preventable illness in the United States plays in the scheme of business is defined in a report of The Committee on Elimination of Waste in Industry. The 42,000,000 men and women gainfully employed probably lose on an average more than eight days each, annually, from illness disabilities, including non-industrial accidents — a total of 350,000,000 days. Of the 500000 workers who die each year, it is probable that the death of at least one-half is postponable, by proper medical supervision, periodic medical examination, health education and community hygiene.

PHILADELPHIA'S "BIG FIVE"

Owing to the iron ore deposits located near Philadelphia, manufacturers of iron and steel products have gravitated naturally toward this city and it has grown in importance as a hardware center. Today its prestige is unchallenged the world over. This is due in no slight measure to the influence and activities of a group of Philadelphia factories known to the trade throughout the United States as the "Big Five"—comprising these factories: Henry Disston & Sons, Inc.; Miller Lock Company; North Brothers Manufacturing Company; Fayette R. Plumb, Inc., and The Enterprise Manufacturing Company of Pennsylvania.

The manufactures of the "Big Five" have come to be known popularly as "Philadelphia-Made Hardware". This term first was employed to designate the joint exhibits made by the five factories at hardware conventions in different cities of the country.

"Philadelphia-Made Hardware" goods represent in each of the lines manufactured a yearly output which is the most extensive in existence. They set a standard recognized everywhere as unsurpassable quality in hardware. A chart of the countries, provinces and communities where these goods are bought and used, means virtually a map of the world.

Henry Disston & Sons, Inc., are eminent as saw-makers, manufacturing saws for every conceivable trade and purpose and of every shape and size, from the tiniest compass or keyhole saw to the giant circular or hand saw used in the logging mills. They produce every variety of saw tools for saw setting, adjusting, sharpening, etc. Disston files of every description are turned out by millions annually. Trowels of all patterns are important Disston manufactures, and artisans' tools, such as bevels, try-squares, plumb-and-levels, cabinet scrapes, gauges, mandrels, mitres, mitre rods and mitre squares. Knives of every sort are in the list, from the circular knife for cutting cork, leather, cloth, etc., to the corn knife, machets and hedge trimmer, together with such agricultural tools as posthole diggers; also vegetable cutters, corn graters, slaw and crout cutters, etc. Of the five hundred and more tools manufactured, one quality alone is insisted upon, and that is the highest.

Beginning with a small plant and the crude methods of 1840, Henry Disston was the first manufacturer to introduce improved

saw-making processes in the United States and to make his own crucible sheet steel for saws, thus putting the saw in the list of American manufactures at a time when the American-made saw was virtually unheard of. The progressive methods initiated have been energetically pursued, until today the plant of Henry Disston & Sons, at Tacony, is the largest of its kind in the world.

An instance of the extraordinary care and skill and completeness in the making of a Disston product is revealed by the fact that it takes eighty-two distinct operations to make a Disston hand saw, and an expert accomplishes each operation.

The chief products of the Miller Lock Company in Frankford are keyed and keyless padlocks, night latches, deadlocks, keyed and keyless cabinet locks, including chest, locker, drawer, desk, wardrobe, closet and cupboard locks, and cash and treasure boxes. The largest padlock manufacturing plant in the world, it has an output of 45,000 padlocks daily. To meet the demand for a certain popular Miller line, for instance, one padlock has to be manufactured on an average of every four seconds of every working day of the year. These padlocks have their trademark registered in thirty countries beside the United States; and one Miller padlock, specified years ago by the Internal Revenue Department of the United States Government to hold secure and inviolate the merchandise in bonded warehouses throughout the country, has also become the officially designated lock of many other important governments. Other Miller padlocks are used exclusively by Government post-office departments, continental and international railways, etc.

Many of the Miller padlocks' devices—shouldered rivets, safety contrivances, unpickable constructions, ice-breaking devices to prevent freezing of locks, rustproof finishes, perfected keyless mechanism—mark the latest and most important evolutions in locks, setting new standards in security, durability, convenience and attractiveness.

This industry, which had its inception in 1871, has developed into a mammoth plant occupying a city block. It is a model of efficiency. Specially designed machinery and scientific methods have put the manufacture of Miller locks on a basis of economic production which is unrivaled.

North Bros. Manufacturing Company, developing from a modest beginning a third-century ago into the immense, splendidly

equipped plant today, produces "Yankee" tools for boring in wood, drilling in metal and driving and drawing screws.

Another important line is composed of icecream freezers, from the smallest toy size up to the largest machine or power size; together with packing tubs and cans, ice breakers, ice shavers and ice chippers. Tobacco cutters, tobacco shavers and Christmas tree holders also are included in the list of North Bros.' mauufactures.

"Yankee" Tools form a classification of their own in hardware. They are "maximum efficiency" tools, designed to do more work, do it better and with greater ease, and do the work that it would take three or four commonly known tools to do. No "Yankee" tool that does not satisfy this "extra efficiency" requirement ever passes out of the remarkable invention department, where experts spend their entire time analyzing requirements of work and then devising tools of maximum effectiveness and versatility to meet them. For example, there are ingenious "Yankee" tools for drilling, boring, screw-driving, etc., that work continuously and rapidly simply by pushing on the handles, the finger grip of the operator never changing. "Yankee" tools aim to make every workman an expert at this craft.

North Bros.' freezers—the "Lightning" "Blizzard," "Gem," etc.—also embody the "Yankee" tool idea of efficiency and rapidity of work. They are invented especially to make the smoothest, lightest, evenly-frozen ice cream in least time and without bother.

Under the head of the manufactures of Fayette R. Plumb, Inc., Bridesburg, come complex lines of hammers, hatchets, axes aud sledges; a full assortment of blacksmiths', coopers' and wood-choppers' tools; maul and track tools, and railroad tools, all varieties of adzes, chisels, and wedges. In addition, picks, mattocks and grub hoes are produced extensively; and edge tools, such as bush hooks, butchers cleavers and choppers.

Two vast plants, one in Philadelphia, and the other in St. Louis, Mo., are necessary to take care of the demand for highest quality tools, built up during nearly sixty years of manufacturing.

Plumb's progressiveness has set a remarkable pace. All the steel for Plumb products is made up according to a special analysis, to satisfy the decidedly exacting work demanded of these kinds of tools. The Plumb Research Department is constantly at work, devising important innovations. Handles designed to exactly fit

the anatomical construction of the hand and not become sticky; a scientific nicety of balance to save muscle time and give precision to the blow; tools invented for surprising adaptability in difficult work; machines for economy in manufacture. Such tasks as these are part of the daily routine of the Department. It also has on its staff a host of practical mechanics in various parts of the world, who are consulted upon, and thoroughly test out, every Plumb manufacture before it goes on the market.

A recent Plumb triumph is the successful manufacture of a one-piece solid steel chopping axe, which does away with all dangers of mis-welds and gives a longer cutting edge. Plumb axes have won fame in many of the most important champion axe-chopping contests in Australia, New Zealand, etc.

The output of the Enterprise Manufacturing Company of Pennsylvania at Third and Dauphin Streets, covers a wide range of specialties. Of prime importance are the "Enterprise" meat and food choppers, sausage stuffer and lard presses, rapid grinding and pulverizing mills for coffee, spices, etc., and cold handle sad irons. Other household specialties include cherry stoners, nut crackers, meat juice extractors, fruit, wine and jelly presses, ice shredders, raisin seeders and vegetable slicers.

Among the "Enterprise" agricultural helps are bone, shell and corn mills, grist mills, mixtamal mills, motor choppers and tobacco cutters and shavers. Finally, the list of products is concluded by such specialties as bait choppers, bung hole borers, meat hooks, measuring faucets, self-priming and measuring pumps, paint faucets, drug presses, fruit and tincture presses, cork presses, cobblers' kits, lawn sprinklers, porch supports and flagpole holders.

It is hardly surprising that two great factories, one covering eighty-three acres, are necessary to produce these multitudinous manufactures. At the same time they are a far cry from the tiny factory started by T. Henry Asbury in 1866, which was the foundation of the present great industry. Both plants are equipped with the most scientific machinery and with every modern labor-saving device, while every workman of the many hundreds employed is an expert.

This manufacturing company has been the pioneer in many manufactures and improvements. In this connection may be mentioned the sad irons invented by Mrs. Potts and first manufactured

by the Enterprise Manufacturing Company of Pennsylvania. The same company also put out the first meat-and-food chopper having a clean-cutting instead of a grinding action, and the first coffee mills whose grinders were equal to steel and could be regulated for degree of fineness in griding, etc. Quality, with care and ingenuity, are the "Enterprise" by-words. Even the tool equipment is made from standard gauges, a tribute to "Enterprise" exactness.

The "Big Five" have every possible facility for supplying domestic and export demands. The five factories co-operate only in business promotion, having no other affiliation with each other, but this co-operation has been of great benefit not only to each, individually, but also to Philadelphia as well.

—*Commerce and Industry*

Potato Flour Industry

The use of potato flour as a substitute for wheat flour has in the last few years become widespread in the United States. Until the wheat flour conservation of the war years made it necessary to resort to all varieties of substitutes, it had been little known in America, although the European nations had long employed it. Prior to the war all the potato flour used in the United States was imported from abroad. As soon as potato flour was not only recommended but urged as a conservation measure by the United States Food Administration, factories sprang up in various parts of the country, most of which are still in operation.

Potato flour, as defined under the government pure food laws, is a powdered product containing fat, fiber and ash constituent, from the edible portion of the potato. Because of its greater cost—it is about twice as expensive as the best wheat flour—it will probably never become a popular substitute for wheat flour. Its chief use is to combine with wheat flour in small quantities, as it is supposed to improve the flavor of bread products and serve as a better medium for the yeast.

The potatoes which are used for making the flour are the so-called Number 2 grade—under-sized potatoes which cannot be easily marketed and in the ordinary course of events are a loss to the growers. Thus the potato flour industry results in a great saving to the farmers and utilizes material which would otherwise be wasted. Fully 50,000 bushels of these potatoes are now used annually for making flour.

The potato mills make regular contracts with the farmers themselves, or with buying exchanges which handle the potatoes, to take over their crops of Number 2 potatoes. This insures to the farmer an outlet for his product and provides the mills with a steady supply of potatoes for grinding purposes. After the potatoes are brought to the mills, they are first thoroughly washed, and then taken to the peeler, where the rough brown outer skin is removed. The peeler is really a friction device which removes only the extreme outer skin, which has no food value, but leaves the inner skin, beneath which are the mineral salts containing high nutritive values.

From the peeler, the potatoes are transferred to a steam cooker, in which

they are cooked under steam pressure. They are then mashed in a mashing machine and then flaked by means of a flaking device. The flaking machine, which demands a good deal of skill in operation, consists of two large steam-heated drums which rotate rapidly against each other. The potatoes from the mashing machine are fed in between these two drums and are discharged in the form of thin white flakes. These flakes are dried until they are white and fluffy and then ground on rolls and put through a silk cloth so that the finished flour is of perfect consistency and fineness. It requires an average of five pounds of cooked mashed potatoes to produce one pound of flour.

The potato flour produced by the methods described is practically the whole cooked potato in concentrated form. Its principal use is in combination with wheat flour, with which it is usually blended in the proportion of two per cent. During the processes of making, the starch values in the potatoes are turned into gelatine, which assures a better fermentation of the dough by aiding the yeast growth. It is claimed that more nutritious bread can be made with potato flour, on account of the large proportion of vitamines contained in it.

Export American Industries.

The Roses of Bulgaria

Bulgaria possesses the world's largest rose garden, in the Departments of Stara Zagora and Philippopolis, where are grown annually thousands of millions of roses.

Were you riding through these districts of Bulgaria in the springtime you would see mile after mile under rose cultivation, thickly clustered with perfect blooms, each a queen in herself, nodding her graceful head in the gentle breezes from the sheltering Little Balkan mountains.

It would require a poet to do even bare justice to the panorama of beauty revealed in this Land of Roses, and the mere man of science, whilst appreciating to the full the glory of Nature, turns his thoughts next to the meaning of it all.

The rose is cultivated in Bulgaria for the purpose of extracting the famous otto, or attar, of roses, the most necessary of all perfumes, and one of the oldest. Otto of roses dates back to time immemorial, and the industry in Bulgaria is over two centuries old. In the Bulgarian rose garden is produced the greater part of the world's otto, for Persia, Cashmere, France and Asia Minor relatively are of small importance.

At one time, Bulgaria had 30,000 acres of roses, and produced annually 175,000 ounces of the valuable otto. Since the outbreak of the first Balkan war in 1912 the amount of the perfume produced in Bulgaria has gradually fallen, and to-day there are only 14,000 acres of roses cultivated. Other more essential crops have been produced during the times of food shortage, especially as food prices advanced tenfold, while the value of otto of roses only advanced to three times its pre-war figure.

With the possibility of return to more normal conditions, however, it is very probable that increased attention will be paid to the cultivation of roses, and to the development of better methods of planting, harvesting, fertilization, and distillation.

It is in connection particularly with the latter process that improvements are necessary. In the past it has been almost the invariable rule for the rose oil to be obtained by distillation of the whole rose in «native» stills, of which 14,000 existed. These stills were heated by direct fires, and the rose oil was distilled with steam from the boiling water in the still. The quality

of the otto often suffered, and in addition the process was uneconomical. Immediately prior to the world war new types of stills were being introduced, and it was anticipated that in a few years all the «native» stills would disappear. The new «steam» stills are larger, much more economical and give a finer otto.

To obtain the otto of roses the flowers must be freshly gathered in the early part of the day, before the sun's heat becomes directed upon them. Steam is passed through the still which is packed with these flowers and the oil is found floating upon the condensed water. It is separated and purified.

For the production of one ounce of the valuable otto, 3,000 ounces of roses are required. Stated in another way thirty roses are necessary for the production of one drop of otto of roses.

In spite of the attempts to grow roses on a large scale in other countries, there is little doubt that the otto of roses industry of Bulgaria will retain its supremacy. The increased scientific attention to detail and the introduction of labor-saving devices in the harvesting and treatment of the roses, will make Kazanlik the centre of the Bulgarian industry, the world center for otto of roses.

Bulgaria possesses the peculiar climatic conditions requisite for the intensive production of the type of rose most suitable for the manufacture of otto of roses, and the sandy, well-drained soil and sheltered position of the gardens in the districts of Stara Zagora and Philippopolis are most favorable for the cultivation of perfect roses.

The national wealth of the United States is estimated at nearly 300 billion dollars, according to a report issued by the Committee on Statistics and Standards of the United States Chamber of Commerce.

Cruise in the Levant

Levant Trade Review for August made the suggestion that the American Express Company should organize a commercial excursion to the Levant in cooperation with the American Chambers of Commerce in the Levant and in Barcelona, Paris and Milan. The American Express Company has now announced a cruise along the route suggested in these columns. This cruise furnishes an excellent opportunity for any who wish to take advantage of the plan proposed. The cruise is scheduled to sail on the Cunard liner "Carmania" from New York on February 11, 1922. The duration of the cruise is sixty-one days. It will include visits to Athens, Constantinople, Palestine, Egypt, Madeira, Cadiz, Seville, Gibraltar, Algiers, the Riviera. Naples, Fiume, and Venice.

Non-Steel Steam Craft

Between 1914 and 1921, the tonnage of the world's wood and iron craft remained practically stationary at 3,400,000 tons. Wood and composite steamers, which totaled less than 500,000 tons in 1914, now amount to 2,300,000 tons. Practically all of these vessels are unfit for competitive peacetime services. Iron steamers are rapidly being scrapped, decreasing between 1914 and 1921 from 2,900,000 tons to 1,800,000 tons.

"I am convinced, myself, that there is no more evil thing in this present world than race prejudice; none at all. I write deliberately—it is the worst single thing in life now. It justifies and holds together more basenes, cruelty and abomination than any other sort of error in the world."—H. G. Wells.

American Rice for Syria

A report from Consul Paul Knabenshue, at Beirut, Syria, states that rice is imported from India. China, and Japan, but that the best grade is imported from Egypt. Trial shipments of rice were also imported from the United States and the quality proved satisfactory. In case the American rice can be offered at competitive prices, there will be a good market for it. According to available statistics, 8,377,590 pounds of rice were imported into Syria through the port of Beirut in the year 1920.

Tractor Trials Postponed

The motor tractor trials under the auspices of the Ministry of Commerce and Agriculture of Turkey, which were to have taken place this autumn have been postponed until early in May 1922.

The competition will be held at Zeitun Burnu Munitions Factory, outside the Walls of Stamboul. Gold, silver and bronze medals will be awarded. Detailed information of the competition was given in the July number of *Levant Trade Review*.

November as "Perfect Package Month" in America.

All trades and industries were asked to co-operate in the "Perfect Package Movement" inaugurated by the railroads, steamship lines and express companies in the United States and Canada, in November, which was designated as "Perfect Package Month."

The purpose of the movement was to stimulate further public interest in good packing of shipments and to enable the carriers to improve the transportation service of the country.

During November an examination of all shipments sent by freight or express was conducted to obtain information as to the best shipping methods carried on by the various trades and industries.

In every city and town the railroad and express people were asked to form campaign committees to co-operate with local shippers' associations in carrying out the plans announced for "Perfect Package Month."

"Exception Reports" were out for all faulty shipments discovered and these reports were sent to the shippers' association for tabulation to ascertain how high a percentage for "Perfect Packages" the shippers of that city attained.

Texas planters and merchants have organised a corporation with $10,000,000 capital for the purpose of erecting cotton mills at various points in Texas. The project is being pushed by a former director of trade and industrial education in the University of Texas.

In the United States Assay Office, a modest-looking, new building on Wall Street, New York, there is one and a half billion dollars worth of gold. This is said to be the largest amount of gold ever accumulated in one place.

The ter Meulen Bond Plan

By Sir Drummond Fraser

Organiser, Selected by Finance Council of the League of Nations

The ter Meulen Bond Plan is designed to enable war-stricken nations which possess approved national securities to finance essential imports—namely, goods which stimulate the productivity of the country—by giving them the power, through the bond, to command the confidence which will attract the necessary credit. The scheme proposes the formation of an international organization for the provision of guarantees which, on one hand, will protect the autonomy of the borrowing countries, and on the other hand, will offer adequate security for lenders.

The author of the scheme is Mr. ter Meulen, an Amsterdam banker, who spent two years in working out the details so as to meet every possible contingency. It was adopted by the Brussels Conference in September, 1920, and by the Council of the League of Nations in December. A sub-committee of the finance section, consisting of M. Avenol, France; Sir Henry Strakosch, South Africa, and Mr. ter Meulen, Holland, were authorized to find an organizer, and their choice fell upon me in March, 1921.

Under the ter Meulen scheme purchases from foreign countries must be balanced by sales to the foreign countries. The purchases and sales must be made through the private importers of one country with the private exporters of another. It is not intended to finance governments except in special, approved cases.

The first step is for the government of a war-stricken country to apply for the issue of the bonds. It notifies what specific assets it is prepared to pledge as a security for the commercial credits to be granted by the exporting countries. The securities required are such as yield a regular and, if possible, a weekly, fortnightly or monthly revenue, such as revenue from customs duties, state monopolies and so forth. Of course the nature and value of these securities are carefully examined and a gold value assigned to them, and permission to issue bonds to the gold value of the assets pledged is then granted to the government of the borrowing country or, in case of necessity, by the international commission or by a specially appointed sub-commission, on which the borrowing country may be represented. As soon as the total amount of bonds is fixed, the borrowing country issues bonds maturing in five, ten or fifteen years at an agreed rate of interest. These bonds, which will be issued as collateral security, will be payable in whatever currency the exporter desires, and will be issued by the importer's government in the same currency. This will generally be the currency of the lender's country. The outstanding feature of the ter Meulen bond is that the government of the lender's country does not appear; therefore, the borrower's country, which provides the guarantee for its nationals or itself, is freed from the self-interest of the lender's country provided the revenues from the pledged assets are managed in accordance with the wishes of the commission.

The bonds will only be handed over by the government of the borrowing country to such of its national importers as have been able to satisfy the government with regard to their standing or securities.

Thus, there is the creation of a reservoir of credit in return for an adequate national security. This created reservoir of credit takes the form of ter Meulen bonds, i. e., bonds payable to bearer. The revenue from the borrowing country will be adjusted to

meet three specific demands; payment of maturing bonds; provision of interest and sinking fund; and purchase of bonds against the debt of possible but not very probable defaulters. The last of these is a very unlikely contingency, for the simple reason that the borrowing country is certain to sift most carefully the importers to whom it issues bonds. It knows well that any default will bring discredit upon the country. And this is a serious matter to a country trying to regain world confidence in its commercial status. Where a default occurs the exporter who holds or has pledged the bond is obliged to offer it for a fortnight to the borrowing government, upon whom the ultimate liability of a default falls, unless he wishes to hold it as an investment.

It is obvious that the bonds will only step in where the conditions are unsuitable for ordinary banking accommodation. The exporter naturally wishes to have the transaction carried through with the minimum of risk, while at the same time he is willing to grant longer credit than is usual with the banks. Therefore, with the bonds as a collateral, he can make arrangements for the finance through a corporation, such as the corporations formed under the Edge Act. Such a corporation would naturally be given those longer advances against a ter Meulen bond as satisfactory security, because it obtains its funds from its own debentures at 5, 10, 15 years, subscribed by investors. The reason that investors will be attracted to these corporations is because they finance foreign securities—such as the ter Meulen bond — for essentials only. These bonds will not be issued for non-essentials, because non-essentials hinder rather than stimulate the economic life of the borrowing country.

International solidarity is based upon economic necessity just as a sound system of credit is based upon gold. The International Credits Scheme—ter Meulen bonds—of the League of Nations does not bar American exporters being interested so long as they have faith in the scheme. The absence of America as a member of the League does not affect the scheme, because the participating countries are borrowers. America is a lender.

Now I come to the whole crux of the matter—Finance. The importer will want to know that the exporter will be able to finance the transaction until he can pay. The exporter has now four reservoirs to tap:

1— Open Credit — Exporters give credit with or without security from their own resources and, to meet seasonal requirements, rely largely upon banking accommodation. This open revolving credit has ceased to revolve in consequence of the lack of confidence of exporters in the ability of importers to pay their way.

2.—Cash Credit—This is represented by cheque, cable, and transfers, which also mean the transfer of banking accommodation.

3—Bill Credit—Before the war the international currency was mainly a European bill, which settled the payments of overseas trade all over the world. This also means banking accommodation. When the war broke out I estimate that 50 per cent of these bills were in circulation outside the European market; the bulk of these bills were held by banks as self-liquidating interest-bearing securities—a profitable substitute for gold.

4—Bond Credit—This is the new financial machinery required today for removing the lack of confidence and for quickening stagnant trade. Again banking accommodation is required. But it is not the banker's duty to find the accommodation for the reconstruction of the European coun-

tries and the development of enterprise requiring long-term credit. This is where the Edge Act Corporations come in—to turn "frozen credit" into productive credit. Just as the governments of the borrowing countries have pledged their national securities for the benefit of their nationals, so must the governments of the lending countries support these corporations in order to safeguard the money of their own investors. Just as the borrowing governments must place their home affairs on a sound basis in order to issue the collateral bonds, so must the lending countries stimulate the interest of investors into action in order to restore their diminishing revenue to enable them to maintain the equilibrium of their budgets,

To restore the equilibrium of trade is the paramount problem of today. In other words, the burden of the long-term credit required for the rehabilitation of the productive power of Europe must be shifted from the "frozen credits" now held by the banks (which are clogging the wheels of the present financial machinery) into the hands of investors. Thus the old financial machinery will be lubricated and a new machinery created. Both are required because they dovetail into each other.

My suggestion is that there should be National Export Corporations in each lending country, backed by a pro rata guarantee of the government, banks and other financial institutions. America, England, France and Italy—the four great powers upon whom the peace of the world depends—should set the example.

America, formerly a debtor country, depending upon the European market for capital, is now a great creditor country, and she can only maintain her exports by investing capital abroad.

Orange Growing in Palestine

Digest of report from Consul
A. E. SOUTHARD, *Jerusalem*

Jaffa oranges, famous for their sweetness and general excellent quality, are the leading item in the export trade of Palestine, and are of special interest in the commercial status of a country which normally imports from four to five times as much as it is able to export. The average grades go to Egypt and other eastern Mediterranean markets, but England is probably the most important market.

In the last good year before the war the export crop of Jaffa oranges amounted to approximately 1,500,000 cases, which required something over 4,00,000 feet board measure of lumber for crating and boxing. When the export trade was resumed in 1919 and 1920 the season's exports amounted to 647,000 cases, and for the year ending March 31, 1921, to 830,000 cases. The crop for the season of 1921 and 1922 is expected to exceed 1,000,000 cases in all.

The lumber used for making orange cases is an item of considerable relative importance in the import trade of Jaffa. Before the war lumber for this purpose was imported mainly from Austria and Rumania, and since the war some Swedish and American lumber has been brought in. The Rumanian source of supply is again available and is favored because of the comparative cheapness with which the lumber may be obtained.

Some attempts have been made by American citizens interested in the Jaffa orange industry to obtain box lumber from the United States, but the conclusion arrived at is that it cannot economically be imported except in cargo lots. A considerable number of packers or growers would have to organize to use this quantity, and so far

this organization has not been effected. The most recent quotations obtained from the United States by the Jewish cooperative society were considered high. Rumania seems at present to be the most favored source as regards price, quality, and promptness and cheapness of delivery. The latest quotations are from 5 to 5½ pounds sterling per cubic meter c.i.f. Jaffa. A cubic meter ot lumber (424 board feet) yields an average of 100 orange boxes, and these prices, on the exchange basis of $3.75 to the pound sterling, are equivalent to $44 to $48 per thousand feet board measure, or 19 to 21 cents per box.

While the dimensions of the boxes used are not exactly uniform, the average is as follows: Length, 68 centimeters (26.77 inches); width, 32 centimeters (12.59 inches); height, 27 centimeters (10.62 inches). One partition is used. The thickness of the ends and partition is 16 milimeters (0.63 inch), and the thickness of the tops and bottons, 7 millimeters (0.28 inch).

Prior to the war lumber for orange boxes averaged in cost from 2½ to 3 pounds sterling c. i. f. Jaffa per cubic meter, which would be equivalent at par exchange to $28 to $34 per thousand feet board measure, or 12 to 15 cents per box.

A number of orange groves on the Plain of Sharon are owned or cultivated by American citizens. These citizens are keenly interested in the use of American equipment in connection with their industry, and advise their friends and neighbors to use it when prices and supply permit. As a result of American interest and ownership, there has been built at the Jewish colony producing the largest quantity of oranges a modern and up-to-date packing house along American lines, equipped practically throughout with American machinery. A small amount of American sawn lumber was also imported by this packing company. The packing house is a distinct mark of American enterprise in Palestine, and its successful operation will mean the construction of similar plants at other places in the orange-growing district. It is understood that the same company is arranging to import machinery and equipment from the United States for the construction and operation of a second packing house. This company will then be able to pack the bulk of the total orange crop of the district.

Under the conditions outlined there is a possibility for the sale of American lumber for use in making boxes for the Palestine orange crop, though at the present rate of exchange the opportunity is not particularly favorable.

(The names of the cooperative orange exporters' association and of the fruit-packing association can be obtained from the Bureau of Foreign and Domestic Commerce, Washington, D. C., or its district and cooperative offices, by referring to file No. 37015.)

World Chamber to Meet in Rome

Announcement is made by the American Section of the International Chamber of Commerce that the second annual meeting of the International Chamber will be held in Rome, Italy, during the week of September 18, 1922. At the first annual meeting held last June in London more than 200 American business men, representing virtually every industry in the United States, attended.

The date for the next meeting was decided upon at a meeting of the Council of the International Chamber held in Paris. The United States was represented at the Council meeting by Owen D. Young, vice-president of the General Electric Company; E. A. Filene, president, William Filene's Sons Company, Boston; and Elliot H. Goodwin, vice-president of the

Chamber of Commerce of the United States.

Great interest is being shown by American business men in the formation of committees which are to represent the United States in important matters which will come before the international body. Among the numerous subjects which are to be studied by the international committees are: export credits, foreign exchange, reciprocal treatment of foreign banks, bills of exchange, economy of fuel, international bureau of statistics, international commercial arbitration, international protection of industrial prosperity, unification of tariff nomenclature, reciprocal treatment of commercial travelers, reform of the calendar, through freight trains on great international traffic routes, uniformity of ships' tonnage measurement, combined rail and ship bill of lading, uniform ocean bills of lading, uniform interpretation of meaning of trade terms, and uniform passport regulations.

Eighteen countries now hold membership in the International Chamber, and a number of other countries have applied for admission. The countries already admitted are: Argentina, Australia, Austria, Belgium, Czechoslovakia, Denmark, France, Great Britain, Italy, Japan, Luxemburg, Netherlands, Poland, Spain, Sweden, Switzerland, and the United States.

The proposed passenger and freight tunnel under the Narrows, connecting Brooklyn and Staten Island, will cost $51,000,000, according to a report presented to the Board of Estimate by the special committee appointed to investigate the subject. The entire cost of the project, including erection of classification yards at each terminal, belt line railroads and elevated industrial railroads will be $141,000,000.

Petroleum as Fuel in Furnaces

By Dr. W. N. BEST F. R. S. A.

(Continued from November REVIEW*)*

There has been a greater development in furnace construction during the past four years than in all the world's previous history. It requires 2,009 cu. ft. of air to furnish the oxygen requisite for the combustion of one gal. of oil. Only about 20 per cent. is nitrogen and other gases which unfortunately must be heated up to the same temperature as the furnace, but for economy's sake must be expelled as quickly as possible. It is therefore necessary that the furnace construction be such that the consumed and inert gases will be expelled at once. The combustion chamber should be so located and of such form and proportions as to insure perfect reverberation of the heat, while aiding in the quick expulsion of the gases. Only one burner should be used on any billet-heating furnace, no matter whether the charging space be 12 by 18 inches or 8 by 24 ft. in size. For a regenerative melting furnace two burners are necessary, but of course only one burner is in operation at any one time. In all other melting furnaces, whether the bath be 2 ft, square or 20 by 140 ft., whether the product requires an oxidizing or a reducing flame continuously or alternately, only one burner should be used. Additional burners make the operation of the furnace too complex. While the operator may strive to run them all alike, some will be giving an oxidizing and others a reducing flame, thereby impairing the efficiency of the furnace.

In the designing of furnaces the question is not how many burners can be used, but how few will do the work. A poorly constructed furnace will ruin the efficiency of the best oil

burner ever made, while a poor burner will ruin the efficiency of the finest furnace ever designed. It is as impossible to cover a flat furnace bottom or charging space with a round flame as it is to fill a square hole with a round plug. To obtain the highest efficiency and strictest economy it is necessary to have a good furnace, scientifically designed and constructed, as well as a superior type of oil burner.

Oil is attractive in marine service because of the saving effected in labor, the time saved in charging the oil fuel on the vessel, increased speed of the vessel, the cleanliness, and improved sanitary conditions. Oil fuel, moreoref, elevates the mind of the fireman, as the scientific burning of oil requires not mere brawn, but brains.

In tug boat service, oil is even more attractive as a fuel than it is for ocean going vessels. In numerous tests, it has been found that two oil-fired tug boats will take the place of three coal-fired tugs of the same size and power, having all other conditions the same as when using coal.

For stationary boilers, especially electric-light plants, where there may be a battery of «standby» boilers, the use of oil permits the boiler capacity to be easily doubled in an incredibly short time, without injury to the elements of the boilers. One man can fire and water-tend twelve 200-H. P. boilers.

In the equipment of locomotive, marine and stationary boilers, the first consideration is the protection of the metal constituting the elements of the boiler. This can be effectively accomplished at a small cost. As soon as a locomotive is changed from coal to oil fuel (which can be done at a very small cost), the train tonnage of the engine is increased 15 per cent., because the locomotive can easily carry the steam pressure at all times at just below its "popping-off" point. This of course cannot be done while using coal as fuel.

For locomotive service the latest practice is "the duplex oil system", which employes two burners, a small and a large one. The former, used as the engine leaves the round-house and operated continuously thereafter serves as a pilot light, as well as to keep just sufficient heat in the fire-box to maintain the temperature and the steam required when the locomotive is standing still. It keeps the steam at just below the "popping-off" point when only the air pump is running, and no other work is being done. The larger burner, ordinarily placed above the smaller one, is operated when the locomotive is at work. By this system the life of the boiler is increased, and the handling of the locomotive becomes much simpler. Gravity oil feed is ordinarily used in locomotive service. Air pressure should not be used on the locomotive oil tank to aid in forcing the fuel to the burner, but in stationary or marine practice 10 lb. pressure should be maintained on the oil-supply pipe.

The recent war has revealed to foreign nations the value of oil as fuel, and they are now making great efforts to secure this fuel. England is a great manufacturing country and has a grave responsibility in manufacturing goods for her colonial possessions. She is doing all in her power to secure as much of this fuel as possible, and will use it in her factories. The nations which conserve their oil and use it in the manufacture of metals will be the great manufacturing nations of the future, owing to the fact that they will get the maximum quality and quantity of output.

From data secured as the result of hundreds of tests, and to show the value of liquid fuel in various forms

of equipment, the following data will furnish food for thought :

In marine service, using mechanical burners, it requires 180 gallons of oil to represent a long ton (2240 lbs.) of coal having a calorific value of 14,000 B. t.u. per pound. In tug boat service, using atomizing burners, it requires 147 gallons of oil to represent a long ton of coal.

In locomotive service, using atomizing burners, it requirers 180 gallons of oil to represent a long ton of coal.

In power plants, in water tube boilers, using atomizing burners, it requires 147 gallons of oil to represent a long ton of coal.

In large forging plants, it requires 82 gallons of oil to represent a long ton of coal. In small drop forging furnaces, it requires 62 gallons of oil to represent a long ton of coal.

In heat-treating furnaces, with high temperatures, 63 gallons of oil represent a long ton of coal. In heat-treating furnaces, with low temperatures for drawing purposes, only 58 gallons of oil are required to represent a ton of coal.

In flue-welding furnaces, welding safe ends of locomotive flues, only 58 gallons are required to represent a ton of coal. This is because a coal fire must be coked, thus losing not only the volatile matter from the coal but valuable time while coking the coal.

The oil referred to has a calorific value of 19,000 B. t. u. per lb., and weighs 7½ lbs. per gallon.

Following are a few useful equivalents :

3¼ bbls. of oil (42 gals. per bbl.) is equivalent to 5,000 lbs, hickory or 4,550 lbs. white oak.

6 gals. of oil represent 1,000 cu.ft. of natural gas, the gas having a calorific value of 1,000 B.t.u, per cu. ft.

3½ gals. of oil equal 1,000 cu ft. of commercial or water gas, having a calorific value of 620 B.t.u. per cu. ft..

2¼ gals. of oil equal 1,000 cu. ft. of by-product coke oven gas, having a calorific value of 620 B. t. u, per cu. ft..

42 gal. of oil equal 1,000 cu. ft. of blast furnace gas of 90 B. t. u. per cu. ft.. This gas is used in the United States boilers, and also in large furnaces, but it requires coal tar or oil to aid in the keeping up of the required horse-power of the boilers, or in furnishing the temperature required for the heating furnaces. Oil or coal tar are excellent fuels which can readily be used as fuel to operate in conjunction with the blast furnace gas in boilers or large furnace practice.

Usually ten gallons of coal tar are made from every ton of coal coked in by-product coke ovens. This tar has a calorific value of 162,000 B.t.u. per gallon and weighs 10 lbs. per gallon.

World's Biggest Liner

The White Star liner Majestic, ex-Bismarck, will be ready for service between Southampton and New York early next spring. The Majestic will be the largest ship afloat, having a displacement of 56,000 tons, nearly 10,000 tons larger than the Olympic and about 2000 tons larger than the Leviathan.

Her three smokestacks, each 30 feet in diameter, rise 184 feet above the keel, or to the height of an ordinary twelve-story building. There are nine decks, and the ship is liberally equipped with electric elevators. When carrying a full passenger list she will be inhabited by 5200 people, divided into 4100 passengers and 1100 crew. One thousand passengers are in the first class, 700 in the second, and 2400 in the third.

The appointments are very luxurious and include a large gymnasium, electric and Turkish baths, and a mosaic

and marble Pompeiian swimming pool. This pool has a bottom area of 820 square feet and a depth of 9 feet, and is arranged with a gallery for spectators and 30 dressing rooms.

The power plant consists of four turbines working on four propeller shafts and delivering a total of 62,000 H. P. Normally the propellers will turn 170 r. p. m., driving the ship at 23 knots. The maximum speed is 194 revolutions, and this is expected to drive at 26 knots, or better than 30 statute miles an hour. The ship will be fitted with fuel oil burning boilers and will consume about 11,400 tons of fuel oil in a round trip.

The watertight bulkheads in the hull are fitted with heavy hydraulically operated, electrically controlled watertight doors. The ship's decks have a total area of seven and onehalf acres, and four times around the promenade deck gives the passenger a constitutional of one mile.

The Majestic is being finished by Blohm and Voss of Hamburg under special arrangement between the Allies and the German government and under the supervision of the representatives of the White Star Line.

The British passenger lines are confining themselves to what might be called intermediate class liners around 20,000 tons displacement, but Harland and Wolff have recently laid down in their new Musgrave Channel yard at Belfast a 32,000 ton passenger liner for the Holland-America Line, which will bear the name of Statendam. This is the largest vessel laid down in the United Kingdom since the beginning of the war.

Signs of Improved Business

Six months ago not even the most optimistic prophet would have ventured the prediction that by September of this year deflation would have practically run its course, that wage reductions would have been effected in practically all industries without serious labor trouble, and that the banking situation would have shown such phenomenal improvement. And yet these constructive elements have operated successfully and reports from economists and practical bankers and manufacturers in all parts of the world indicate clearly that the long period of price depression and under-consumption has been ended, and that we are now at the beginning of a long period of accumulating prosperity.

To prove that the tide has begun to turn, that improvement in international commerce has actually begun, here are some of the indications. There is a distinctly stronger underlying sentiment in the market, as the Stock Exchange people sometimes put the expression. It is found in the very atmosphere in which international traders live and move, among steamship lines, forwarding agents, export merchants and manufacturers. It is seen in the hardening of prices in many lines which has already begun to stimulate orders, for uncertainty as to prices has been one of the strongest influences in restricting the trade of late. It is found in the gradual reduction of wholesale and retail stocks the world over, foreshadowing, if not today necessitating, purchases of new stocks. It is found in the gradual, even if slow, readjustment of production costs, in improving bank statements, in the general stabilization of finance and of business in all countries.

Statistics of commerce may be expected shortly, that is, in the course of the next few months, to reflect the improvement which keen observers discover today. The trouble with many a shrewd and able merchant is that he looks only upon his ledgers covering the past few months, and too many of us are apt to forget the fact that business always goes on in some volume—it never ceases altogether. No international conditions can now or ever affect commerce beyond a certain irreducible minimum. *American Exporter*

Irrigation Projects in the Sudan

The Egyptian government is going on with the study of the irrigation projects on the upper Nile. The importance of such study was especially emphasized by H. T. Cory, the American irrigation authority, who was a member of the Nile Commission appointed in 1920.

Particular attention is being paid to the possibility of utilizing Lake Tsana, at the head of the Blue Nile, as a reservoir.

The Blue Nile is practically the flood of the Nile and during that period, August to October, it contributes about nine-tenths of the river's volume. Fed by torrents coming down from the Abyssinian plateau, it is during the flood season heavily charged with silt; in fact, alluvial Egypt is to all intents and purposes the gift of the Blue Nile.

After October, when the rainy season ends, the waters of the Blue Nile decrease very rapidly in volume and become clear. Thus it will be possible to store its water during November at the Sennar Reservoir, the dam of which is now under construction, for the use of about 100,000 acres of cotton which it is proposed will be grown on the Gezira in the Sudan.

After November and until the early summer in Abyssinia, the river discharge becomes very small, scarcely one-fiftieth of that of a good flood. During the flood only is there a surplus supply, but as the Blue Nile and the main river are muddy in the Sudan and Egypt, such a surplus cannot be stored. In Abyssinia, however, the waters leaving Lake Tsana to form the head of the Blue Nile are clear, even in flood time, and could be stored for use in the spring and summer in Egypt.

A dam could, it is believed, be cheaply constructed at the exit of Lake Tsana, but the present problem is not so much to establish the contents of such a reservoir as to determine the probable discharge now leaving the lake during the period July to October. As, in spite of its being clear, the Blue Nile is very muddy during that season, it is obvious that the Lake Tsana water forms but a small part of the main flood. The present investigations will, however, determine whether its contribution is sufficiently large to warrant extensive works at the lake exit. Unfortunately Lake Tsana is not in the Sudan, but in Abyssinia; but it is believed that through the good offices of Great Britain, arrangements may be made which would be greatly to the advantage of Egypt and the Sudan.

As regards the Sennar Reservoir and the canalization project which will be for the benefit exclusively of the Sudan, work is being pushed. Some powerful mechanical diggers are at work on the main canal, and irrigation should be possible in 1923, provided funds are available. On account of the high cost of labor the original estimates are being greatly exceeded, and for this reason the Sudan authorities are now in negotiation with the British Government for the increase of the Sudan loan, which is guaranteed by that government, from £6,000,000 to £9,000,000.

America Tobacco Figures

Of the two and a half billion pounds of tobacco grown annually throughout the world more than half the supply is grown in the United States.

Special types of tobacco are imported for manufacturing or blending purposes. Cigar leaf tobacco comes fromCuba, Porto Rico, the Philippines, Sumatra and Santa Domingo, while the principal cigarette leaf tobacco imports are from Turkey, Egypt and Greece. The value of imports of leaf tobacco, products and manufactures. is about $100,000,000 per annum as compared with $62,764,357 in 1918 and $32,600,512 in 1916.

Exports of tobacco and tobacco products from the United States have increased about fourfold since 1914, reaching $268,693,709 in 1920. Leaf tobacco ranks highest both in the imports and exports. Exports of leaf tobacco last year were valued at $288,693,799, as compared with $73,485,296 in 1916. Cigarettes were the next important tobacco product exported. Their value in 1920 was $35,977,374 as compared with $7,584,345 in 1916.

World's Tanker Tonnage

The comparative amounts of merchant steam and gas tanker tonnage accredited to leading countries on June 30, 1914, and 1921, are shown in the following table:

Countries	1914	1921
United States...	201,160	3,121,863
United Kingdom	819,993	1,398,187
Norway.....	4,728	130,864
Holland.....	83,294	115,032
France.....	11,232	47,606
Germany.....	204,849	11,425
Other.....	106,194	145,099
Total..	1,431,950	3,970,166

In addition to the steam and gas tankers, there are in the oil-carrying service 91 sailing and barge vessels of 139,000 gross tons, 105,000 tons of which belong to the United States; and approximately 160,000 tons of Navy vessels, 62,000 tons of which belong to the United States.

America's Latest Superdreadnought

On September 1 the United States superdreadnought "Washington" was launched at the Camden plant of the New York Shipbuilding Corporation.

The main dimensions of the vessel are as follows:

Length, on water line..	600 feet
Length overall.....	624 »
Displacement (weight), normal load, tons.....	32,600
Displacement, full load, tons	33,000

Like all recent United States capital ships, the"Washington"will be electrically propelled. Her main engines will consist of two 15,000 H. P. Westinghouse turbo-electric generators, which will generate electricity to operate four 7300 H. P. Westinghouse motors, one for each propeller. The steam will be generated by eight watertube boilers fired by oil.

This electric drive is superior in several particulars to other methods of propelling a warship. A most important advantage is due to the fact that the main turbines are not connected mechanically with the propellers and no long shafts run through the ship. In consequence, the main turbines can be located in the most convenient position with reference to the ship's military requirements, such as protection from under-water attack, ammunition storage and handling, turret construction, and so on.

Electric drive also provides great manoeuvering power, because the pro-

pellers can be almost instantly reversed with full power. In addition, the turbines operate under the best possible conditions for high economy, which means that the ship possesses a greater radius of action than one with a less economical form of drive. In the recent trials of the U. S. S. "Tennessee", which is also equipped with Westinghouse electric propulsion, and is similar in tonnage and horsepower to the "Washington", it was found that this great vessel could be brought to rest from full speed within three minutes, turned on a circle like a destroyer, and driven backward at fifteen knots, all of which are believed to be records and prove the excellence of her propelling machinery.

The main battery of the vessel will consist of eight 16-inch, 45-caliber, breech-loading rifles, mounted in four turrets, two forward and two aft. Each of these monster rifles, of which there will be two in each turret, will be over 60 feet in length.

Below the splinter deck the vessel is divided honeycomb-like into a multitude of comparatively small watertight compartments. Each of the eight water-tube boilers is in a separate watertight compartment, as is also each of the two turbo-generators which generate the electrical energy for the operation of the main propelling motors. The four main propelling motors are located in three watertight compartments. With this subdivision, even if torpedo damage should penetrate into the portion of the vessel occupied by the propelling machinery, the vessel would not be put out of commission, since the simultaneous flooding of one or more of the boiler compartments, one turbo-generator compartment, and one or more propelling motor compartments, would neither sink the vessel nor render it unnavigable.

Early Days of the Telephone Industry

The telephone was patented in 1876, the year of the Centennial Exposition at Philadelphia, where the instrument was exhibited. It was seen by Emperor Dom Pedro, of Brazil; by Lord Kelvin, the distinguished British physicist, and by others who gave it a world-wide newspaper publicity. During the next few years a small corporation, taking the name of the inventor, Alexander Graham Bell, manufactured telephones at Boston, but the cost was very heavy, and the business suffered from lack of capital.

In the spring of 1878, Theodore N. Vail became convinced that the invention had a future, and resigned his office of general superintendent of the Railway Mail Service in order to become general manager of the Bell Company. To Mr. Vail's friends this seemed like a reckless venture.

The problem that faced the company is thus described by Albert Bigelow Paine in Harper's Magazine for September :

"The Bell Company had no capital with which to construct a general telephone system. It could hardly construct the telephones themselves, to supply orders. Vail and his associates realized that there was just one way to carry out the work. Local companies must be promoted in the towns, the stock to be locally subscribed, a percentage of it to go to the Bell Company for the franchise, with a rental charge for the use of the instruments. It was a big idea, one of the biggest ever conceived; also one of the simplest—at least in theory.

"Putting it into operation was another matter. Rarely has there been such a chaos of business affairs as Theodore Vail found when he took hold of those of the Bell Telephone Company. A good deal had been

done, but most of it had been done wrong. Energetic men had, in effect, been running around in circles, trying to create a mighty industry, with no precedent to follow, no directing hand, no capital, nothing but a patent right —a Yankee toy—and such funds as had been scraped together by a manufacturer of shoe soles, whose heart was in the right place, but whose gifts hardly qualified him to become a captain of industry.

"The new manager directed his first efforts to the territory outside New England, where there were in operation 6335 telephones, with an average net rental of something less than ten dollars per year. The company was reorganized with Mr. Vail as the only salaried officer. The company secured its cash capital by obtaining a loan of $25,000 on 1000 shares of stock (worth $100,000), and 500 more shares were to be sold at $50 a share. This secured only $50,000 in all, for the company's cash capital, but there was no little difficulty in raising even that amount.

"In those days of discouragement, Manager Vail was far from being dismayed. He worked always as if he had infinite resources of capital as well as courage, and an army with banners behind him. He laid out his campaign on a large scale and constantly introduced new features, among them a 5-year standard contract which required the local companies to build exchanges, and confined them to certain areas. There were also contracts which provided for connecting two or more towns, though for these there was little call. How could the telephone ever be made to work at any distance when often it refused to be heard across the street? Vail, however, never for a moment doubted the realization of the last possibility suggested by Bell's invention, and provided accordingly. In his vision he saw wires extending from city to city and across the States. He even began securing interstate rights, in a day when there was no wish to deny a privilege the value of which was considered negligible. The plan in his mind was to create a national telephone system, in which the Bell Company would be a permanent partner".

Review of Reviews

The Pencil Industry in the United States

More than 750,000,000 American pencils are manufactured for home consumption and another quarter billion for export every year, requiring many thousands of cords of wood. Red cedar and red juniper are the woods chiefly used in making lead pencils, but they are becoming scarce and many manufacturers are turning to paper. The world is being searched for new sources of suitable woods and in East Africa a kind of cedar has been found with wich experiments are being made.

The pencil industry in the United States goes back to 1812 when William Monroe made 500 pencils at Concord, Massachusetts, and sold them in Boston, but the War of 1812 stopped his plans. Henry D. Thoreau, the naturalist and philosopher, and a fellow-townsman of Monroe's, made a famous brand of pencils. In 1861 Eberhard Faber began making pencils on a large scale in the United States.

The graphite which makes the mark is, of course, the important part in the manufacture of the pencil. Ceylon has furnished much of the graphite used in America. The chief deposits in the United States are in Alabama, New York and Pennsylvania. Graphite is also found in Madagascar, Mexico and Czecho-Slovakia.

Les Créances de l'Amérique

Il est depuis quelque temps beaucoup question des dettes contractées par les divers pays envers les Etats-Unis et dont, bien qu'elles s'élèvent à un chiffre considérable, il a été plusieurs fois question d'obtenir l'abandon. On a été jusqu'à dire que les Etats-Unis eux-mêmes y auraient un véritable intérêt. A ce propos, la Direction de Paris de la «Guaranty Trust Company of New York» publie sur cette question l'intéressante étude que voici.

«Un des faits les plus saillants de la situation du Credit International depuis la guerre est la chiffre considérable des dettes des gouvernements les uns envers les autres. En 1914, la Grande Bretagne, après deux siècles de placements à l'étranger se trouvait créditrice du reste du monde d'environ Lstg. 4 millards, soit au pair, près de Doll. 20 milliards. Durant la guerre l'Angleterre réalisa près de Lstg. 1 milliard qui servirent principalement à payer des produits américains.

«Au cours de la guerre les Etats-Unis ont accordé à l'étranger des crédits de toutes sortes représentant un peu plus de Doll. 15 milliards, dont Doll. 3 milliards environ dus à des particuliers qui ont placé des capitaux en valeurs étrangères et plus de Doll. 10 milliards dus au gouvernement américain.

«Depuis la fin de la guerre, les placements américains à l'étranger n'ont cessé de se développer. Cette année il semble que leur chiffre atteigne environ Doll. 500 millions dont une partie pour des remboursements. Cette somme représente le montant d'une année des intérêts dus au gouvernement américain par les gouvernements étrangers et actuellement non payés. Ce placement américain à l'étranger est un nouveau facteur considérable qui influe sur la balance du commerce. Il y a lieu de mettre en regard de ce chiffre celui des importations nettes d'or qui, du 1er janvier au 30 septembre, attaignit Doll. 548,854,916. Les placements privés des Américains à l'étranger, qui étaient très peu importants jusqu'en 1915, atteignent un chiffre considérable et qui ne peut être comparé, toute proportion gardée, qu'à l'effort des capitalistes anglais après les guerres napoléonniens.»

Le détail des dettes des divers gouvernements envers le gouvernement de Etats-Unis est exposé dans le tableaux ci-dessous auquel on doit ajouter environ Doll. 1 milliard d'intérêts actuellement non payés.

	En dollars.
Armenie	11.950.917
Autriche	24.035.708
Belgique	375.280.147
Cuba	9 025.500
Tchéco-Slovaquie	91.179 528
Esthonie	13.999.145
Finlande	8.81.926
France	3.350.762.938
Grande-Bretagne	4.166.318.358
Grèce	15 000 000
Hongrie	1.685.835
Italie	1.648.034.050
Lettonie	5.132 287
Liberia	26.000
Lithuanie	4.981.628
Pologne	135.061.660
Roumanie	36.128.494
Russie	192.601.297
Serbie	51 152.160
Total	10.141 267.585

Même sans tenir compte de la valeur actuelle du Dollar au change, le chiffre est assez imposant pour que l'abandon d'une aussi forte créance demande réflexion: il ne faut donc pas faire grief aux Américains de paraître vouloir difficillement s'y décider.

La Population des Etats Unis

Le Bureau du Recensement, attaché au Ministère du Commerce Américain, a récemment publié un rapport préliminaire ayant trait à la composition de la population des Etats-Unis par ordre de race, telle qu'elle ressort du recensement fait le 1er Janvier 1920.

La population totale des Etats-Unis comprenant 105.710.620 habitants se décompose comme suit: 91.822.431 blancs, 10.643.013 nègres, 242.959 Indiens, 111.025 Japonais, 61.686 Chinois, 5.603 Philippins, 2,505 Indous, 1.230 Coréens, et 147 de races diverses.

Les chiffres correspondants pour 1910 étaient les suivant: 81.731.957 blancs, 9,827.763 nègres, 265.683 Indiens, 72.-159 Japonais, 71.531 Chinois, 160 Philippines, 2545 Indous, 462 Coréens et 8 divers.

Le taux d'augmentation pour les races principales au cours des dix dernières années a été le suivant: Population totale 14,9 pour cent; blanc 16 pour cent; nègres 6,5 pour cent; Japonais 52,9 pour cent. La population des Indiens a diminué de 8,6 pour cent et celle des Chinois de 13,8 pour cent.

Le taux d'augmentation de la population blanche au cours des dernières dix années, soit 16 pour cent, a été très inférieur à celui des dix années précédentes qui avait été de 22,3 pour cent. Cette diminution s'explique principalement par la grande réduction qui s'est produite dans l'immigration au cours de la guerre. Une évaluation basée sur l'excédent des naissances par rapport aux décès et sur l'excédent de l'immigration par rapport à l'émigration donne un total qui ne diffère que de moins d'un pour cent de la population blanche énumérée.

Le taux d'augmentation de la population nègre qui n'est guère affectée par l'émigration ni l'immigration est, de

beaucoup, le plus bas qui ait été noté jusqu'ici. Cet élément de la population a augmenté à un taux qui diminue rapidement depuis trente ans. Le pourcentage d'augmentation est tombé de 18 pour cent entre 1890 et 1900, à 11,2 pour cent dans la période de dix années suivantes, et à 6,5 pour cent au cours de la période de dix années qui s'est terminée le 1er janvier 1920.

U. S. Trade with Germany

Germany's requirements as to United States products are apparently unchanged. Details of the 1921 trade of the United States with Germany show, says a statement by The National City Bank of New York, that her habits of reliance upon the United States for manufacturing materials and certain staple articles of food continue as before the war. Total exports from the United States to Germany in the fiscal year ending June 30, exceed in value those of the pre-war high record year, 1914, the total for the fiscal year 1921 standing at $381,772,000 against $344,794,000 in the fiscal year 1914.

The principal articles forming this total of American 1921 exports to Germany are practically the same as those prior to the war, as raw cotton, copper, wheat, meats and mineral oils in the various forms. The list of food-stuffs now includes condensed milk, not formerly sent to Germany, while naval stores, cottonseed meal, and tobacco, which were sent formerly, are not now included.

Raw cotton is the biggest single article, measured by values, of the 1921 exports to Germany, totaling $104,000,000. The quantity of cotton sent to Germany in this fiscal year is greater than to any other country in the world except the United Kingdom.

New Bureau of Economics for American Farmers

A far-reaching step in the reorganization of the economic activities of the United States Department of Agriculture was taken by Secretary Wallace on July 1, when the work of three bureaus touching most intimately the immediate problems of American farmers and American agriculture was merged. These bureaus were the Bureau of Markets, the Bureau of Crop Estimates, and the Office of Farm Management and Farm Economics.

The reorganization is the result of Secretary Wallace's determination to marshal all the forces of the Department of Agriculture engaged in economic work into one fighting unit to attack the economic evils that have brought about the present serious situation in American agriculture. Mr. Wallace in his first official statement as Secretary of Agriculture declared that the agricultural depression was "the inevitable result of economic conditions" for which he prescribed as follows: "We must study everything which influences both production and price."

Fraudulent Business and Post Office Addresses

To the Monthly Trade Journal of the British Chamber of Commerce of Turkey and the Balkan States we are indebted for the following:

"In our August issue we advised traders to be cautious in their dealings with unknown firms whose only address was a Post Office Box Number, British or Foreign. One firm, K. Hatounoglou, whose sole address was P. O. Box 105, Galata (not British) practised a big fraud on a French firm established at Limoges. Another person, having a Post Office Box Number, was traced to the office of one of the originators of the Black Band, the now notorious Vemians of Smyrna and Constantinople. In this latter connection we warned two important British firms that the quality of produce of which he was offering samples, probably from some other entirely different source, did not exist on this market, the usual practice of this Band being to offer samples of good quality at a most reasonable price, their terms being to draw 70 to 80 per cent of supposed invoice value against opened Bank credit, but to ship worthless rubbish."

The British Chamber of Commerce has secured a decision for publicity as regards the names and addresses of all box holders at the British Post Office, Constantinople. This will prevent undesirable persons from taking cover under the inviolability of the Post Office lists as in former days.

Apple Pie Week in Pennsylvania

"Apple Pie Week" was observed in Pennsylvania, November 14-19, inclusive, as a result of the action of the executive committee of the Pennsylvania Association of the Baking Industry. This marks the second "Apple Pie Week" to be held in the state, the first being held in November of last year.

The State Department of Agriculture through its horticultural branch cooperated in making this year's "Apple Pie Week" a rousing success.

Hints as to the uses of apples in pies, tarts and cakes were sent out from the offices of the association. It was also suggested that every baker should send to the Mayor or Chief Burgess of his city or town an apple pie on November 14, the acceptance by the Mayor signalizing the formal launching of "Apple Pie Week" in that city or town.

America's Enormous Condensed Milk Output

During the years 1914-1918 the production of canned milk in the United States rose from 660,000,000 pounds to more than 1,500,000,000 pounds, and the exportable surplus of canned milk increased during approximately the same period from only 15,000,000 pounds to the enormous quantity of 836,000,000 pounds. In the single month of June, 1919, the United States exported 113,835,626 pounds of condensed and evaporated milk, an amount several times as large as the total exports for any entire year prior to the war, and during the year ending June, 1920, the value of canned milk exports from the United States reached $104,862,569.

This important industry dates back to the year 1856, when Gail Borden, Jr., patented his process of concentrating sweet milk by evaporation in "vacuo." During the sixty-five years that have passed since the granting of that patent, the chemical and engineering processes involved have been so perfected that a trip through an up-to-date condensery gives one the same feeling of hygienic cleanliness that is found in a modern hospital.

To most of us, one glass of milk tastes very much like any other, unless it is sour or perceptibly blue. Actually there may be a great difference not only in milk from different cows but even in milk from the same cow on different days or in different seasons. Milk is richer in winter than in summer, in cold weather than in warm weather, and the proportion of milk fats and other solids in samples analyzed after a long wet spell often varies considerably from that found in samples

analyzed after a long spell of dry weather. It is the percentage of milk solids that constitutes what we call richness in milk, and every batch of milk sent to the evaporating pans must come up to a definite standard of richness.

There are two kinds of condensed milk, unsweetened and sweetened, and as each has its own merits and its own customers, the modern condensery usually produces both varieties.

After careful analysis and weighing, the milk is conveyed to a large storage vat, an enamel-lined tank, in which revolving paddles continually stir the liquid to prevent the cream from rising to the top. It is then carried through pipes into large copper tanks, or heating wells, in which the temperature is allowed to rise gradually up to 160° F., at which point the milk foams up to the top of the vat. The milk is then kept at a uniform temperature for several minutes, after which it is piped into the mixing wells. Here, if the milk is to be sweetened, sugar is added, usually about 16 pounds to every 100 pounds of milk. The exact quantity of sugar varies with the natural sweetness of the milk, but it is very important that the percentages be exactly correct, for if there should be even a little too much sugar, the finished product would be unpleasantly gritty, and if there should be too little sugar, the milk would spoil sooner or later.

From the mixing wells, the milk is drawn through pipes into copper vacuum pans, which are really not pans but covered cylinders with a large pipe at the top to draw away moisture from the evaporating liquid. Here the actual process of condensation takes place, each "pan" taking care of about 100,000 pounds of fluid milk every day. The simplest way to condense milk would be to boil it and draw away the steam, but boiled milk is less palatable and less nutritious than sweet milk. The American inventor's great contribution to the art was to accomplish evaporation with the aid of a partial vacuum, which makes it possible to get rid of the water in milk at a much lower temperature than would otherwise be effective.

If the milk has not been sweetened, it is drawn from the vacuum pan into a kind of pumping apparatus known as a homogenizer, which drives the milk through a series of tiny passages, thus breaking up the globules of fat, or cream, so effectively that they never get together again but remain evenly distributed through the milk. If the milk is sweetened, it escapes this strenuous treatment, and is forced direct from the vacuum pan first through the coils of a water cooler, and then through the pipes of a brine cooler, where its temperature drops to 45°. It then pours into the filling machines, which are so designed that their cylinders will hold just enough milk to fill a corresponding number of cans; the cans are then sealed and labeled, and if their contents are of the sweetened variety, they are now ready for the market.

If the milk has not been sweetened, it must now be sterilized, for unsweetened milk spoils very quickly. Sterilization is accomplished by means of a revolving framework, holding 6,720 cans of milk at a time and mounted within a big iron boiler, which is first nearly filled with hot water and then subjected to steam until its temperature rises to from 226° to 240° F. The cans are kept at that temperature for from thirty minutes to half an hour.

This series of processes may seem long and complicated, but it is man-

aged with such mechanical ingenuity that it is not at all unusual to receive raw milk in the morning and dispatch the finished product in the afternoon. It will have been noticed that during the entire process of heating, condensing, and packing, no hand has touched the milk. From wells to mixing and evaporating pans, on through the cooling chamber to the cans, the milk is conveyed by pipes, handled at every stage by mechanical means and strictly guarded from exposure to dust and air.

The cans in which the finished product is to be packed are first sterilized by hot water and live steam, aud even the ordinary milk cans in which the raw milk is sent to the plant are sterilized before being returned to the dairy for another day's supply. In spite of all these precautions, however, the milk is not completely sterile, nor is it necessary that it should be—even the highest grade pasteurized milk specified by the milk regulations of New York City is permitted to contain 30,000 bacteria – but only the highest quality of raw milk is used, and the process of condensation, especially when sugar is added, so delays the growth of the few micro-organisms that survive, that a can of sweetened condensed milk, if not unsealed, will keep almost indefinitely.

Another less common but very useful product of the condensery is milk powder. This is really nothing but a more highly evaporated form of milk, but it is made from raw milk with a lower percentage of fat than is necessary for the fluid form, sometimes even from skimmed milk.

There are two distinct processes securing the extreme condensation necessary to reduce milk to powder. One method is to dry the partly condensed fluid on the surface of a heated revolving drum, from which it is afterwards scraped by means of knives, and is then ground into powder. The other method is to spray it into a current of heated air. As the tiny, atomized particles fall through this stream of hot air, they give up their moisture and collect on the floor of the drying chamber in the form of a very fine powder. Here again the utmost care is necessary to keep the temperature of the condensing surface or chamber exactly right, for too great heat will cause the albumen in the fluid to coagulate, and if that happens, the powder will remain a powder to the end of its days.

Export American Industries

The Danube Problem

Decision of Walker D. Hines, former director general of the United States railroad administration, in the question of shipping on the Danube river, has brought out the importance of that river in the development of the commerce of Europe. Mr. Hines' decision, made as arbitrator for the international questions arising in connection with the river fleets mentioned in the Versailles treaty, affects only the Danube, reservation being made for a decision later as applied to the other rivers.

Mr. Hines decided, among other things, that nearly all the Danube fleet seized by Serbia, Roumania and France had been confiscated validly. They were taken immediately after the war and included 155 vessels, 609,000 tons of barges and tugs of 48,000 horsepower. They had been used for war purposes, although privately owned. A few vessels, actually privately employed, were ordered returned to their owners. All had been in service on the Danube.

The Danube assembles into a geographical unit territories widely dif-

fering both in character of landscape and in their culture. With a total length of 2900 kilometers it flows through seven border states, part of which are struggling for economical and political consolidation.

Plans for developing the Danube into a great inland navigation system leading from the Atlantic to the ports on the Black Sea, across the heart of Europe, date back for centuries. In spite of the efforts of judicious statesmen it has been impossible to establish a central and uniform administration of the entire river. Diverging opinions of the different states as to the functions of the Danube have been reflected in the political negotiations on the administration of the river in the past century. The Danube Navigation Act of 1857, which was promoted by a commission of the border states, never was enforced.

For the regulation of the river bed large sums have been spent both in pre-war times and during the war, the expenses being, in Germany $5,500,000; in Austria, $34,000,000 and in Hungary, $50,000,000. The international Danube commission, residing in Galatz, Roumania, had spent up to the year 1911, about $77,000,000 on work done in the estuary of the river. The sums were divided between hydrographical surveying, studies and traffic service. The outcome of this commission's work is the navigation channel, of 6 meters depth, leading from the Black Sea to Sulina, which in 1856 was but 2.40 meters deep. Vessels of up to 4000 tons may pass. In spite of the large sums spent, the Danube traffic in the past kept within very narrow limits. Of the navigable course of about 2500 kilometers, the entire traffic hardly reached 15,000,000 tons annually.

For the present, as well as for the near future it may safely be said that the inland traffic will be of importance for the Danube, especially when a network of canals such as is actually under consideration will economically attach further territories to the river system. Though the part of the Danube as a road of world traffic still may be judged with some reserve, there is no doubt but it is of the utmost importance for water-carriage in Central Europe as soon as adequate developments will bring it up to modern requirements. In the past, the particularism of the border states and the fact of initiative being left with the single states have been a hindrance to the development of Danube traffic. The peace treaty aimed to remove this hindrance, and to establish the Danube in the position for which it seems predestined by nature, but from which so far it has been withheld.

However, it only deals with the judicial side of the Danube question, setting forth the basic principles which are to govern all states concerned in the aim of developing and promoting Danube traffic.

The fate of the Austrian Danube navigation lay, therefore, with Mr. Hines, the umpire appointed by the United States. Late in July 1920, three sittings were held in Vienna in which the states concerned were represented. Mr. Hines presided. In these sittings the procedure of the arbitrage was laid down. Statistical material from pre-war time, and also the actual facts and figures relating to the transport needs of the various states first had to be collected. When distributing the final tonnage, account was to be taken of the amount of work which may have been done by the single states for the promotion of Danube traffic, and for the regulation of the Danube. The arbiter opened a number of offices in Vienna and the material relating to the rivers

Oder and Elbe was submitted directly to him by parties concerned.

Uncertainty as to the rights of property on the fleets of vessels of the single states resulted in almost nothing in the way of an international Danube traffic being called into life. The ships of the single companies are making their journeys within the boundaries of their respective countries only. To put an end to this intolerable state of affairs it has been agreed, with the consent of the Entente, to let the ships travel under neutral flag, and to establish international port authorities. This was done early in 1920. Since then a scant traffic has developed, which, however, lacks the invigorating impulse of free and unhampered competition.

To arrive at an exact judgment of Danube traffic it is necessary to go back to pre-war figures and data, as only these afford reliable bases for accurate survey. The most important Danube ports of Bavaria are Regensburg and Passau. From a total traffic on all Bavarian waterways of 2,190,927 tons in 1914, the share of the Main river was 732,316 tons. This would tend to show that the Danube is actually less efficient in its Bavarian part. Only between Regensburg and Passau and on down the river, regular navigation exists.

During the last years before the war, the Austrian Danube showed a steadily increasing traffic. Between 1902 ond 1913, a total of 20,200,598 tons were transported on the Danube. In 1902, traffic amounted to 1,425,590 tons and in 1912 2,562,865 tons, an increase of 79 per cent. From 1910 to 1912 was registered the peak of Danube traffic.

For the sake of comparison it may be stated that the total traffic on the Rhine amounted to nearly 105,000,000 tons in 1913.

Traffic on the Danube, examined from the kinds of goods, offers a valuable help for the judgment of the economic importance of the water road of the Danube. Whereas formerly the traffic up the river chiefly served for the transport of corn, recently maize and crude oil have come to the front. Transportation of wheat, which formerly had been dominating, dropped steadily. Instead of Hungarian wheat, Serbian and Roumanian wheat, as well as barley and millet, were brought in larger quantities to western Danube countries. A large trade was done in timber. On the lower Danube, comparatively large quantities of coal were transported up the river. The petroleum transports from Roumania for the most part went to Germany. In the down-stream traffic, the first rank was held by coal, piece goods, timber, cement, iron and steel and sugar. Up to the last years before the war coal went chiefly to Hungary and the Balkan countries. Further increase in coal transports on the Danuble may be expected, as the Balkan countries will henceforth get their supplies of coal from Bohemia and Silesia.

In establishing the freight rates many factors had to be taken into account. Among these was the disparity of river conditions. Freight rates are much below railway tariffs for corresponding distances. Owing to the diversity of conditions prevailing in the single parts of the course, the rates could not be built up throughout on the basis of kilometric unit charges, but had to be specially established for each part. The freight traffic was affected, for rapid delivery of goods, by passenger ships, and otherwise, by freight steamers and towed boats.

The duration of a voyage during summer time for a fully loaded boat

of 650 tons amounts, without operating time, to 16 days for the downstream journey and 29 days for the upstream journey.

In the past, sea transports have been considerably cheaper. Whereas the entire costs of transport from Galatz to Regensburg on the Danube amounted to 18,000 marks ($4288) for the entire boat of 650 tons, that is 2.78 marks ($0.662) for 100 kilograms, the cost of sea transport from Galatz to Hamburg amounted only to 7800 marks ($1857), equal to 1.20 marks ($0.286) for 100 kilograms. When the Danube water route and the Danube-Elbe canal are completed the cost of sea transport between Hamburg and Galatz will, in all probability, be not much lower than the cost of Danube traffic.

Towing is done on the Danube by free-going steamers exclusively. On the upper part of the river, only paddle steamers and mainly iron barges, are used; in the central part screw steamers and wooden vessels, in the lower part all kinds of freight and sailing boats, and chiefly screw steamers.

The only hauling by cable existing on the Danube is in the canal near the Iron Gate, because of the swift flow of the river. Towing at the Gate is done by a cable boat of 600 horsepower capable of towing upstream 16 boats a day. Many difficulties are encountered in the towing business on the Danube, especially in the part above Vienna and on the cataract.

Tug boats of 1000 tons have lately been built. On the lower Danube this type can be utilized to its full capacity as far as Budapest. After the uniform regulation of the Danube and when the Danube-Main-Rhine canal shall have been completed, this type, which is in general use on the Rhine, is also to be adopted as standard type for Danube navigation.

A special kind of Danube vesssel is the tank boat serving for the transport of crude oil over sea from Baku and Batum, Russia, as well as from Roumania. The separate loading spaces formed by cross bulkheads are filled with crude oil, the single spaces being interconnected through small expansion tanks designed to receive the volatile gases. Loading and unloading is done by pipe lines

Marine Review.

The Pace that Kills—at 74

Dr. Savage, superintendent of the Broad Street Hospital, New York City, in a study on longevity finds that the average age at death of the ancients was 55.7 years, while the moderns already average 63.8 years and, according to life insurance researches, may reasonably expect 10.5 more years of life.

Dr. Savage has taken forty-one Greeks and Romans, most of them selected by Plutarch as the leaders of the ancient world, and forty-one Americans, selected as the leaders in the business and finance of the country today, and compared their life spans. He has reached the opinion that the struggle for supremacy in this country today is not killing off the leaders in our national life. He has come to the belief that the pace that kills is the crawl; that the faster you live, the slower you die.

Quoting Dr. Savage: «The intensive concentration of American life has not brought about early deaths of those who had to struggle for success. The average length of human life is increasing. In the sixteenth century the best estimate that is to be had of it places it at nineteen years; at the close of the eighteenth century it was a little over thirty years; and now it has so increased that we shall have to readjust our definition of the length of a generation.

Col. William N. Haskell, former director of American relief in the Caucasus and now chief of the Russian headquarters of the American Relief Administration.

«Not only is death coming later, but the period of most successful activity is coming later in life and lasting longer. Once forty to forty-five years was the age at which a man was considered to be at the height of his career. In the group of forty-one Americans selected for their success in business only two are under fifty, and there are but few of the others who would have appeared on such a list when they were only fifty.»

American Exporters and Ocean Freights

James A. Farrell, one of the the few great American business men who have both the ability and the foresight to promote the American merchant marine, called the attention of the National Foreign Trade council at its last meeting to the mistake made by American manufacturers in allowing foreign competitors to control the delivered price of American exports. When the Americans import goods, they buy at a price including delivery at American ports. The foreign business man thus retains control over the price of his goods, by insisting upon and obtaining the best ocean freight rates.

Among the many disastrous inheritances from our half century of marine weakness, is our practice of selling American goods for export on the basis of delivery at an American port. What happens to them between the American port and destination is entrusted to the charity of our competitors. Instances of distorted rates by which short hauls from American ports paid much higher freights than long hauls from European ports are well known. The American business man too frequently fails to trace his failure to obtain orders for export to the higher ocean

freight rates levied against his goods as compared with his foreign competitor.

The soundness of Mr. Farrell's argument that American exporters should awake to the necessity of using every agency to promote trade is made clearer by the present discussion of the contracts between American railroads and foreign steamship companies. The phrasing of the contracts is surprising to those unfamiliar with the part played by foreign lines in controlling our export trade during the past half century. The American railroads invariably pledge themselves to give all their freight to the foreign steamship line, and to promote the foreigner's interests exclusively. Free warehouse space aids in lowering the foreigner's costs.

The defense now is that the contracts were necessary at a time when American overseas shipping was dead. The protest is made that these contracts are largely harmless but the plain fact is that the agreements should be ended as quickly as possible and renewals prohibited. Legal action should not be necessary as the sound commercial judgment of American railroads and American manufacturers should enlist them on the side of American shipping. Full use of American ships in controlling the delivered price of American exports means more rail freight and more sales. The selfish interest of the foreign steamship lines naturally and properly controls their actions and their plans can not be exected to include the development of business for American plants and railroads. The American steamship company must rely upon the development of these industries for its trade so that the efforts of the three arms of American foreign trade run parallel.

The Shipping Board intends to

analyze these railroad contracts with foreign lines, the Senate insists upon the investigation and the Interstate Commerce Commission also is becoming interested. No railroad has signed such a contract with any American steamship line. The ambitions of the general public to have a real merchant marine are better expressed in the provision of the Jones law calling for preferential rail rates on goods to be shipped in American bottoms than in any agreement by American railroads to foster foreign steamship lines. *Marine News*

From the so-called elephant grass of eastern tropical Africa, paper of excellent quality has been made and used for Government printing. Such grass, owing to its bulk, could not be exported to Europe at a profit, but it is suggested for conversion into pulp for export.

Bamboos are also a promising source of paper-pulp in India and the Far East.

Woolen Industry in the United States

The wool manufacturing industry of the United States continues in a satisfactory position, so far as activity of equipment and volume of output are concerned, according to the monthly summary of the Merchant's National Bank of Boston. The managements of several of the biggest mills have recently stated that their plants are running at full capacity. The latest available statistics, referring to September, show that in that month consumption of wool reached a new high point for the current year, and the worsted spindles were operated at only a shade less than the maximum rate of activity reported last June.

In September, consumption of wool totaled 62,100,000 pounds, grease equivalent weight. During the seven months from October, 1919, to April,

1920, when the industry was at the peak of the post-war boom, average monthly consumption was only 66,000,000 pounds. This would appear to indicate that the mills are running on an average at fully ninety per cent of their maximum. The Government reports that in September the worsted spindles were running at 92.2 per cent of capacity. The woolen spindles were in a less satisfactory position, running at only 79.1 per cent, which was about the same as during the previous few months.

The demand of consumers for moderate priced clothing is having a pronounced effect on the entire wool trade. Clothing manufacturers have undertaken to meet it in laying out their schedules for the 1922 season, and are calling for moderate priced fabrics. This, in turn, is leading the millmen to utilize the coarser wools, which have been a drug on the market for many months, and in consequence have sold on an abnormally low basis in comparison with the finer grades. The renewed interest in medium and low wools is a welcome relief to the trade, and is regarded as a most wholesome development.

Exports of wool manufactures continue very light, according to latest available statistics. Exports of wool cloths in September totalled only 163,415 yards. This is equal to only about one-sixth of the average monthly exports in 1920, and one-twelfth of the maximum monthly exports during that year. Imports of wool manufacturers have shown a tendency to increase during recent months. Carpets and carpetings came into the country to the extent of 257,145 square yards in September, compared with 122,784 in August, and 74,321 in July. Woolen and worsted cloths were imported in September to the amount of 724,662 square yards, compared with 576,521 in August and 621,298 in July. Yarn imports in September totaled 346,865 pounds, compared with 292,939 in August and 160,250 in July.

Les droits des douanes à Constantinople

Le 13 Septembre 1921, le Gouvernement Ottomane avait promulgué un décret-loi rétablissant la tarification douanière ad valorem et fixant son taux à 11%. Les nouveaux droits sont entrées en vigueur le 15 Octobre avec les délais suivants :

Les marchandises se trouvant sous la surveillance douanière—en douane ou dans l'entrepôt douanier—avant le 18 Octobre. Elles avaient un mois, soit jusqu'au 18 Novembre, pour accomplir leurs formalités douanières ;

Les marchandises commandées avant le 18 Octobre qui se trouvaient en route à cette date. Elles avaient également un

mois, à partir de leur entrée dans les zones douanières Ottomanes pour acquitter leurs taxes douanières.

Une commission mixte a été constituée à la direction générale des douanes en vue de résoudre les conflits qui pourront éventuellement surgir entre les importateurs et l'administration des douanes relativement à la valeur des marchandises.

La commission tiendra ses réunions à la direction générale des douanes les samedi, mardi, mercredi et jeudi, de 10 heures du matin à midi et de 2½ heures à 4 heures.

Les délégués américains assisteront dans la séance au matin du mardi et jeudi tandis que les séances du soir auront lieu avec la présence des délégués britanniques. Les séances du matin de mercredi et samedi seront réservées aux délégués italiens; les séances du soir des jours susdits seront consacrées aux délégués français.

Les conflits éventuels seront examinés dans l'ordre suivant:

a) Les conflits concernant les sujets ou les marchandises des quatres puissances alliées et associées.

b) Les conflits indiqués dans la note presentée par LL. EE. les Hauts-Commissaires à la Sublime-Porte en date du 15 Novembre.

N'importe quel conflit qui n'aurait pas sa solution dans une première séance sera transmise à la séance prochaine de la commission en question qui sera tenue de le régler en premier lieu.

L'importateur de la marchandise est celui dont la signature figure sur le timbre apposé sur le bulletin de déclaration et non pas le dédouaneur.

Les conflits donnant lieu à des poursuites judiciaires seront transmis au tribunal compétent.

En cas de conflit, l'importateur pourra, jusqu'au réglement du litige:

1° soit laisser sa marchandise en douane; dans ce cas il sera exonéré des droits d'ardieh pendant la période du réglement, si la décision de la Commission lui est favorable ou si les avis sont partagés.

2° soit retirer 89% de sa marchandise, en laissant 11% en nature plus 5% en espèces.

3° soit la retirer en totalité; dans ce cas il devra verser 11% en espèces tel qu'il est exigé par la douane et laisser des échantillons toutes les fois que cela sera compatible avec la nature de la marchandise

Trois jours après la notification de la décision prise par la commission, la douane aura la faculté de vendre les marchandises qui lui ont été laissées.

Le cours du change pratiqué dans toutes les perceptions est celui qui a été coté par la Banque Impériale Ottomane la veille à midi du jour de la perception de la somme à payer.

Les importateurs et les estimateurs (fonctionnaires des douanes) sont tenus

de se présenter personnellement à la commission susdite et fournir leurs preuves.

Les conflits qui se produiront dans les douanes de la province seront réglés par la commission de Constantinople conformément aux conditions sus indiquées.

The United States Air Mail

The United States air mail started May 15, 1918 after a period of experiment undertaken by the Army Air Service and the Post Office Department. Under the auspices of the latter organization a daily mail service was begun between New York and Washington by which New England mails for Washington and southern mails for New York were considerably advanced. The airplane time of from 2½ to 3 hours for the 218 miles is just half that of railroad delivery.

The first year's operation of this route was so successful that the original appropriation of $100,000 was repeated and on the first anniversary of the service a route from Chicago to Cleveland was begun. On July 1, 1919 this was supplemented by a New York-to-Cleveland route which established air mail service between New York and Chicago and advanced the mails in both directions by 16 hours. The airplane has the advantage both of great speed and direct route. The distance by air between New York and Cleveland, for example, is but 410 miles, which is covered by mail planes in 4½ to 5 hours. By rail the distance is 620 miles and the time of transit from 13 to 17 hours.

Further expansion was permitted by an increased appropriation of $850,500 in the fiscal year 1920. On May 15, 1920 operation was begun between Chicago and Omaha, an air distance of 440 miles. by which mail in both directions was advanced 12 hours. A like saving of time was accomplished between Chicago and St. Louis when this service was begun on August 16, 1920.

After a long period of careful preparation the New York-San Francisco transcontinental air mail route was first operated on September 8, 1920, via Cleveland, Chicago, Omaha, Cheyenne Salt Lake and Reno. The initial trip demonstrated that 16,000 letters, westbound, could be advanced 22 hours over the best possible time by rail. Later plans were designed either to advance 16,000 letters by 42 hours, in each direction or to advance four times this bulk of mail by 24 hours. The latter arrangement was decided upon and is accomplished by utilizing air despatch during the day and rail service at night. Obviously the present inpracticability of night flying is an obstacle to fur-

ther saving of time but experiments in night flying are being made and with even one night flight the mail time between New York and San Francisco can be reduced to 36 hours. As a feeder to the mail trains and the transcontinental route an extension of the air mail between Chicago and Minneapolis was later put into operation.

For regularity and reliability of service the air mail is unequalled by any other aerial undertaking. In the year ending June 30, 1920, out of a scheduled total of 2,249 trips 1,995 were attempted and 1,828 completed. A total weight of 526,578 pounds of mail was carried over a total distance of 549,244 miles. The cost of this service, including depreciation at 33 1-3 per cent, and capital charges at 6 per cent, was $553,156, or approximately one dollar per mille. Despatch by airplane advanced the delivery of more than 23 million letters from 16 to 24 hours at less than it would have cost to transport and distribute them by rail. No additional postage is required as the practice of selling special air mail stamps has been discontinued since 1919.

(Commerce Monthly)

Loan to Beet Sugar Men

The War Finance Corporation has arranged to loan $10,000,000 to help finance the beet sugar companies of Utah, Idaho and Colorado through the crop period. The loan will be made on the basis of sugar at $4 a bag and on sugar valued at $5 a bag.

More than $22,600,000 in credit has been extended to farmers and stockmen during the two and one-half months since Congress authorized the War Finance Corporation to make advances for agricultural and live stock purposes.

The Path of the Exporter

By Charles Lyon Chandler

Foreign Trade Manager, Corn Exchange National Bank of Philadelphia

We should always remember that exporters from the United States are not the only ones who make mistakes in their development of foreign trade, and for the most part they make essentially the same mistakes as their competitors. But we have apparently achieved the reputation of making ourselves ridiculous beyond the achievements of other nationalities.

Many of Uncle Sam's wandering nephews (and nieces) fail to practice the old injunction, "When in Rome, do as the Romans do," and are continually lamenting the scarcity of waffles in Montevideo or ice cream sodas in Rangoon. Many of them still feel that good United States "English," if only screamed loud enough, will not merely introduce them, but will also sell their ice-cream freezers, in the innermost recesses of Borneo. The Chicagoan expects a miniature Chicago in Quito, and also the same purchasing power per inhabitant on the Calle Ahumada as on Dearborn Street; and he returns disillusioned and discouraged, a sadder and a wiser salesman.

We have all been taught from our school days that the United States (that's US) is the greatest country on earth, so we expect "lesser breeds without the law" not only to acknowledge our greatness, but to change their customs and modes of living to conform with ours. For instance, I well remember a missionary lady who "had tried so hard to introduce dress reform among these poor, benighted Japanese". Not only do we expect foreigners to buy road-repairing apparatus for use in Western China, but

why should not ice-breakers be sold for the harbor of Rio de Janeiro if they are good for Duluth? And we playfully slap the "barbarian" in Buenos Aires on the back, because the boys liked it that way back in Boise, or ship, as one man did, 2,000 overshoes of the old fashioned New England variety to Egypt in 1920 to keep the sand off the Bedouins' feet.

To show the lack of intelligent preparation on the part of some of our traveling salesmen abroad, I shall never forget one man who called on me in the American Consulate at Callao, Peru. He was selling a line of rubber raincoats "that led the field all over the United States."

Now, a good, hard rain is due in Callao about every twenty-one years, just as it snows once in every fifty-two years in Buenos Aires. They said it had rained the year before I arrived in Peru, and I had been there but six months when our rubber raincoat friend from Nucleon, Indiana, called. I really could not encourage him. I had to disobey my Consular Instructions in a most flagrant and shameless manner and for once cease "promoting American foreign commerce," and tell him that there were mighty poor pickings for him in that part of Peru. Of course, over on the other side of the Andes it rained plentifully enough; they actually had a rainy season there. In reply to his questisn as to whether it ever rained in any of the "adjacent territory," I simply could not tell him that it *never* rained at Antofagasta or Iquique.

In other words, in sending out salesmen the home office too often neglects to analyze the field and to visualize the salesmen's suitability for the particular section of this giddy globe which it is intended that he should visit. How the citizens of these United States of America, with imagination and vision enough to plan skyscrapers, and aeroplanes, and Panama Canals, and the skill to build them and operate them, can be so lacking in imagination and information as to conditions abroad, is a mystery to all of us who have lived outside the United States in competitive foreign fields.

Nothing is stranger than the blind confidence we place in adventurers from foreign climes, for whom this country has too often been a happy hunting ground. Few, if any, questions are asked regarding their credit rating—and for that matter, too many of our firms fill the foreign order first and investigate the standing of the foreign purchaser afterward. The success of various international tricksters is hardly to be wondered at when we consider that many of our largest banks had no foreign credit files whatever until recently, and the Philadelphia Commercial Museum is not yet thirty years old.

The Englishman, the German, and the Frenchman make just as many mistakes as we do. Only the other day I read a scathing indictment of British shippers by the British Vice-Consul at Guadalajara, Mexico. They were accused of every crime in the export calendar. It read almost like some American Consular Reports the writer has seen—and written. A shipment of a small printing press and accessories therefor arrived at Lima, Peru, in 1912, from England, consigned to an English printer, in such shape as to be utterly useless. By the way, who was it who flooded the island of Tristan Da Cunha, in the South Atlantic, where the mail comes once a year to the fifty-odd inhabitants, with catalogs of ice cream freezers?

Germany is not stainless in this regard. The writer has seen elaborately enameled signs in excellent German adorn the wharves of a Portuguese-speaking city near the equator. Not one in two hundred of the

passersby could read them. The German manufacturer complains just as loudly as the American that his country does, or did, nothing for its foreign trade or foreign traders, and the same could be said of almost every European country that has any foreign points of contact.

The path of the exporter is hard, whether his office is on Battery Place or Friedrichstrasse, in Flinders Lane, or Chestnut Street; but, looking back over a period of fifteen years spent in viewing foreign trade from various angles in twenty-one foreign countries, there can be no doubt that the type of men we have sent abroad has vastly improved, in just such proportion as our manufacturers realize that they cannot get something for nothing abroad any more than they can at home.

When the writer first went to South America, in 1908, there was a dear old soul generally known as "Uncle Toby, the Bible-to-Bicycle-Man," who was a good example of the trading-post stage in our foreign commerce. Uncle Toby's visiting card looked like a page from the City Directory. Hosiery, abrasive machines, religious publications, and hair nets were a few of his lines. Today Uncle Toby and his type are ancient history. So is the old "general store" in Buenos Aires or Constantinople. The range of articles sold at the trading posts in California in 1838, so vividly described by Richard H. Dana in his "Two Years Before the Mast," or at Azarian's store in Constantinople, so admirably depicted by McCormick in his book on the Crimean War, has narrowed considerably and specialized itself.

And the supplier at this end has kept pace with the times, even if a toothpowder salesman is expected every now and then to dispose of a load of coal, and a vender of cough drops blossoms out as a steel expert. These transitions are not so bad if the person concerned has native wit enough; I have met a former clergyman who made an excellent representative for a glue factory, and a teacher of the New Testament who introduced a check-protector into various foreign climes.

But we cannot always know just where to draw the line, like the former American consul on the African coast who was accused of reverting to the instincts of the native tribe whence he sprang, and inclining toward cannibalistic tendencies, who in justifying his conduct, remarked that he invariably used some of the immortal 57 varieties as a relish with his meat—whether of man or beast - and in this way had created a wide market for American canned goods.

So there is hope in the future, even if we sell barber-chairs to the Arabs as pulpits, since the face, yea, even the legs, can be turned by the faithful toward Mecca, and canoes to Tucuman, where there is no water—never forgetting the ingenious man from Maine, who, stranded in Pernambuco with his consignment of mouse traps, sold them to the Government there to teach the Indians mechanics. The Indian put his finger where mousie went to get the cheese, and learned the principle of leverage.

"Book-learning," says Mr. Joshua Billings, "sure is a mighty pleasant help in time of trouble."

The Nation's Business.

Tobacco Exports from Bulgaria

Tobacco shipments from Bulgaria to the United States in 1919 were 4,880,200 pounds, valued at $6,157,530; in 1920, 5,242,310 pounds, valued at $ 6,103,035. Statistics for previous years are unclassified on account of the war. The present export duty is approximately $0.10 per 100 pounds at the current exchange rate.

The Edible Oils Situation at Constantinople

Annual arrivals on the Constantinople market of oleo oils approximate 12,000 barrels of about 400 pounds each and of olive, cottonseed, soya bean oils about 20,000 barrels.

In 1920, the United States furnished between 8,000 and 9,000 barrels of oleo oils and in the neighborhood of 14,000 barrels of cotton-seed oil. The regularly imported grades are No. 2 and No. 3 oleo oil, summer yellow, summer white, and prime winter yellow, of which the last named is most in demand.

There was a marked crisis in the oleo oil market about the first of this year due to excessive stocks on hand and the fall in the value of Turkish currency. Importers have not wholly recovered from this set-back, and it is a general policy not to place orders abroad unless prospective sales have been negotiated here. A firm demand is, however, still felt for imports from the United States.

The local market prefers pure olive oil to cottonseed and other substitutes and the former being a native product sells almost as cheap as the imported substitutes. The 1920 olive crop was good and, but for disturbed political and transport conditions in the interior, arrivals on the local market would have been larger. The olive crop for this year is, however, reported very small and there should consequently be a good demand next spring for American cottonseed oils. Spring shipments are preferred because the heat of the summer months expands the barrel staves and considerable loss due to leakage is sustained. It is believed that American exporters would do well to investigate the advantages of using iron barrels for this trade.

The Canyons of New York City

The pyramid form of skyscraper, which is becoming a characteristic of the famous New York skyline, is the result of a law which recognizes the peculiar architectural problems of that congested city by grading localities according to allowable heights for new buildings, This law was passed several years ago, but it is only within the last year or two that its effects have become obvious to the casual observer.

The framers of the law recognized that the old-fashioned skyscraper, occupying 100 per cent of the land, rearing its entire bulk to its full height and then pushing out a cornice over the street, injured its neighbors. It did not share with them the opportunities for light and air. It hurt the street because it made it a dark canyon, where sunlight could not penetrate to the lower floors of buildings, and it hurt the city because skyscrapers of unregulated height and bulk taxed the capacity of small streets.

A carefully prepared plan was adopted, which provides that in lower Manhattan, the heart of downtown New York, a new building can rise to two and one-half times the width of the street on the street line. If it goes higher than this it must be set back from the street line one foot for every five feet of elevation. This required setback tends to produce the pyramidal form. Towers can be erected to any height so long as they do not cover more than twenty-five per cent of the area of the lot. Courts are required so that the building, even if only of moderate height, cannot cover the entire lot.

In localities farther up town but still within the business district, new buildings cannot be erected on the

street line higher than two times the width of the street, and after reaching that height they must be set back one foot for every four feet in height.

In suburban districts, where there is no economic need of high structures, a new building cannot be erected on the street line higher than the width of the street. If a land owner wishes to erect a taller building, he must buy more land and set his building away from the street.

The Institute of International Education

The Institute of International Education in New York City, which was established in 1919 by the Carnegie Endowment for International Peace to meet educational conditions created by the World War, has published and distributed in foreign countries a booklet called, "A Guide Book for Foreign Students in the United States." In it a careful account is given of the American college and university, the professional schools, the Summer sessions, the extension work, the various activities of college life, living conditions, expenses, vacations, choice of college and the many phases of higher education with which a foreign student should be familiar before he comes to the United States.

For the benefit of the American student intending to study abroad, the institute has published three booklets entitled, "Opportunities for Higher Education in France," "Opportunities for Higher Education in Great Britain", and "Opportunities for Higher Education in Italy".

The Institute, has appointed correspondents in all the chief centres from which large numbers of students come to the United States. Wherever an organization already existed abroad the Institute has made such organization its correspondent in order to prevent duplication of work. Thus the correspondent of the Institute in London and Paris is the American University Union in Europe, and in Rome it is the American School for Classical Studies.

Air Development in Peacetime

In spite of the depressing conditions under which the aeronautical industry is laboring, the technical development of the flying machine is not being neglected. Experimental and research work of a bold and ambitious nature is being actively prosecuted. Ideas are changing and almost if not actually as rapidly as they did in the war period. During hostilities the progress made was great outwardly but it was very largely composed of a refinement of detail, a growth in the absolute size of machines, and a development of the country's capacity to build them, their engines and accessories. Of genuine technical evolution, the war period showed much less than is ordinarily supposed. The airplanes at the end of it, with one or two exceptions, were substantially the machines of 1914 with increased performance and added powers. None of the belligerents could afford to spend much time in developing radically new and untried ideas. The progress effected was made within the lines of the earliest machines to take the field. Today, with the leisure enforced by the dullness of constructional activity, aeronautical designers and research workers are exploring fields that during the war were all but forbidden to them.

BULLETIN DES OFFRES COMMERCIALES

Reçues aux Consulats des Etats-Unis d'Amérique à Constantinople, Athènes et Salonique.

ADRESSES des Maisons Américaines.	Nature de l'Offre.
Pacific Rice Grower Association Sacramento California	Exportateurs de riz.
Texas Company Oils 17 Battery Place New York	Exportateurs de pétrole, gasolene, kerosene, huiles à graisser, etc.
Cosgrove and Wynkoop Coal Co., Inc. 149 Broadway New York	Charbon de terre.
Post & Lester Company 112 Allyn Street, Hartford, Conn.	Accessoires d'automobiles.
J. A. del Solar 1925 Tribune Building New York	Exportateurs de "Oregon Hops".
Diehl & Company Inc. 100 William Street New York	Importateurs de gommes, drogues, produits chimiques, herbes et racines, cires, huiles, cuirs et peaux, métaux, ivoires, acajoux, café, cacao, thé.
Dollar, Stripp & Dollar, Inc. Stuart Building Seattle, Wash.	Exportateur de bois américain, "Oregon Pine".
Republic Tanning Company 2301-2333 So. Paulina St. Chicago.	Exportateur de peaux de gants, chamois, etc.
Rex Manufacturing Company Connersville Ind.	Manufacturiers de "All seasons top" pour automobiles.
Dudley R. Hooper & Company 269 Washington Avenue, Rutherford, New Jersey	Importateurs et exportateurs. Désirent devenir seuls représentants pour des maisons dans le Proche Orient. On demande des marchandises à consignation.
Medusa Trading Company 398 Broadway New York	Importateurs et exportateurs. Désirent se mettre en relations avec des maisons dans le Proche Orient.

TRADE OPPORTUNITIES

THE AMERICAN CONSULATE GENERAL AT CONSTANTINOPLE TAKES PLEASURE IN ANNOUNCING THAT ALL COMMERCIAL HOUSES WITHIN ITS TERRITORY DESIRING TO ESTABLISH RELATIONS WITH AMERICAN EXPORTERS OR IMPORTERS OF ANY KIND OF MERCHANDISE WHATSOEVER ARE INVITED TO COMMUNICATE TO THAT EFFECT WITH THE CONSULATE GENERAL, WHICH WILL FORWARD THEIR ENQUIRIES TO INTERESTED AMERICAN HOUSES THROUGH THE BUREAU OF FOREIGN AND DOMESTIC COMMERCE OF THE DEPARTMENT OF COMMERCE, WASHINGTON.

British Fuel Costs

The Smith's Dock Company, Ltd., of Shields, have recently published figures showing that, after making due allowance for recent wage reductions, the labor cost of producing a ton of coal in England is 25s. as against 5s. in Germany and 7s. 3d. in the United States. The fuel cost alone of a ton of British iron or steel is as much as the combined ore, lime, fuel and labor cost of a ton of American or German iron.

American Capitalists and the Caucasus

A group of American engineering and financial experts left New York in November to investigate the mining, oil, lumber, tobacco, and other concessions offered to American capitalists in Armenia, Georgia and Azerbaijan. The head of the party is H. M. Day, president of the International Barnsdall Corporation, who said that these States had deposited with him $500,000 to guarantee security of any outlay made by American interests.

Greek Tobacco Crop for 1921-22

The 1921-22 tobacco crop of Greece will amount to about 63,775,900 pounds, a decrease, it is estimated, of about 28,225,000 pounds, as compared with last year's crop.

The decrease is due to small planting in Old Greece because of the large stocks abroad, to the high wages demanded by workmen and to the continued dryness in Macedonia during the summer months. Of Greek stocks abroad, it is estimated that there are now 2,822,500 pounds in London and 22,572,00 pounds in Germany.

PERSONALIA

H. B. Barton, Assistant Trade Commissioner of the U. S. Department of Commerce, arrived in Constantinople on December 15th. He will make his headquarters at the American Embassy, Constantinople, until such time as political conditions allow of his establishing his offices in Tiflis, Caucasus.

Oscar Gunkel has returned from a month in Bucarest.

Julian E. Gillespie, Assistant Trade Commissionner, is on a trip of investigation in Asia Minor, visiting Angora and other localities.

Rudolf Hirzel has gone to Switzerland for a business trip of several weeks.

Robert H. McDowell has arrived in Constantinople as representative of the Foundation Company, Construction Engineers, of 120 Liberty Street, New York.

F. L. Harley, of the European Sales Office of the Washburn-Crosby Co., is spending a month in Constantinople.

Prof. E. F. Nickoley of the American University, Beirut, recently spent a few days in Constantinople.

I. A. Hill of the Emerson-Brantingham Company of Rockford, Illinois, manufacturers of farm implements, is in Constantinople.

A. A. Patsuris of the Levant American Commercial Company, 160 Broadway, New York has arrived in Constantinople.

R. E. Bergeron, 1st Vice President of the American Chamber of Commerce for the Levant, and Manager of the Constantinople office of the American Express Company, is spending the month of December in Paris.

Frank C. King, special representative of the Stromberg-Carlson Telephone Mfg. Company, Rochester, N, Y, has just made a brief visit to Constantinople.

The Opium Market

The sale of opium in the Constantinople market during the first half of December, amounted to 100 boxes at 800 a 850 piastres per oke. Although prices are not increasing greatly the exportation of opium from Constantinople and Smyrna, which has become very regular, would indicate that the recent crisis in this article depended on the excessive production of opium following the war. Buyers from America and Europe are beginning to renew their orders. The stock in hand is diminishing daily, and the prices are becoming firmer. This situation will not change as long as the present political situation continues and the market in Anatolia remains closed.

German merchant ships will fly a new rectangular flag divided horizontally into three equal stripes, black, white, and red. In the black stripe next to the staff, are inserted the national colors black, red and yellow, divided from the black stripe by an outer vertical edge of white. The length of the insertion is equal to the depth of the black stripe. Merchant vessels commanded by retired naval officers use the merchant flag superimposed with an iron cross. According to existing regulations, it will be permissible for German merchant ships to fly the old or the new German merchant flag at will up to Jan. 1, 1922.

Constantinople Trade Figures

The Ottoman Public Debt gives the following figures for the exports and imports at Constantinople :

1921	JUNE	JULY	AUGUST
	Ltqs	Ltqs	Ltqs
Imports	8,149,160	7,709,859	8,806,256
Exports	2,064,305	2,416,785	2,892,177
Excess of imports	6,084,855	5,293,074	5,914,079
1920			
Imports	12,413,173	13,979,401	12,088,823
Exports	3,304,663	3,684,898	3,500,126
Excess of imports	9,108,510	10,294,503	8,588,697

The apparent improvement in the balance of trade is merely due to the great decrease in the imports arising from the fact that importers were unable to sell their stocks on hand.

The exports show a marked decrease over those of 1920.

The principle countries, classified in the order of their importance for the three months of 1921 in question, show the following:

	IMPORTS	EXPORTS	TOTAL	
	Ltqs	Ltqs	Ltqs	%
England	4,698,282	328,571	5,026,953	15.5
America	4,452,728	222,860	4,675,588	14.4
Holland	1,720,044	1,082,743	2,802,787	8.6
Italy	2,510,534	256,554	2,767,088	8.5
France	2,191,401	258,387	2,449,788	7.5
Egypt	2,167,143	219,487	2,386,630	7.3
Roumania	939,839	1,025,676	1,965,515	6.
Bulgaria	1,630,862	319,915	1,950,777	6.
Greece	894,275	879,013	1,773,288	5.4
Batoum	309,413	1,279,086	1,588,499	4.9
Belgium	1,438,132	89,084	1,527,216	4.7
Russia	182,364	154,182	336,576	1.
Germany	107,588	33,336	140,924	0.43

England ranks first, owing largely to the importance of her trade in cotton goods. America comes second, as the chief importer of flour, which totals about one fifth of all the imports.

The Washington Conference on Armaments

(The National City Bank of New York, in its monthly bulletin for December, makes the following comment upon the Washington Conference).

The outstanding event of world importance during the past month was the proposal of Secretary Hughes in behalf of the United States to the international conference upon the limitation of armaments. It was so direct, startling and conclusive in its provisions as to settle at the outset all doubts as to the purposes of this country, and commanded expressions of approval from all quarters. It dispelled the atmosphere of skepticism which commonly surrounds diplomatic conferences, and forthwith established confidence that results of great importance would ensue.

The response that has been given by the delegates and by all organs of public opinion, not only in the countries represented but elsewhere, has afforded convincing evidence that public opinion the world over is ready for decisive action upon the subject of war and preparations for war. The people of all countries know that it is madness in the present state of industry and finance, and with the existing burdens of taxation, for the governments to go on expending vast sums upon armaments which in the end only balance each other, and increase rather than reduce the probability of another war.

It may be hoped, moreover, that the financial relief directly achieved may not be the only beneficial result of this effort to work together for common gains. The idea that the nations have a real community of interests, and that they not only have nothing to gain by making war on their neighbors, but that industrial depression or prosperity in one country inevitably reacts upon other countries, contains certain wonderful possibilities for the general good. The world has never before had such a convincing demonstration of this truth as it is witnessing at the present time. When that truth is fully assimilated, and the people of every country understand that an intelligent policy for the promotion of their own interests requires that like consideration shall be given to the interests of other countries, there will be no need of international agreements to prevent war.

Senator Schanzer, representing the government of Italy at the Conference, stated the situation very effectively in his response to the proposal by Secretary Hughes. He said:

"Modern civilization is an economic civilization and the modern world in spite of the distances and natural barriers, cannot be conceived except as a single great economic system. This economic system has been shattered by the war. It is necessary now to revise it and get it into motion again. We think that your proposal is the first effective step toward giving the world a release of such nature as to enable it to start the work of its economic reconstruction".

And when such knowledge of common interests prevails in international relations there is every reason to believe that it will prevail in every-day industrial relations as well. The principal is the same throughout all social relations. The latter are naturally and essentially co-operative, the interests that all groups and classes have in common being vastly more important upon all sides than the interests which seem to be in conflict.

The English and Metric Systems

The English system of computing weights and measures did not originate in England but was first employed by the Germans, having been instituted by the old Hanseatic Trade League. From the Germans the English received and standardized it, later passing it in form of inheritance to the United States.

The metric system, adopted first by the French in 1801, was originated in 1783 by the English inventor of the steam engine, James Watt, whose successful use of the decimal method of computation in his scientific work aroused the attention of France. About 50 years ago Germany followed the example of France, discarding her previous system. Then followed Italy, Austria-Hungary, Spain, Switzerland, practically all of Latin America, China, Japan and other parts of the world, making the system a truly universal one, with but two notable exceptions —England and the United States.

To the advocates of reform in the United States a continued use of the present system seems inconsistent with the American ideals of progress. Consular representatives are sent to all parts of the trading world, they assert, to facilitate the extension of foreign trade, and yet they are hampered by adherence to a system of weights and measures that acts as a barrier to the freedom of commercial intercourse between nations.

As a result of a questionnaire sent to 6,000 Americon manufacturers and answered by 1,445, it was revealed, however, that a big majority of those replying had little desire for the metric system.

Chief of the reasons advanced for the adoption of the metric system is that of the assumed benefits accruing through a growing export trade. Ambitious merchants have learned the important lesson that to increase their business abroad it is essential to conform their products to the tastes, ideas and standards of their foreign buyers. They have learned that to hold this trade they must give real service satisfactorily to countries using meter-litergram. The present American method is intelligible to approximately two hundred million people, while the metric system is readily comprehended by an additional four hundred millions. It is obvious that adoption of the metric system would greatly augment the field for trade and consequently enhance the volume of business. Also the loss of time in translation of the various systems would be largely dispensed with, and the ever-present possibility of error appreciably diminished.

The chief contention of the opponents of the metric system is the estimated cost of transition. A number of large manufacturers have declared, after compiling detailed estimates, that it would cost them $750,000 to $1,000,000 to turn over their means, methods, processes, tools, machinery and materials of production incurred during the process of the change.

The metric advocates assert that the cost to the majority of them would be almost nothing, as the necessary adjustment could be made without scrapping machinery. Machines wear out every few years and millions of dollars' worth of machinery are scrapped each year for that reason. When the Swiss government adopted the metric system, it granted licenses to its watch makers to continue the old system if they so desired. Watch makers did so for a short time, but soon realised that they were at a disadvantage in using the old units. So they voluntarily adopted the metric system exclusively and

you could not get them now to use the old obsolete system.

France, Germany, Italy and other countries abandoned established practices and introduced the metric system without evidence of complaint or the scrapping of valuable machines and tools, but these countries made the change before the beginning of their industrial development. In Great Britain and the United States, with their well developed industries, the change would cause more harm than advantage, assert opponents of the metric system. The English or binary scale is marked in halves, fourths, eighths, sixteenths, thirty-seconds and sixty-fourths, each series legible and differentiated. The decimal process allows bnt two divisions, tenths and hundreths, which does not permit the fineness of measurement of which the binary scale is capable.

Constantinople Market

FLOUR AND CEREALS. The market is very poor despite the rumors of the suspension of flour and wheat exports from Bulgaria. The weakness of the American market has, however, caused fresh orders for the replacing of stocks in hand. The latter amount to 250,000 sacks. Quotations are as follows: Gold Medal and Nelson, Ltq. 9.75 per sack; Martisco 8.70, Durum 7.20, Arlington 6.70. The prices of American wheat cif Constantinople has decreased about $ 50 per ton.

RICE. Prices tending lower; Siam rice at 17 to 18 piasters and American rice 25 to 29 piasters per oke, Saigon 17.

SUGAR. Sugar prices are down because of increased export of cube sugar from Triest. American Sugar is quoted at Lstg. 17 per ton cif Constantinople.

Consular Transfers and Promotions in the Levant

J. Morton Howell has been appointed Special Diplomatic Agent and Consul General at Cairo, Egypt.

Maynard B. Barnes, Vice Consul at Patras, has been assigned Vice Consul at Smyrna.

Thomas R. Flack, clerk at Aleppo, has been appointed Vice Consul there.

F. Willard Calder, Vice Consul and clerk at Constantinople, has been appointed Vice Consul at Southampton.

Thomas J. Murphy has been appointed Vice Consul and clerk at Constantinople.

Marc Smith, Vice Consul and clerk at Jerusalem, has been transferred to be Vice Consul and clerk at Munich.

Promotions: from Consul of Class 2 to Consul Class 1, George Wadsworth; from Consul of Class 3 to Consul Class 2, A. Wallace Treat; from Consul of Class 4 to Consul Class 3, Ely E. Palmer; from Consul of Class 5 to Consul Class 4, Addison E. Southard and Kenneth Patton; from Consul of Class 6 to Consul Class 5, Paul Knabenshue and Leland B. Morris; from Consul of Class 7 to Consul of Class 6, John Randolph and Thomas R. Owens; from Interpreter to Consul Class 6, Bernard Gotlieb.

Entente Biennale entre le Shipping Board et les Compagnies de Liverpool

La marine marchande américaine transportera la moitié des exportations de coton égyptien durant les deux prochaines récoltes annuelles, d'après les clauses de l'accord qui vient d'être passé entre le U.S.Shipping Board et les compagnies de Liverpool. Mr. William J. Love, Vice Président, chef du mouvement de l'Emergency Fleet Corporation a déclaré :

Nous avons reçu le 21 novembre, un avis par fil nous donnant le texte de l'accord passé sur le coton égyptien entre les compagnies de Liverpool et le Shipping Board.

D'après les termes de cet accord les bateaux du Shipping Board recevront les 50% des exportations directes ou en transit. Le premier bateau, l'Ophis, se rendra à Alexandrie le 15 décembre. L'entente en question aura une durée de deux ans.

Il semble que l'effet de cet accord sera de faire augmenter le frêt coté par le Shipping Board pour le coton égyptien. Lorsque les «taux de guerre» existaient entre les deux groupes maritimes, ceux du Shipping Board baissèrent jusqu'à dix shillings par tonne au dessous des prix établis par les compagnies anglaises. Une des stipulations de l'accord comporte que les taux de la Conférence de Liverpool seront respectés.

Les négociateurs américains furent Mr. Love, Joseph Sheely, Directeur de la Branche européenne du Shipping Board, et W. L. Bull, Directeur de la section commerciale de la Mediterranée et du Levant. Sir Ernest Raeburn agissait en qualité d'intermédiaire américain pour les lignes anglaises, tandis que les négociations de Londres étaient directement menées par le Secrétaire de la Conférence.

The Sugar Industry in Philadephia

More than a billion pounds of cane sugar were imported over the docks of the Philadelphia sugar refineries during the first ten months of 1921, representing a gain of 140,000,000 pounds over the entire year of 1920.

Philadelphia was the pioneer in the sugar refining business in America when in 1864 there was founded what is now the Franklin Sugar Refining Co. Today sacks of Philadelphia made sugar are found on the quays in every civilized country in the world.

To appreciate the part which Philadelphia has played in this trade one must understand something of the process and the mammoth mechanical organization which the modern refinery possesses in order to supply to American homes a per capita distribution of 80 pounds of refined sugar annually. Americans, so say the statisticians, are now consuming about their average weight in sugar annually and in this particular are rivaled only by the Austrians, of all the peoples of the world.

The converting of raw sugar as it arrives on our wharves into the delicate sweetmeat which appears upon our tables is a process which has commanded the most careful attention as to efficiency and economy in every department of the business. It is the success which has attended the application of the most modern methods in economy which has gained for Philadelphia its prominence as a sugar refining center. It is here that a system has been installed which has entirely eliminated waste and in which a maximum output is attained at an irreducible minimum of loss.

Annually, an endless chain of steamers bring the raw material to Philadelphia's sugar wharves where it is unloaded in bags ranging from 325

pounds each down to 120 pounds. A crane swings ashore seven bags or more at a time from the hold of the vessel. Test samples are taken immediately. The sugar is carried from the dock on overhead conveyors, run through crushers and then lifted in bucket elevators to the top of the refinery and dumped into what is termed the "washhouse." Here water or syrup is added, producing what refiners know as "magma." The latter flows to centrifugal machines in which the sugar crystals are cleansed in pure water; thence the sugar flows into great pans, where it is melted by the addition of hot water and pumped to the top of the refinery, where the process continues to a conclusion by gravity. From this point the syrup begins a succession of cataracts, first passing through bag filters or filter presses—and thousands of these bags are required each day, since the mesh in them becomes clogged with the impurities of the sugar liquor and the strainer becomes useless until washed and cleansed.

The liquor is plunged into huge cisterns partially filled with boneblack or bonedust, to emerge a clear and sparklingly pure fluid. It is interesting to note that until 1811 a vegetable was used to clarify sugar, but in that year it was discovered that bonedust, being a form of charcoal, would remove the coloring matter much more effectively and economically, and hence today all our sugar comes through that process.

The next step is the vacuum pan, a furnace like affair in appearance, where the sugar liquid is made to crystallize into desired sizes. Once out of this machine the crystals are run through a separator of the centrifugal type and cleansed of the syrup which clings to them up to this stage. These crystals are then subjected to hot air draughts in huge granulators, and and after a screening process the sugar, in 36 different grades, is run into cartons, barrels and bags for home consumption, numbering in all some 124 different styles of packages.

Commerce and Industry.

TABLES OF WEIGHTS AND MEASURES

Weights

Turkish	English	Metric
1 oke (400 drams)	2.8264 lbs (pounds)	1.282 kilogram
1 batman (6 okes)	16.958 lbs	7.692 kgs.
1 kantar (44 okes)	124.3616 lbs	56.4 kgs.
1 tcheki (176 okes)	497.446 lbs	225.6 kgs.

English	Metric	Turkish
1 lb	.4536 kg	.3538 oke
1 cwt (112 lbs)	50.8028 kgs.	39.6263 okes
1 ton, long (2240 lbs)	1016.047 kgs.	792.527 okes

Metric	Turkish	English
1 kilogram	.78 oke	2.2046 lbs
1 quintal (100 kgs.)	77.9845 okes	1.968 cwt (hundred weight)
1000 kilos	779.845 okes	2204.6 lbs

1 muscal (attar of roses)	1½ drams	74.171 grains
1 ounce (oz.)—Apothecary	480 grains	31.1035 grammes ;
1 ,, Avoirdupois	—	28.34954 grammes

Lainer Measures

Turkish	English	Metric
1 endazeh, pic (silk)	25.555 inches	.64908 metre
1 arshin (cloth)	26.96 ,,	.68477 ,,
1 arshin (old, land)	29.8368 ,,	.7577 ,,
1 arshin (new)	39.3709 ,,	1.00 ,,

English	Metric	Turkish
1 yard (3 feet or 36 inches)	.91438 metre (new arshin*)	1.40868 endaze, 1.33524 arsh. cloth; 1.20672 old arsh.
1 mile (5280 feet)	1.6093 km.	2123.8272 old arsh.

Metric	Turkish	English
1 metre (new arsh.)	1.46 arsh. (cloth); 1.31978 old arsh.	39.37 ins.
1 kilometre	1,319.78 old arsh.	1.62137 mie

Square Measures

Turkish	English	Metric
1 sq. arshin (old, land)	6.1794 sq. ft.	.5741 sq. m.
1600 sq. arshins or	9887.04 sq. ft. or	918.56 sq. m. or
1 old deunum	.2269752 acre	.36743 new deunum**

English	Metric	Turkish
1 sq. in.	6.4516 sq. cm.	.001123 sq. arshin
1 sq. ft. (144 sq. ins.)	.092903 sq. m.	.1618 ,, ,,
1 sq. yard (9 sq. ft.)	.836126 sq. m.	1.4563 ,, ,,
1 acre (4840 sq. yds.)	.40468 hectare	4.4054 old deunums
1 sq. mile (640 acres)	259.02 ,,	2819.456 ,, ,,

Metric	Turkish	English
1 sq. m.	1 sq. arsh. (new) 1.74 sq. arsh. (old.)	10.764 sq. ft.
1 are (100 sq. m.)	1 sq. evlic	119.6 sq. yds.
25 ares	1 deunum (new) 2.7216 deunum (old)	.61778 acre
1 hectare	1 djerib 10.8864 ,, ,,	2.4711386 acre

Measures of Capacity

Turkish	English	Metric
1 kileh	1.18 bushel	43 litres

English	Turkish	Metric
1 quart (2 pints)	—	1.13586 litre
1 gallon (4 quarts)	—	4.5434 litres
1 bushel (32 quarts)	.8484 kileh	36.347 ,,

Metric	English	Turkish
1 litre	.88038 quart	—
1 hectolitre	2.75 bushels	2.325 kilehs

Measures of Volume

Turkish	English	Metric
1 cubic arshin (ambar)	.5689 cu yd.	.435 cu. m.

English	Metric	Turkish
1 cubic yard	764537 cu. m.	1.7579 cu. arsh.

Metric	Turkish	English
1 cubic metre (stere)	2.2993 cu. arsh.	1.308 cu. yd.

EGYPTIAN TABLE

Weights and Measures. In addition to the metric system the following local weights and measures are in use :

1 Qantar	99.0493	lbs.
1 Rotl	0.9905	»
1 Oke	2.75137	»
1 Heml	550.274	»
1 Ardeb	43.255	Gallons
	5.444	Bushels
1 Keila ($^1/_{12}$ of 1 Ardeb)	3.63	Gallons
1 Rob ($^1/_{24}$ of 1 Arbed)	1.815	»
1 Qadah	3.630	Pints
1 Feddan	5,024.16	Sq. Yards.

*) Note 1—The new Turkish measures of weight, length, and surface are based on the Metric System. The new unit of length, the metre, is generally designated "yeni" arshin to distinguish it from the old unit, the "eski" arshin. In all the ministries and other government administrations in Constantinople the Metric System is today in practice, though the old measures are still used in some of the provinces of the interior. The Metric System is in use in all the Balkan States.

**) Note 2—The Mining Law fixed at 15,000 new deunums or 3750 hectares, equivalent of 9266.77 acres, the maximum area for permit.

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