

THE MAN WHO MAKES ALL THE MONEY USED IN OUR LAND

He Prints It for Uncle Sam and for You and Me and He Here Describes All the Very Intricate Processes Involved in Keeping Up With the Increasing Demand



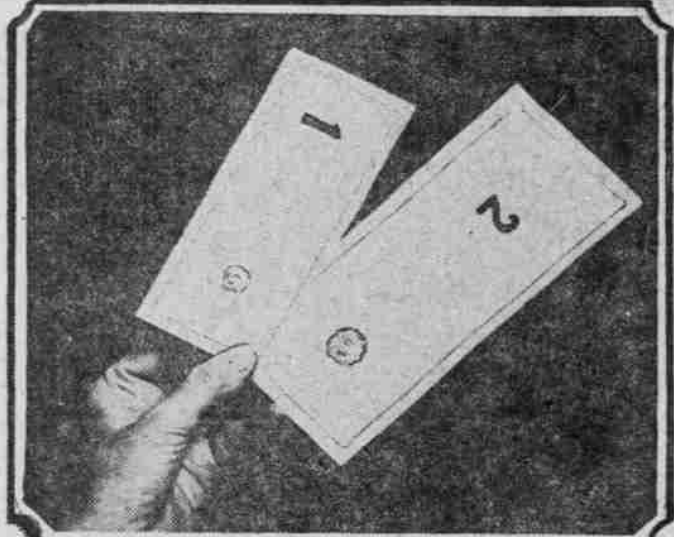
Where Uncle Sam's Paper Money is Made



James L. Wilmett, Director of the Bureau of Engraving and Printing



Packing Paper Money.



Two Sizes of Money; One, the Suggested Size; Two, the Present.

BY RENE BACHE.

"IT WOULDN'T be polite for me to ask you how much money you have got in your pocket at this minute, but I'll venture a guess that it is more than you carried on your person this day, say, four years ago."

The head of Uncle Sam's great money factory, James L. Wilmett, smiled quizzically at me as he went on to say:

"Everybody has more money in his pocket nowadays. Prices are higher, people spend more, and they must carry more."

I had a sort of a vague notion that there was a "good story" in the bureau of engraving and printing in Washington, when I ascended the steps and entered the portals of that imposing structure. But I was amazed at the insight into human nature and the simple mastery of intricate economic problems displayed by its chief almost from the first moment I began to talk with him.

Mr. Wilmett met me more than half way in an effort to explain to the lay mind some of the problems which have been presented by unprecedented conditions of the last few years. Developing that idea of more money for everybody, he continued:

"Mrs. John Jones, whose home circumstances are very modest, used to take \$5 with her when she went to market. Now she takes \$10, finding it no more than enough to supply the immediate wants of her family."

"With you and me and every one else it is the same way. As prices go up, it takes more money to transact business. More money is required in circulation. There is much more business being done in this country than ever before and the doing of it calls for money. It makes a special call for change and that is why we have been printing dollar bills in unprecedented numbers."

"You never saw so many dollar bills as are running around loose at the present time. We have had to keep up with the demand. One thing we have done has been to split up big notes into little ones. A \$50-bill, let us say, comes into the treasury for redemption. Instead of printing a duplicate of it, we turn out 50 \$1 notes. You get the idea?"

"A \$50 bill may construct a business transaction. You've been in a business fix yourself. Plenty of small money, on the other hand, facilitates business. Demand for it increases with the volume of business. Then you must remember that people are doing a great deal of traveling in these days, mainly for business purposes, and under such circumstances they require a lot of change. They are obliged to scatter money about in small sums. The man who stays at home can draw checks; and his need of change is merely incidental."

"Isn't this multiplication of notes of small denomination expensive for the government?"

"Do you know how much a dollar bill costs? To make it, I mean," quizzically responded Mr. Wilmett. "It costs Uncle Sam 1 1/2 cents; and its life is short. The average dollar bill lasts less than a year; then it is worn out and has to be replaced with another. It passes from hand to hand several times as often as a \$5 note; for which reason the latter has a much longer life."

"Recently the mint bureau melted 270,000,000 standard silver 'cartwheel' dollars and sent all but 10,000,000 of them to India in the shape of bullion, to help out a silver famine. The silver certificates which represented those dollars had to be withdrawn from circulation; and, to replace them, we printed bank notes."

"Is there less gold and silver in circulation now?" was the next query.

"Here, of course, in the bureau of engraving and printing, we have to do only with paper money. But if you will take a look at the last report of the director of the mint you will find that there is a vast deal more of

metal money now in circulation than ever before. People have got to have it. Consider the modest penny, which is in a way an index of business. In the last calendar year the mints coined \$88,935,000 cents; in the previous year only \$70,614,634. The mints in 1919 coined 76,395,000 nickels; in 1918, only 45,320,314.

"Metal money is not in my line, however. Let's get back to what we were talking about. The federal reserve system introduced a new form of paper money, called federal reserve notes. These notes are based on the assets of the issuing banks, which include commercial paper, with the requirement that the banks shall back their notes with not less than 40 per cent of their face value in gold."

"You can take a bunch of federal reserve notes to the treasury, demand their face value in gold, and get it offhand. The treasury, however, does not encourage gold payments, because it wants to conserve the gold. The banks, for the same reason, will not let you have gold. Gold in your pocket does neither the banks nor the government any good; and paper money is just as useful to you for spending purposes."

"How long is it since you have seen one of those cheerful-looking, yellow-backed treasury notes which bore on their faces an offer of redemption in gold coin on demand? There are hardly any of them in circulation, because the government has gobbled them up for years past, whenever a gold note has been deposited in a bank; it has vanished from view, not again to reappear. The bank has not paid it out again."

"And is this method satisfactory to the people?"

"Up to the time of the war there was very little paper money in circulation on the Pacific coast. People out there preferred to use gold; they were used to it, and liked it better. But if you go out there now, you will find that paper money has taken the place of gold almost entirely. The yellow coins have been bogged up by the banks and replaced with printed promises to pay."

"Well, how much of this 'paper money' do you make in a year? I had thought you had a poster, but quick as a flash this alert foreman of Uncle Sam's printshop replied:

"During the last fiscal year we printed here in this building, just a few 'short' of 200,000,000 federal reserve notes, an increase of nearly one-third over 1918. Of pieces of paper money of all kinds we turned out 730,874. The face value of our output of all securities during the 12-month was nearly \$49,000,000,000—more than the total of any 15 years' production prior to the great war."

"It is impossible to grasp the significance of such huge figures, of course, but I can give you one little illustration that will help a bit. Consider those 730,874 pieces of paper money. Imagine them laid edge to edge and end to end on a flat surface, like a patchwork carpet. How much space would they cover? If you will take the trouble to figure it out, you will find that they would carpet an area of four and a quarter square miles."

"Hasn't the idea been seriously entertained of reducing the size of our paper money?"

"The scheme would have undeniable advantages; and perhaps it may yet be carried out. A dollar bill now is a trifle over three inches wide and slightly less than seven and one-half inches long. By making it six inches long and two and one-half inches

wide it would be cut down about one-third. That is the size of the notes and certificates circulated in the Philippines, all of which are printed here, and it is really much better. If our paper money were of this size, it would be much more convenient to handle. It would fit the pocketbook better, and might be carried flat; or, with one less fold, it would wear longer. Requiring less material, it would be cheaper to make, and banks could store more of it in a given space in their vaults."

"Then why don't you make it smaller?"

"The main reason why we did not carry out this clever idea was that the banks strongly objected. They said that the smaller bills would not fit their cashiers' pigeon-holes and drawer compartments. That was a trifling matter, however, relatively speaking. The main disadvantage was that of being obliged to deal with two sizes of notes. Attention was called to the fact that something like 10,000 new plates would have to be engraved for the faces and backs of the new notes, at the cost of about

\$140 apiece; and that five would be required perhaps for the making of these plates, during all of which time there would be the trouble and annoyance of handling two sizes of every denomination of paper currency."

"Wouldn't such a scheme save paper, or doesn't the paper shortage affect you?"

"Yes, indeed; smaller notes would save a great deal of paper; and the paper used for our money is expensive, being made of the best quality of linen rags. All of it is manufactured by a private concern at Pittsfield, Mass., which has had the contract for many years, the process being conducted under the watchful eyes of authorized agents of the treasury department. Every wasted sheet must be carefully accounted for, just as if it were so much printed money."

"Each sheet is of a size to make four notes, and lengthwise through it run two bands—you may see them on the face of any dollar bill—of scattered red and blue silk fibres. These fibres have been found to be a very excellent protection against counterfeiters; for, though they have been imitated with pen and ink, they cannot be introduced into paper without elaborate and expensive machinery."

"How much more money have we now than in former years? I next wanted to know."

"There is today in circulation in this country more than five times as much money as there was in 1879. Treasury figures show that in that year the amount in circulation January 1 was \$816,296,721. On the first day of May, 1920, it was \$5,391,207,441."

"Of course, allowance must be made for the fact that the population of the United States has more than doubled since 1879; but when we come to reckon it out on a per capita basis, we find that the average person 41 years ago had \$17 in bank or in pocket, whereas today the average American citizen possesses \$55 in cash."

"This includes all the children and even the babies. But babies have neither pockets nor bank accounts, and children rarely possess more than a few pennies. So, if you reckon that two in every five persons in this country have no cash in hand worth mentioning, it will be obvious that the average adult carries on his person, or has somewhere, put away, over \$90 in paper currency and coin."

"The workman, getting much higher wages, has more money in his pocket than before the war. If thrifty, he has more in the savings bank. The employer's payroll has grown—more people on it, at bigger pay—and so he must use more money. If he is a shopkeeper, he has more money in his till."

"Many high-waged workmen, especially ignorant foreigners afraid of banks, hoard large sums, carrying the money on their persons or hiding it. Immigrant laborers returning to their native countries take a great deal of money with them. The undesirable aliens shipped to Russia on board of the famous 'ark' that carried Emma Goldman were found to possess, some hundreds of them, an average of more than \$1000 apiece in cash. Then, too, you must remember that much United States money is in circulation in Mexico, Cuba, Central America, Porto Rico, Hawaii and the Philippines."

"Where do you get those beautiful pictures and handsome portraits of the fathers of our republic with which you decorate the paper money?" I asked.

"When the next president has been inducted into office, the bureau of engraving and printing will ask for a photograph of himself. He will be requested to pick out the portrait he likes best, in order that it may be used on paper money. But he will never see it so used, because custom forbids the printing of any man's likeness on our money until after he is dead. In former days there was no such restriction; and at the period of the civil war the portraits of several living persons appeared on the currency—that of Treasurer Spinner, for example, on the 50-cent fractional notes."

"The selected photograph of the new president having been secured, a man highly skilled in that particular kind of work will undertake the task of reproducing it in the form of a steel engraving. It is a job that will occupy six or eight weeks. The steel plate will then be put away in stock for future use, making complete our set of engraved portraits of all the presidents, from Washington down."

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FEROCIOUS SHARKS ARE REPORTED TO BE PROWLING OCEAN LANES AFTER MANY SHIPS

Prodigious and Formidable Monsters Trail Passenger Boats That Ply in Tropical Waters, According to Passengers Who Arrive at Various Ports.

WASHINGTON, Sept. 18.—As the "open season" for sharks approaches, South American liners arriving in New York report the sighting of these sea monsters, a fact which lends interest to the following communication to the National Geographic society by Dr. Hugh M. Smith, a world-famous authority on fish:

"When giant fishes are mentioned among the most people will at once think of the shark, among which, indeed, are found the largest fish now existing," writes Dr. Smith. "Of the many species of sharks noteworthy on account of their size there are about half a dozen which are pre-eminent. These differ much in their disposition, some being as harmless as doves and others the incarnation of ferocity."

"The sleeper shark (somniosus microcephalus), whose scientific name fits it so admirably, appears to have developed its body at the expense of its brain, for it is a sluggish, stupid glutton, about six times as long as an average man. At home in the Arctic regions, it sometimes makes visits as far south as Cape Cod, the British Isles and Oregon. It is most often observed lying quietly on the surface, apparently dozing and easily approached, but at times, when hungry, it rouses itself and fiercely attacks whales, biting huge pieces out of their sides and tails, and when feeding on the carcass of a whale which has been killed by hunters it is so voracious that it permits spears and knives to be thrust into it without seeming to take any notice."

"One of the most prodigious and perhaps the most formidable of sharks is the 'man-eater' (Carchodon carcharias). It roams through all temperate and tropical seas and everywhere is an object of dread. Its maximum length is 40 feet and its

teeth are three inches long. While there are few authentic instances of sharks attack human beings (prior to the recent tragedies), there have undoubtedly been many cases where sharks simply swallowed people who had fallen overboard. Just as they would swallow any other food. How easy it would be for a man-eater to devour a person whole may be judged from the finding of an entire 180-pound sealion in the stomach of a 30-foot shark on the California coast. A certain man-eater 3 1/2 feet long has jaws 20 inches wide, inside measure, and teeth 2 1/2 inches long. This may have been the 'great fish' of the scripture narrative, and it is possible that at that time much larger man-eaters existed than are now known, as shark teeth with cutting edges five inches long have been found on the sea-bottom, and these are believed by naturalists to have belonged to sharks not long dead. The phosphate beds of South Carolina yield very large fossil teeth of a shark which was related to the man-eater of the present day; judging from the comparative size of the teeth to Professor Goode thought that sharks 70 or 80 feet long must have been common."

"Many years ago a Norwegian bishop in a learned paper brought to the attention of the scientific and theological worlds a shark which he attempted to prove must have been the 'great fish' that swallowed Jonah. This was the basking shark (cetorhinus maximus) known also as an inhabitant of the polar seas, but occasionally strays as far south as Virginia and California, and in former years was not rare on the United States and British coasts. The species has the habit of times of collecting in schools at the surface and basking in the sun with its back partly out of water. It reaches a maximum length of 50 feet and is exceeded in size by

only three or four animals extant. Provided with small teeth, it feeds on fishes and floating crustaceans, and is not of a ferocious disposition. It is dangerous only by virtue of its great bulk and when attacked its powerful tail easily demolishes boats. In former years the basking shark was hunted for its oil on the coast of Norway and Ireland; it was also harpooned on the shore of Massachusetts in the early part of the last century, and as many as 12 barrels of oil were sometimes obtained from the liver of one shark. There are many records of basking sharks 25 to 35 feet long from the coast of New York, Massachusetts and Maine, but the species has not been common in our waters in recent years."

"The largest of all fishes, the largest of all cold-blooded animals and the largest of all existing animals, with the exception of a few species of whales, is the whale shark (rhinodon typicus), originally described from Good Hope, but now known from India, Japan, South America, Panama, California and various other places. A small specimen having been obtained on the Florida coast a few years ago. This shark has a very broad and obtuse snout and an exceedingly wide mouth armed with numerous minute teeth. The dark-colored body is marked with many small whitish spots. The species is stated to attain a length of 10 feet and is known to exceed 50 feet. Notwithstanding its immense size, however, it is harmless to man unless attacked, and feeds on the small creatures for which its teeth are adapted. Its huge bulk makes it dangerous. Years ago it was reported that the sperm-whale fishermen at the island of Saint Denis, in the Indian ocean, dreaded to harpoon a whale shark by mistake, and stories are told of a harpooned fish, 'having a lightning-like dive exhausted the supply of rope which had been accidentally fastened to the boat, dived deeper still, and was pulled a prodigious crew to the bottom.'"

Preparing Oil to Mix With Pigments for Printing Money.

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merely by the way, that custom hitherto has been adverse to stamping the heads of presidents on our coins, for no other reason, I imagine, than that foreign monarchies have used in this way the likeness of sovereigns. Mr. Roosevelt broke the rule by decreeing that the bronze cent should bear the head of Lincoln; and now it is proposed that the head of Roosevelt shall adorn a 2-cent piece."

"Paul Revere's ride made him famous, but he deserves celebrity for another reason, inasmuch as he was first to establish the industry of steel engraving in this country. From this beginning was in course of time evolved the American Bank Note company, which printed all of our paper money up to the year 1876, when John Sherman, then secretary of the treasury, started the bureau of engraving."

"And what about the ink you use to print these little sheets, that have a bigger circulation than even our favorite newspaper?"

"We have here, in this building, the largest plant in the world for the manufacture of printing inks. During the last fiscal year we used more than 5,000,000 pounds of such inks, which cost us less than 15 cents a pound. By making our own inks we save the government a lot of money. The raw pigments we buy in the shape of dry powders, which come in barrels, and we have our own machinery for mixing the pigments with linseed oil and otherwise preparing them."

"What becomes of the wornout money? Has Uncle Sam a big rag-bag somewhere?"

"An incidental task assigned to the bureau of engraving and printing is that of destroying paper money that has been redeemed by the treasury. It is consigned to a cylindrical tank and boiled with a chemical solution until reduced to unrecognizable pulp. During the last year our output of this money pulp was 4,922,250 pounds, which, packed in bales, was sold for paper stock. It fetched \$64,138, yielding a tidy little profit of \$36,113."

"You would never guess how much it costs to provide and keep clean the rags used by the printers in this establishment for wiping the engraved plates. They are regularly laundered at frequent intervals, to get rid of the ink with which they soon become saturated; and for this work and the replacement of used-up rags we paid last year no less a sum than \$404,577."

"And my head swam with statistics and facts; but it was an inspiring interview altogether and I came away more than ever proud of a government that, whatever its defects, really does much routine in a big way and so quietly that the average man rarely hears of or admires the never-dreams-of the vastness of its problems."

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