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DECREASE OF WORK ON LOW-VALUE SHIPMENTS IN THE COMPILING OF
UNITED STATES FOREIGN TRADE STATISTICS

(Memorandum submitted by the United States Delegation)

General Background

In order to obtain the greatest amount of statistical information on United States foreign trade at the least possible cost, certain techniques have been put into effect in recent years in the compiling of the United States trade statistics aimed at reducing the amount of work spent in compiling information on low-value and relatively unimportant shipments in the United States foreign trade. These techniques have permitted a net decrease in the over-all cost of compiling the United States foreign trade statistics with little or no loss in the over-all usefulness of the information and at the same time have freed resources for work on high-value and more important shipments thereby increasing the over-all accuracy of the statistics.

A description of these techniques may be of general interest to countries having a high proportion of their total trade in low-value shipments (say under \$10 to \$100 or their equivalents) and the great bulk of the value of their trade in higher value shipments. It would appear likely that this will be characteristic of most trading countries at least for either the import or export trade.

The procedures which have been put into effect in the United States have essentially taken advantage of the fact that low-value shipments are very numerous but account for a very small part of the total value of the trade while high-value shipments are relatively less numerous but account for a high proportion of the total value. This is illustrated by the following approximate percentage

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for by each value group. As will be

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shown later a similar situation to that portrayed in the table for export shipments exists in the case of the United States imports.

<u>Value interval 1/</u>	<u>Per cent of the total number of export shipments (approximately 10,000,000 per year) 2/</u>	<u>Per cent of total dollar value of exports</u>
Under \$25	30	Less than 0.1
25-50	9	Less than 0.5
50-100	5	0.5
100-1000	37	6.
1000-5000	13	17.
5000-10000	3	11.
10000 and over	3	65.

It is apparent that as far as the accuracy of the grand total export statistics is concerned there would only be about a one-half of one per cent loss of coverage in the total dollar value shown in the statistics if all shipments valued under \$50 (some 39 per cent of the shipments) were completely omitted from the statistics. If shipments under \$100 were omitted the loss of coverage would be only about one per cent and even if the limit were raised to as high as \$1000 the loss of coverage would be only about 7 per cent.

From the point of view of the figure for the grand total dollar value of United States exports an error of one or even a few per cent is relatively unimportant. There is reason to believe that other errors in the export statistics, primarily in the dollar value assigned to individual shipments by exporters, may in fact be even larger. While many of these errors in reporting by exporters may cancel each other there is nevertheless good reason to believe that they introduce biases in the over-all dollar value figure. For example, it is probable that there is some tendency for American exporters to report exports on the basis of the dollar value f.o.b. factory at an interior point in the United States rather than in accordance with the required definition of the dollar value, namely f.a.s. port of export. For many products this could result in an error of 10 or 20 per cent.

1/ For simplicity of reference, value intervals in tables and in the text are as shown here. For complete accuracy of reference the intervals should be designated: Under \$25
\$25 and over but less than \$50
\$50 and over but less than \$100; etc.

2/ Actually the number of items appearing on export declarations. On the average there are 1.6 items on each export declaration.

Since it is impractical to eliminate all reporting errors of this type it can be assumed realistically that there will always be in the United States export statistics an error of perhaps several per cent in the grand total dollar value figure. A similar statement could probably be made in regard to the trade statistics of other countries. It can furthermore be assumed that this error will frequently be unknown both relatively and absolutely. Looked at from this point of view there would be no great harm if shipments valued under \$50, \$100, or even perhaps \$500 or \$1,000 were omitted entirely from the grand total dollar value figure for United States exports. Deliberately undercounting total exports by an approximately known per cent would cause less inconvenience to the user of grand total figures than would the existence of other unknown and unmeasured errors which might be greater and which might change in importance from month to month and year to year.

It is also apparent from the distribution of export shipments by value groups presented above that shipments valued at say between \$100 and say \$5,000 have a far less effect on the export statistics than shipments valued at \$5,000 or over. There is, therefore, the opportunity to decrease the amount of compiling resources spent on shipments between \$100 and \$5,000 or \$10,000, although not to as great an extent as for shipments under \$100. This would certainly not appreciably affect the accuracy and usefulness of the over-all statistics particularly if at the same time part of the resources saved by drastically reducing the work on shipments valued under \$100 and by reducing somewhat the work on shipments from \$100 to \$5,000 or \$10,000 were used to increase the quality of the information on shipments valued over \$5,000 or \$10,000. A net improvement in the quality of the statistics as a whole has in fact resulted in the United States.

It is, of course, apparent that a decision as to whether to exclude shipments valued under \$50 or \$100 from the statistics or to reduce compiling costs on shipments between say \$100 and \$5,000 cannot be based solely on the anticipated effect on the figures for the grand total dollar value of the export trade. As described below consideration must also be given to the effect on the detailed export statistics, namely those involving information on exports by commodity and by country of destination, the most important factors in the detailed statistics.

Description of techniques used to substantially reduce compiling work on shipments valued under \$100

The introduction of major work-saving techniques in the United States compiling operations for shipments under \$100 has taken place in successive stages over a number of years. The first reduction in work took place on shipments valued at \$10 and under,^{1/} then at a later date work was reduced on shipments valued at \$25 and \$50 and under, and later on shipments valued under \$100.

In May 1939 there was introduced in the United States export commodity classification (Schedule B) a classification named "General merchandise valued at \$10 or less". Starting at that time such shipments were included in this rather than in the regular commodity classifications. The information for this new classification was distributed by countries of destination in the same way as for the detailed commodity classifications. However, in the published statistics this classification was merged with another called "All merchandise not elsewhere specified." This latter classification has been in existence for many years and included all commodities which were not separately identified elsewhere.

It was not until 1941 that these two classifications were segregated in the published statistics so that users were informed as to the amount of shipments under the classification "General merchandise valued at \$10 or less". The dollar value shown in this classification in the statistics for the years 1941 through 1945 were as follows (in millions of dollars):

^{1/} Actually there was another earlier reduction in the work on low-value items when a decision was made to exclude from the export statistics all parcel post shipments valued under \$25 and to exclude all those over \$25 not made from one business concern to another. These provisions, which are still in effect, save a substantial amount of compiling work and more importantly save parcel post shippers a great deal of trouble.

Year	Total exports of domestic merchandise (Excluding exports under Lend-Lease and UNRRA) 1/	Exports reported as "General merchandise valued at \$10 or less" 2/	Per cent of total
1941	\$4,292.4	\$3.5	0.08
1942	3,076.7	4.6	0.15
1943	2,501.1	3.7	0.15
1944	2,871.5	4.6	0.16
1945	3,707.9	4.3	0.12

The value limits for this classification "General merchandise valued at \$10 or less" was changed to \$25 in 1946, to \$50 in 1947, and to \$100 in 1948. The relative importance of the dollar value of the shipments in this category in the years from 1946 through 1950 is shown in the following table (values also in millions of dollars):

Year	Total exports of domestic merchandise (Excluding exports under Lend-Lease and UNRRA)	Exports reported as "General merchandise valued at "	Per cent of total
1946	\$ 7,907.6	\$ 21.4 (\$25 and less)	0.27
1947	13,875.2	62.2 (\$50 and less)	0.45
1948 (Jan-June)	6,487.9	28.7 (\$50 and less)	0.44
1948 (July-Dec)	6,042.2	59.6 (under \$100)	0.99
1949	11,936.1	122.4 (under \$100)	1.03
1950	10,142.3	114.3 (under \$100)	1.12

At the time of each of these changes in the value limit an analysis was made of the effect on the commodity and country export statistics. The most thorough-going investigation of this type was that made at the time the value limit was changed from \$25 to \$50 and the description which follows is largely limited to this change. A similar but much less exhaustive analysis was made when the value limit was changed from \$10 to \$25 and from \$50 to \$100.

1/ Lend-Lease and UNRRA shipments were relatively few in number and very high in dollar value per shipment.

2/ It will be noted that this classification included shipments valued "at \$10 or less" and that, with later changes in the value limit, shipments valued at "\$25 or less", "\$50 or less" were included in the classifications. The difference between these value limits and those shown in the distributions of shipments by value groups is not of any great importance since there are relatively few shipments valued at exactly \$10, \$25 or \$50. In the latest change in value limit to \$100 the classification is defined to include shipments valued at less than \$100.

It may be added at this point that the analysis which was made at the time the value limit was changed from \$50 to \$100 was much less exhaustive than had been the analysis made at the time of the earlier change primarily because the change from \$50 to \$100 was made hurriedly at a time when the appropriation for compiling foreign trade statistics was unexpectedly severely reduced. At that time it was assumed, based on the investigation made in connection with the change from \$25 to \$50, that the raising of the dollar value limit from \$50 to \$100 was less likely to reduce the over-all usefulness of the export statistics than any other change in the compiling program which might be made.

When the value limit was raised from \$25 to \$50 in 1947 the analysis of the effect of such a change on the export statistics proceeded along the following lines. It was first of all apparent that changing of the value limit from \$25 to any higher dollar value figure would have varying effects on different commodity classifications. It was determined by investigation that if the dollar value limit was raised from \$25 to \$50, 34 of the total of approximately 3,000 classifications for which separate information was being compiled in the export statistics would be undercounted by more than 5 per cent. These 34 classifications included such items as "fresh oysters in the shell," "fresh shrimp, frozen, or in ice," "vices," "canned fruit, n.e.s.," "metal and stove polishes," "paste and mucilage," "live poultry, etc." In almost all cases the exports of these commodities were less than \$1,000,000 a year and in many cases less than \$100,000. The total value of exports of all of these 34 commodities in 1946 was \$10,000,000 or only 0.1 per cent of the exports of all 3,000 commodities.

These commodities were located by investigating both the then current 1946 shipments and shipments during 1939, a pre-war year. It was felt at the time that since the 1946 trade was changing so greatly during the transition from war to peacetime conditions complete reliance could not be placed on any findings based on the current 1946 trade only. Much of the analysis, therefore, was made on the basis of 1939 trade. In the records of 1939 trade commodities were located where the dollar value of shipments between \$1 and \$50 (\$10 and \$50 for trade between May and December 1939) was more than five per cent of the total exports for the commodity. The commodities so located on the basis of 1939 data were then investigated for the trade situation in 1946.

Throughout the investigation attention was given to the possibility of seasonality in the exports of individual commodities which would in some cases result in the trade for part of the months of the year showing a high percentage

/of the

of the total exports consisting of shipments from \$1 or \$10 to \$50. For a year as a whole including those months in which exports were high the over-all percentage might be less than five per cent. The final list of 34 commodities, therefore, included only those which would be undercounted by more than five per cent by the increase in the value limit to \$50 over a period of a full year.

On the basis of this special analysis of 1939 and 1946 trade it was decided that no serious loss in the usefulness of the statistics would result if the value limit were raised to \$50.

An investigation was also made to determine whether all of the 34 commodity classifications which would be undercounted by more than 5 per cent as a result of the change were actually needed in the export commodity classification. It was determined that nine^{1/} of the commodity classifications actually served no useful purpose and that even though some of these classifications had been in existence for many years there was apparently little or no use being made of the information on exports of these particular commodities. It was, therefore, concluded that the separate presentation of information on exports of these particular commodities could be eliminated from the statistics. The commodities so eliminated and combined with other commodities were as follows:

<u>Schedule B commodity code number</u>	<u>Commodity description</u>	<u>Dollar value of exports 1946</u>
253500	Flowers and foliage, cut, fresh and preserved	342,957
397005	Mattresses, kapok	7,676
596003	Quartz crystal, piezo electric, frequency control units	28,932
596008	Quartz crystal, optical, plates, lenses and blanks	1,643
615515	Circular diamond saws	6,343
617200	Slip joint pliers	88,870
669105	Magnesium metal in other forms, n.e.s. and magnesium ribbons	44,040
931900	Other penholders and parts	145,783
944000	Ice Skates	23,483

Users of the statistics on the 25 commodities remaining from the original list of 34 were informed that the statistics to be issued starting in 1947 with the new value of \$50 rather than \$25 would be undercounted by between five and ten per cent (15 per cent for "live poultry"). There were a few complaints from users

^{1/} In addition 3 of the remaining 25 classifications appeared to be only temporary usefulness.

over this loss of coverage but it was pointed out to these users that the information which would still be compiled would provide information on the trend of trade in the commodities even though the actual amount shown in the export statistics would be undercounted. In addition, it was pointed out that substantial savings in the whole compiling process were being made by the change in the value limit and that it was essentially true that if the change in value limit were not to be made the whole saving would have to be looked upon as the cost of providing information on these relatively few commodities. It would not have been a reasonable position for the users of the statistics on these few commodities to have held that the information in which they were interested was actually worth the tens of thousands of dollars which were being saved by the changed procedure.

At the time the value limit was raised from \$25 to \$50 an investigation was also made to determine whether it was necessary to compile information by country of destination for these shipments valued at \$50 or less. Since the export statistics were classed into only 138 countries of destination in comparison with 3,000 separate commodity classifications there existed a possibility that the complete elimination of country information on shipments valued at \$50 or less might be put into effect with no particular effect on the figures on trade with each of the 138 countries. However, there were a number of countries where the value of trade in shipments at \$50 or less apparently would be an appreciable amount of the total trade and where the proportion of trade in such shipments might change appreciably from period to period. It was accordingly decided that even though commodity information would be eliminated on the shipments at \$50 or less these shipments would continue to be shown in the statistics by country of destination. This decision was based in part on the realization that country information could be compiled much more easily than commodity information and that the major proportion of the savings in compiling costs would be made by eliminating the compiling of commodity information. Only the following countries had more than a five per cent of the total value of trade included in the category of "General merchandise valued at \$50 or less" in the year 1947.

/Country

<u>Country</u>	<u>Total United States exports of domestic merchandise, 1947</u>	<u>Exports included in classification "General merchandise valued at \$50 or less" in 1947</u>	<u>Per cent of total</u>
Miquelon and St. Pierre	\$ 212,168	\$ 10,643	5.0
Bahamas	9,471,529	816,895	8.6
Seychelles and Dependencies	9,522	637	6.7

Countries showing more than five per cent of trade in the category in 1949 after the limit was changed to \$100 were as follows:

<u>Country</u>	<u>Total United States exports of domestic merchandise, 1949</u>	<u>Exports included in classification "Merchandise valued under \$100," 1949</u>	<u>Per cent of total</u>
Miquelon and St. Pierre	\$ 128,515	\$ 8,826	6.9
British Honduras	2,035,087	171,408	8.4
Honduras	32,510,568	1,681,154	5.2
Nicaragua	14,680,070	862,934	5.9
Bermuda	10,386,065	1,362,470	12.4
Bahamas	8,044,624	1,627,073	20.2
Leeward and Windward Islands	2,976,354	340,489	11.4
Latvia	368	25	6.8
Azores	599,219	40,617	6.8
Albania	126,268	9,371	7.4
French Pacific Island	5,815,013	509,179	8.8

As far as the users of the statistics were concerned those people interested in trade with these countries found that after the value limit was changed to \$50 there was a somewhat increased area where they had no commodity information on trade with the particular countries. At no time has there been complaint on the part of users of the statistics of these countries that the usefulness of information has been affected by the change. This applies not only to the changing of the value limit from \$25 to \$50 but also to the later change from \$50 to \$100.

Savings in compiling country information for shipments valued under \$25, \$50, and \$100

Certain savings in compiling country information for shipments valued at \$50 or less and under \$100 were made as changes in the value limit took place. The compilation of country of destination information on shipments valued at \$25 or less was first carried out by sorting for separate handling all export declarations containing only shipments valued at \$25 or less and then sorting these declarations by country of destination. After this sorting the dollar values on the export declarations were manually added by the use of adding machines and summary punch cards prepared showing the total of the \$25-or-less trade with each country.^{1/} In some cases more than one punch card was prepared for the low-value trade with an individual country for convenience in setting up blocks of manual adding work.

Export declarations containing both items valued at \$25 or less and higher-valued items were not segregated in this fashion but went through the regular commodity coding operation. In this operation, however, the coder would not commodity code items valued at \$25 or less but would merely insert the code number for the classification "Merchandise valued at \$25 or less". When the items on these documents were punched a card was perforated not only for the shipments on the documents valued over \$25 but also for shipments valued at \$25 or less. In the preparation of the statistics punch cards for the \$25 or less shipments were sorted by country and totaled and combined with the summary cards for each country which had been prepared by manually adding the dollar values shown on the declarations containing only \$25 or less items.

After the value limit had been raised to \$100 it was discovered that more than half of the manual adding work on declarations containing only items valued at less than \$100 was being carried out for shipments to two countries, namely Canada and Mexico. It was further discovered that instead of manually adding the value on these low-value documents the value could be estimated by physically

^{1/} There was no segregation by United States Customs District of export. These shipments were, therefore, excluded from the figures on exports from each Customs District and included in an artificial "Customs District" entitled "Export shipments individually valued \$25 or less." This procedure was similar to that used for exports by parcel post which are not segregated by Customs District but instead shown as parcel post shipments under an artificial "Customs District" classification.

weighing the documents to get an approximation of the number of documents and then applying a constant of approximately \$46 per document. This figure of \$46 was obtained by analyzing the results of the previous adding operation as carried out over a number of months. This approximating of the dollar value of the shipments valued at less than \$100 to Canada and Mexico (appearing on declarations containing no items valued at \$100 or over) provided a satisfactorily accurate figure for the dollar value of such shipments. As a matter of fact it was determined that the weighing and estimating procedure was more accurate than unverified manual adding. The procedure for estimating the value of course, required that a periodic check be made once every three or six months to make certain that the constant did not change appreciably. This meant that once every three or six months the documents of shipments valued at less than \$100 to Canada and Mexico had to be manually added and the adding verified to check the constant which had been used since the last check. The 3 or 6 months' checks showed that the original constant needed little or no change. At present the constant is \$49 for Mexico and \$45 for Canada.

Some investigation has been made as to whether this procedure could be applied to countries other than Canada and Mexico and there is some reason to believe that not too great an inaccuracy would result if the procedure were applied to shipments to Cuba, Venezuela, and Colombia where there are also a large number of low-value shipments from the United States.

It should be recognized that this method of approximating the value of the low-value shipments to Canada and Mexico and perhaps other countries does introduce an added inaccuracy in the information. However, this added inaccuracy is only applicable to the low-value shipments which constitute even in total only a few per cent of the total value of the exports to these countries. Even a 50 per cent or 100 per cent error in the estimate of the low-value shipments would not, therefore, result in an error of more than a per cent or two in the figures of the total value of exports to these countries. There is, of course, the safeguard that these estimates are checked every three or six months to make certain that the pattern of trade is not changing in a way which would introduce gross errors in the method of estimating.

In light of the success of this method of estimating the total value of the low-value trade with certain countries, it has recently been the feeling that the

approach to the compiling of information on these low-value shipments might well be changed so that at least every three or six months there is some commodity information provided on these low-value shipments. Plans in this direction have not been worked out but it is the thought that some further sacrifice might be made in regard to the accuracy of country information on the low-value items in the interest of obtaining more commodity information. Under such a change in objective it would be the intention once every three or six months to pull a sample of \$100 or less shipments, commodity code the information on these sample shipments, and provide users of the statistics with commodity information.^{1/}

At the same time the sample would be used to obtain country information in substitution for estimating the value of under \$100 shipments which is in effect at present or the manual adding of the dollar value for countries having a smaller number of under \$100 shipments. This deriving of country information on a sample basis would reduce the accuracy of the country information somewhat both for those countries for which the figures are now being estimated and for those for which figures are now obtained by manual adding. This results from the fact that the sample would be pulled only every three or six months and country information would be based on the sample both for the sample month and for months between samples.

On the other hand, it is hoped that the sample procedure would, without appreciable increase in cost over present procedures, make it possible to provide commodity information with a reasonable degree of accuracy for the months for which the sample is pulled. One difficulty with this proposed new plan of procedure is the fact that the commodity information would be obtained only every three or six months. This would not provide good information for commodities which are shipped seasonally such as fresh vegetables or fruits which may be exported from the United States only during one or two months of the year. The investigation has revealed that to provide adequate commodity information for a sample month it would be necessary to pull a sample of at least 20 per cent and

^{1/} Commodity descriptions must be provided by exporters on the export declaration form for shipments valued over \$25. Commodity information therefore is available and could be sampled for shipments valued between \$25 and \$100. For shipments under \$25 commodity information is provided by exporters on the declarations in practically all cases even though it is necessary only to describe the shipments as valued under \$25.

possibly higher.^{1/} This would be a fairly costly operation and therefore could not be repeated more frequently than once every three months and possibly not more frequently than once every six months without appreciably increasing costs over present procedures. This is not a sufficiently short interval to provide adequate information on those commodities which have a high degree of seasonality.

It is hoped that some procedure can be worked out whereby this difficulty can be overcome. Because of the cost involved it does not appear to be an acceptable alternative to pull a sample every month or even every second month. It may be that some method can be devised for sampling certain seasonal commodities more frequently than once every three or six months, with commodity information for non-seasonal commodities being obtained every three or six months. There is of course the possibility of foregoing additional information on under \$100 shipments of seasonal commodities, a loss of information which might be quite unimportant.

Procedures to decrease the amount of compiling work on shipments valued between \$100 and \$5,000 or \$10,000 and increase the accuracy of information compiled on shipments valued at \$5,000 and \$10,000 and over

Referring back to the table showing the distribution of export shipments by value intervals, it will be noted that in the export statistics 65 per cent of the total dollar value of the export trade but only 3 per cent of the number of shipments is accounted for by shipments valued over \$10,000 and that over 75 per cent of the value of the trade but only 6 per cent of the number of shipments is accounted for by shipments of over \$5,000. This presents the opportunity to increase compiling accuracy on shipments valued over \$5,000 or \$10,000 to increase the over-all quality of the statistics at relatively small increases in cost.

To increase the accuracy of information on shipments valued over \$10,000 the procedure for compiling information on these shipments differs in a number of respects from the procedure followed for compiling information on shipments under \$10,000. The commodity coding operation for shipments valued over \$10,000 is carried out by highly skilled commodity clerks and the commodity coding

^{1/} The fact that a relatively large sample is required primarily results from the fact that the sample is to be used to measure the volume of under \$100 shipments in a large number of individual export commodity classifications. There are at present a total of 2,700 such classifications.

verification process is carried out not by coding clerks but by supervisors who specialize in certain commodity groups. In addition, the clerks and supervisors carry out the commodity coding and commodity coding verification operations work outside of production standards. In other words they are not held to the relatively high productivity rates required of coders of shipments between \$100 and \$10,000 where the average rate of coding is about 160 items an hour. Coding on items valued \$10,000 and over is at only about half this rate. Coders of items valued between \$100 and \$10,000 must turn out a certain number of items per hour in order to avoid unsatisfactory efficiency ratings which reflect on their work standing. Coders of items valued over \$10,000 are held strictly accountable for accuracy of coding, but are not held as strictly accountable for amount of work done.

The punching and punch verification on items valued over \$10,000 are also carried out with great care and the punch cards are separately listed before being tabulated during the preparation of the statistics. In this listing of the punch cards a total of the dollar value is obtained as part of the listing and this dollar value is checked against a dollar value total specially obtained by manually adding the dollar value figures shown on the individual declarations.

Since the coding and verifying operations on the over \$10,000 items are carried out with great care, coding or punching errors are practically non-existent in the published statistics for these shipments which account for 65 per cent of the export trade.

Punching of all items over \$5,000 is also 100 per cent verified but the cards are not listed and checked against specially prepared totals. For items valued between \$100 and \$5,000 there is only a one per cent sample verification of punching. It is intended that this sample verification procedure will make certain only that the puncher keeps within reasonable limits of error over an extended period of time. If the degree of error in the punching operation rises above certain limits for a month the puncher is 100 per cent verified until a reasonably low degree of error is attained. Lapses in accuracy requiring 100 per cent verification are recorded against the punch operator's record and the efficiency rating of the employee is adversely affected and work status therefore weakened. This sampling verification procedure follows quality control principles which have been developed in recent years for controlling quality of product in manufacturing and mass-statistical compiling operations.

/It may be

It may be added at this point that for a while there was a higher percentage of verification of punching than the present one per cent on the assumption that the verification operation should catch any batch of work having over a certain percentage of errors. In order to check the accuracy of a batch of a few hundred punch cards it was, of course, necessary to pull a sample of substantially more than one per cent. It was subsequently determined that the costs of this procedure designed to catch blocks of work below an acceptable level of accuracy was not adding sufficiently to the overall accuracy of the statistics and that it was sufficient merely to have a sample verification of the punching operation which assured that no clerk over a period of a month rather than in the terms of a batch of work, fell down below acceptable levels of quality. This, of course, made it possible to reduce the size of the sample to only one per cent and appreciably reduced the cost of the sample verification operation.

In addition to the procedures described there was at one time a procedure in effect which resulted in quite substantial savings in the compiling process on shipments valued between \$100 and \$5,000 or \$10,000. In the United States as in a few other countries, exporters and importers are required to insert the commodity code number on the import and export forms along with information on commodity description, value, net quantity, etc. When the value of the classification "General merchandise valued at-or less" had a value limit of \$25 a procedure was instituted whereby the commodity code numbers put on the export forms by the exporters were not checked as part of the compiling process in those cases where the value of the export shipment was between \$25 and \$400. This procedure eliminated the commodity coding operation for many tens of thousands of export shipments and at the same time decreased the accuracy of the statistics to only a negligible extent.

The introduction of this procedure was based on the finding that the commodity code number inserted on the export declaration by the exporter was quite adequate and that since shipments between \$25 and \$400 were relatively unimportant in the export statistics there would be no appreciable decrease in the quality of the statistics if such shipments were not put through a commodity coding operation. This conclusion was supported by the additional finding that any important errors in assigning commodity code numbers by the exporters would be caught in the review or scrutiny operation which is described below. It was found that any

/important errors

important errors in assigning commodity code numbers by the exporters were in fact caught during the review operation and there would be no appreciable increase in the cost of the review and scrutiny operation by relying on it to pick up any important errors in reporting by the shipper.

When the value of the classification was raised first to \$50 and then to \$100 much of the saving in this procedure of relying on the review operation above to find important errors in the commodity codes assigned by exporters no longer existed and the procedure was, therefore, dropped.

In recent months it has been discovered that the accuracy of the commodity code number assigned to export shipments is substantially greater than it was in 1948 when this procedure was eliminated. It is planned, therefore, that an investigation will be made to determine whether commodity coding can be eliminated as an operation on shipments valued at between \$100 and say \$1,000 or \$2,000 rather than the previous limit of \$400. If it is found to be practical to eliminate the coding operation on shipments valued as high as \$1,000 to \$2,000 and to rely on the review or scrutiny operation to catch any important errors, a procedure will be introduced whereby the coding operation will be eliminated for shipments valued between \$100 and \$1,000 or \$2,000. With the review or scrutiny operation catching any important commodity coding errors in this value range the accuracy of the over-all statistics will be lessened to only a negligible extent since even in the over-all figures shipments valued between \$100 and \$1,000 or \$2,000 represent only a relatively small per cent of the total value of the trade.

Procedures to maintain accuracy within pre-determined limits
in the review operation

As in most countries using punch cards to compile foreign trade statistics the United States, after the punch cards for each export shipment are perforated, prepares a listing of the individual punch cards in commodity by country arrangement showing totals for all shipments of each commodity to each country of destination. In the case of the United States these listings are somewhat different than those prepared in some other countries in that, in addition to the sorting of the punch cards in commodity by country arrangement, there is a third sort by United States Customs District of exportation which results in the cards being listed in commodity by country by Customs District arrangement. In addition, within each of these sorts the punch cards are arrayed in value order to facilitate the review or scrutiny operation.

/As is common

As is common practice in most countries using punch cards for compiling trade statistics this listing of punch cards for individual export shipments from the United States is scrutinized first to make certain that the relationship between net quantity (where required) and dollar value is reasonable for each of the commodity-by-country-by-Customs-District totals shown on the listing. In checking the reasonableness of these totals, the review or scrutiny clerks have as reference material information on the current unit price of each commodity. The review or scrutiny clerk calculates by mental arithmetic the unit price shown in the summary or total lines in the listing. If these unit prices fall within a reasonable limit of the unit prices shown in the reference material (reasonable limits are indicated in the reference material) the summary lines are passed and not investigated further. If, however, a summary line shows a unit price outside of a reasonable range it is necessary to scrutinize the individual shipments to find which one contains an error of some sort which throws the summary total outside of the reasonable unit price. These errors may be in the information reported by the exporter or may result from coding or punching errors.

It is this scrutiny which is facilitated by having the punch cards for the individual transactions listed by value array since if the relationship between the net quantity and the value on any particular punch card is out of line with the relationship on adjacent punch cards the lack of uniformity is readily apparent without difficult mental arithmetic. This is illustrated in the attached extract from a listing which has been reviewed during the compilation of the United States export statistics. Each line of the listing contains information on an export of sausage (Commodity code 003500) from the United States to Venezuela (Country code 307) through the United States Customs District of New York (United States Customs District code 10) during a recent month. It will be noticed that the shipment shown on the fifth line from the bottom shows a net quantity completely out of line with the dollar value of the shipment. The net quantity should have been punched 1777 rather than 10777, a relatively common type of punching error with the items listed in value order. It was readily apparent that there was something wrong with this item and the item and the item and the summary line total were both corrected after locating the export declaration in the file. The advantage of listing the shipments in value array order is not fully illustrated by the extract since for many commodities a number of pages of listings will occur rather than the relatively few lines shown in the illustrative extract.

/The listing of

The listing of the shipments in order of dollar value also facilitates the limiting of the review or scrutiny operation to shipments which are large enough in any month's statistics to appreciably affect the summary line totals. The review or scrutiny clerk normally need only look at the high-value items in the array to find those which cause the summary line to be out of reasonable unit price range. Once having discovered a questionable item or items among the high-value shipments it is usually not necessary to scrutinize the low-value shipments since an error in the low-value shipments will usually be quite unimportant in the summary line total.

This principle is illustrated in the extract where it will be noticed that the shipment in line eleven has not been questioned even though the net quantity does not bear a reasonable relationship to the dollar value of the shipment. Even though this item was found to be incorrect (which it apparently is; the net quantity probably should have been 280, rather than 80) it would have little or no effect on the summary line total which is the only figure which appears in the statistics.

By ignoring unimportant questionable items a substantial saving is made on the review or scrutiny operation since it is not necessary to carry out the relatively costly operations of locating the export declarations in the files for those low-value shipments, discovering what the error is, and correcting the listing.

One minor point might be mentioned. It will be noted from the extract that the sort of the punch cards in value array is not carried as far as the last digit of the dollar value figures since for the purposes outlined above there is no need of the added precision which would result from a complete sort by value through the last digit.

In connection with this review or scrutiny operation it might be pointed out that coding errors found during the operation are traced back to the coder making the error. These errors are then recorded for each coder and used to determine the efficiency rating, and, therefore, the work status of the employee. This recording of coding errors found in the review or scrutiny operation acts as a quality check on the coding of items valued between \$100 and \$10,000. While not as effective in controlling quality as the 100 per cent verification of coding which is carried out for items valued over \$10,000, the procedure acts as an

/adequate deterrent

adequate deterrent to careless work on the more numerous shipments valued from \$100 to \$10,000 which represent a smaller proportion of the total value of the export trade.

Use of resources to increase accuracy of information
on high-value shipments

The resources saved in compiling the export statistics by de-emphasizing the low-value shipments as described above have been in part used to increase the accuracy of the information on the high-value-shipments which are of substantially greater importance in the over-all statistics. As indicated above one such technique of increasing the accuracy of the statistics on the high-value shipments is by having 100 per cent verification of the coding and punching operations on the high-value items (over \$5,000 or \$10,000). In addition, a greater expenditure of effort has been made to increase the accuracy of information appearing on the export declaration for high-value shipments by carrying out educational campaigns to inform shippers of the need for greater accuracy of reporting. These campaigns have been principally aimed at increasing the accuracy of commodity, dollar value, and country of destination information on high-value shipments. In most cases, letters are written to shippers or the shippers are visited to inform them of the necessity for accurate commodity descriptions, etc. Shippers are also supplied with copies of the export commodity classifications and, where necessary, shippers are told specifically where their product should be classified and how it should be described on the export declaration.

There is, furthermore, a continuous effort made in regard to high-value shipments to check any questionable information shown on particular export declarations with commodity specialists throughout the United States Government. In this way any new or puzzling item of information provided in the commodity description by an exporter is checked with commodity specialists in other government agencies such as the Department of Agriculture, the Bureau of Mines, etc., to make certain that the commodity classification in which the shipment is to be placed is in fact the correct one.

Similarly, high-value shipments of particular commodities out of the United States to countries which would ordinarily not be anticipated to use large amounts of such commodities are scrutinized from the point of view of whether the country of destination information provided by the exporters is in
/fact correct.

fact correct. Such scrutiny has in many instances revealed that the country of destination information provided by the exporter is not completely correct in that the goods were actually going to be trans-shipped to another country of ultimate destination. Even in those cases where it is impractical to determine the correct country of destination users of the statistics may at least be warned that some of the shipments of particular commodities shown in the statistics as destined for a certain country may actually be destined for some other country.

De-emphasizing of work on low-value shipments and emphasizing work on high-value shipments in the import statistics

Most of the techniques described above for de-emphasizing work on the low-value shipments and emphasizing work on high-value shipments in the export statistics are also applied to the compilation of the United States import statistics. For example, the technique of having full verification of the coding and punching operations for high-value items is in effect in the import statistics except that in the case of imports the value of the individual shipments is higher than in the case of export statistics and as a result high-value items are defined as \$10,000 and over for punching verification (in contrast to \$5,000 in exports) and \$50,000^{1/} and over for coding verification (in contrast to \$10,000 and over in the case of exports). The distribution of shipments by value intervals for imports is shown in the following table:

<u>Value interval</u>	<u>Per cent of the total number of import shipments ^{2/} (approximately 2,000,000 per year)</u>	<u>Per cent of total dollar value of imports</u>
Under \$100	25	Less than 0.5
\$100-\$1,000	33	3.
\$1,000-\$5,000	30	15.
\$5,000-\$10,000	5	8.
\$10,000 and over	7	73.

It will be noted that only about one quarter of the shipments included in the import statistics are valued under \$100 in contrast to almost half of the export shipments. If it were not for the fact that many import shipments valued

^{1/} For balance with export procedures this limit should be lower. It is planned to lower the limit when resources permit.

^{2/} Number of items appearing on import entry forms. On the average there are about two items on each entry form.

under \$100 are completely excluded from the statistics, the proportion of under \$100 shipments included in the import statistics would be at least as great as for exports. The exclusion of many shipments valued under \$100 from the import statistics arises from the fact that under existing regulations import shipments valued under \$100 may be entered under an informal entry procedure and these entries are excluded from the import statistics. In contrast to the formal entry procedure which requires the preparation and filing of an import entry by the United States importer and the presentation of invoices and other documentary evidence, the informal entry procedure requires only that the United States Customs inspector (rather than the importer) fill out a very abbreviated form in the presence of the importer stating certain summary facts in regard to the importation and showing the amount of duty collected, if any. There are each month approximately 100,000 formal entry forms filed for importations into the United States (from which about 200,000 punch cards are punched) and approximately 200,000 informal entries (containing information on about 300,000 items). The information appearing on these informal entries is completely excluded from the import statistics and no compiling resources are, therefore, spent on this large number of under \$100 import shipments. The only shipments included in the import statistics with a value of \$100 are those which appear on a formal Customs entry containing information on an import valued over \$100.

The decision to exclude informal entries from the import statistics was made many years ago and an important consideration in this decision was undoubtedly the fact that the volume of informal entries was so large as to make the compiling of information on them a costly operation. An additional consideration was undoubtedly the fact that the information provided on informal import entries was (and still is) of a general nature making it difficult to require importers and Collectors of Customs to provide on informal entries the full detail required for formal entries. From the point of view of the use made of the import statistics, there was an important reason for deciding on the exclusion of these informal entries. Many of these entries represent gifts, baggage of returning travellers, etc., which are not commercial transactions in the usual sense and which are frequently excluded from countries' import and export statistics. It is reasonable, therefore, to exclude all informal entries from the import statistics covering commercial trade even though some of the shipments are of a commercial character.

/Despite the

Despite the fact that most of the saving in compiling work in under \$100 shipments in the import statistics has already been made by the exclusion of under \$100 shipments entering informally, some saving could be made by following a procedure for items under \$100 similar to that followed in the export statistics. It has been decided, however, to delay any such change in procedure pending a decision by the United States Congress raising the dollar value limit of filing informal entries from \$100 to \$250. Proposed legislation to make this change effective is at present under consideration by the Congress and approval of the change may be given at any time.

EXTRACT FROM A LISTING OF EXPORT SHIPMENTS WHICH
HAS BEEN REVIEWED DURING THE COMPIATION OF
THE UNITED STATES EXPORT STATISTICS

File number	License type		Domestic or foreign merchandise	Method of transportation	Manifest number	Foreign port of unloading	Commodity number	Country of destination	District of exportation	Net quantity	Value
32257311	1		1	1	2582	30745	003500	307	10	54	28
31298155	1		1	1	2467	30743	003500	307	10	196	100
31292613	1		1	1	2483	30745	003500	307	10	150	114
33272335	1		1	1	2761	30759	003500	307	10	240	128
33234305	1		1	1	2841	30743	003500	307	10	247	121
33292141	1		1	1	2680	30766	003500	307	10	300	129
33292141	1		1	1	2680	30766	003500	307	10	150	122
32257311	1		1	1	2582	30745	003500	307	10	166	120
33222443	1		1	1	2940	30766	003500	307	10	157	133
32257620	1		1	1	2582	30745	003500	307	10	252	143
32283138	1		1	1	2645	30725	003500	307	10	80	156
33277396	1		1	1	2742	30741	003500	307	10	323	161
33236240	1		1	1	2582	30745	003500	307	10	400	210
33236240	1		1	1	2582	30745	003500	307	10	420	282
33236258	1		1	1	2483	30745	003500	307	10	600	400
32275416	1		1	1	2595	30741	003500	307	10	758	447
32284405	1		1	1	2461	30741	003500	307	10	1002	592
33281577	1		1	1	2483	30745	003500	307	10	1263	703
33236258	1		1	1	2483	30745	003500	307	10	1777	927
33222459	1		1	1	2794	30745	003500	307	10	4039	1916
32257208	1		1	1	2582	30745	003500	307	10	3962	2289
33244365	1		1	1	2863	30745	003500	307	10	4123	2547
33289334	1		1	1	2483	30745	003500	307	10	4137	2732
										24796	14500