

work as its initial or chief export work has much in common, economically, with a company town.

In the case of some cities, no given advantage can be found to "explain" their existence in a specious way. All that Birmingham seems to have had, to begin with, was a good supply of drinking water—no novelty in Renaissance England. Alcaeus made the point in 600 B.C. when he wrote of the cities of Greece, "Not houses finely roofed nor the stones of walls well built nor canals nor dockyards make the city, but men able to use their opportunity."

5

Explosive City Growth

This chapter concerns itself only incidentally with how cities generate new exports. We shall concentrate instead on what cities do with some of the imports they earn by generating those exports.

At the end of the last century, as we noted, Tokyo was importing large numbers of bicycles. When these bicycles broke down or wore out, repairmen in Tokyo began making new parts for them. Soon these same repairmen began to specialize in making this part or that. And eventually manufacturers contracted to buy large numbers of parts from repairmen and put the parts together. By this means they manufactured whole, new bicycles in Tokyo, and Tokyo's imports of bicycles were replaced by locally manufactured goods.*

*Economists customarily call such an event "import substitution," but I shall call it "import replacement," because

As cities grow, they replace the imports which they earn from neighboring cities, as well as from outside their nations. For reasons we shall come to, the process of replacing imports is apt to cause cities to grow explosively. Episodes of explosive growth can recur again and again during the life of a city as new and different imports are earned, then replaced. But before going into that, let us examine a little more closely just what happens when a city replaces an import with new local work, as Tokyo did with its bicycles.

First of all, before the process could occur at all, two sorts of events had to have taken place. Tokyo had already become a good market for imported bicycles; and this meant it was becoming a place where it was worthwhile for somebody to make them. Also, before the bicycles were actually manufactured there, workmen in the city were learning how to manufacture them, even though their work at first had a different purpose. The production of bicycles could be logically added to work that was already being done in Tokyo.

When Tokyo was still importing bicycles, they had to be paid for by exports from the city—in this case, since the bicycles came from abroad, exports to foreign countries. But even if the bicycles had been imported from Osaka or some other city in Japan, they would have been paid for by Tokyo's exports to other parts of Japan. But once Tokyo itself began to manufacture bicycles, they no longer needed to be paid for by exports from the city. To be sure, most of the materials that went into the bicycles still had to be imported and paid for, but the cost was not nearly as much as that of whole, imported bicycles.

the verb form, "to substitute for imports" is awkward, while "to replace imports" does not have this disadvantage. Also, I am going to draw some conclusions about the effects of import replacement that have not been drawn in conventional treatments of the subject, so perhaps it is as well, in any case, to use a new phrase.

This difference in cost permitted Tokyo to import other things instead. The change meant, of course, that the places that had been manufacturing bicycles and shipping them to Japan lost some of their export business. But this is not at all the same as saying that Tokyo was importing less than it imported before. Tokyo, rather, shifted its imports to things other than bicycles. The foreign bicycle companies' losses were other people's export gains as Tokyo became an expanding market for other goods and services instead.

Let us go back, just for a moment, to our imagined pre-agricultural city, New Obsidian. When New Obsidian was able to replace its former imports of wild animals and wild seeds with its new city-produced domestic animals and cultivated grains, it was thus able to import other things in place of the wild food it had originally bought: pigments, copper, furs, bundles of rushes, antlers, timber, hides and thongs, shells and so on. Some of these it could import in larger quantities than before, now that it did not want wild food from its customers for obsidian; others it perhaps imported for the first time. Some of these new imports went to clothe or decorate the increased numbers of workers in New Obsidian, now that the city had added the new industry of raising food. But others were "extra." From the point of view of New Obsidian, it was just as if the city's imports had increased greatly—although in fact they had only shifted in composition. But New Obsidian had everything it had had before, plus those new imports. For all practical purposes, the city's imports had "grown," just as surely as if the city had earned all those additional imported things by increasing its exports greatly. It had earned them, instead, by quite a different process: by replacing a former import. The apparent growth of a city's imports—because of a shift in their composition—is the key to the import-replacing process of city growth and its momentous consequences.

My conjecture about what happened in New Obsidian

when it replaced its imports of wild food derives from what actually happens in our own cities when imports are replaced by local work and the composition of imports consequently shifts. In the case of Tokyo, some of the "extra" imports were undoubtedly food and other consumer goods that came from outside the city to supply the increased numbers of workers and their families, for of course when Tokyo began to produce bicycles for itself the city needed more workers than formerly. So let us add to the materials imported into the city, for the bicycle manufacturing itself, the necessary new imports for the increased population generated by the new industry. Whatever difference remained between the total cost of these imports and the cost of whole, imported bicycles could be spent on still other imports which Tokyo had not previously earned.

As far as the rest of the world was concerned, its total economic activity had neither diminished nor increased because Tokyo was making its own bicycles. But the economy of Tokyo itself had expanded, and thus the total of all economic activity in the world had expanded. So we can see that the process of replacing imports is a good deal more important than just moving production of bicycles from this place to that. The process of replacing imports is not equivalent to moving work out of a city—like spinning off an animal herd from New Obsidian or a copper refinery from Detroit. Nor is it equivalent to moving production from one city to another, if imports in the receiving city are not thereby being replaced. I plan to argue, later in this chapter, that this process of replacing present imports, and buying others instead, is probably the chief means by which economic life expands, and by which national economies increase their total volumes of goods and services.

In the meantime, let us pursue one more question concerning those bicycles: the economic feasibility of producing them in Tokyo instead of importing them. When

the bicycles were manufactured in Tokyo, the retail price of a bicycle there went down. The home-produced bicycles were cheaper than imported ones. By definition, then, it was economically feasible to produce bicycles in Tokyo. If the Tokyo products had cost customers more than imported bicycles, their local production would not have been feasible (although the government might have made it artificially so by means of an import tax or tariff on the foreign makes).

But what does "economically feasible" really mean? Does it mean only that the bicycles could be produced in Tokyo; and that there was a sufficiently large and solvent market there to make their production worthwhile; and that some savings could be made in the transportation costs which the customers for the imports had to bear? No, it means something more. It means that the local costs of producing bicycles were not prohibitive. When those local costs were paid, there was still enough margin in the sale price of the bicycles to cover the rubber, the steel and whatever else the industry had to import from outside Tokyo. Or, putting it the other way around, it meant that the cost of the goods and services that had to be imported into the city was not so high that it left too little margin in the sale price to cover local costs of the work.

Bicycle manufacturing in Tokyo might not have been economically feasible if the manufacturers had been so foolish as to attempt to copy slavishly the production methods being used, say, in the great factories of the American bicycle trust in Hartford at the time. Those methods would have required the Tokyo manufacturers to build large new factories that would involve great expense before anything could be earned from them. The manufacturers would have had to import many expensive machines too, and would have had to pay for expensive imported management services in the factory or else for sending managers abroad for training. But by tailoring

their production methods to Tokyo's existing capacities—a creative thing to do—and by using many already existing local producers who needed only to expand work they were already capable of doing or to adapt it somewhat, the manufacturers made the new work economically feasible.

We see the same principle at work when highly developed economies replace handmade imports with work produced by machine. Such new local work—whether grinding and mixing spices, or printing cloth or tooling leather—might not be economically feasible if it all had to be done by hand. Sometimes the replaced import in such a case is not as good as the handwork that is being imitated; sometimes it is. But again, production methods are not being slavishly copied. The local imitations are tailored to local technical capabilities.

The Mighty Economic Force Exerted by This Process

We are considering a process of immense, even awesome, economic force. Perhaps an idea of its mighty force can be conveyed by considering, first, two untypical instances in which the replacement of imports has rescued cities from what otherwise would have been dire temporary or permanent economic distress.

Ordinarily, when a city is rapidly producing for its own market many things that formerly had been imported, and thus rapidly shifting the composition of what it continues to import, its export work remains at much the same volume as before or else it expands. In such cases, the city's increased growth from the work of producing former imports is pure increment, an absolute expansion of its economy. But sometimes, owing to unusual circumstances, a city's export work may drastically decline at the very time other work in the city is growing through local production of former imports. In such a case, the

replacement work is unequivocally responsible for the city's continued growth.

In Los Angeles this unusual situation occurred at the end of World War II when new local production of goods and services compensated for enormous losses of export work and was responsible for more growth besides. During the war itself, there had been immense increases in Los Angeles exports. And in spite of wartime shortages, imports into Los Angeles had soared too—imports incorporated into the war goods the city was producing, and imports also to help clothe, shelter and feed the workers and their families. But even before the war's end, the export work began to decline and it declined still more during the next four or five years. I shall mention only the principal losses.

Aircraft manufacturing, the city's largest industry, laid off about three-quarters of its workers by the end of 1945 and operated at about that reduced level, sometimes lower, for the rest of the decade.* Shipbuilding, the second largest wartime industry in Los Angeles, almost closed down. The Hollywood motion picture industry was in the beginning of its decline. Petroleum, once the city's largest export and still an important one until 1946, was thereafter lost to the city's export economy because people in Los Angeles itself took to consuming so much gasoline that the city ran a "deficit" and became a petroleum importer. Some of the city's oldest depot services were lost, those concerned with nationwide distribution of the citrus fruits, walnuts and avocados grown in the city's hinterland. This loss was incurred when the groves were up-

*The same kind of decline did not occur in most large industries in the country; e.g., Chicago's steel industry (begun about the turn of the century to replace imports from Pittsburgh), the automobile industry, the chemical industries, garment industries, construction industries, all converted rather quickly from war work.

rooted to build suburbs and highways and—still farther out—to make way for truck farms to feed growing Los Angeles. I have been able to find no figures for the total number of export jobs lost in Los Angeles between 1944 and 1950. But some idea is conveyed by the fact that aircraft jobs alone declined from 210,000 in 1944 to 60,000 at the end of 1945 and shipbuilding from 90,000 to 18,000. Later both declined still more, though more slowly. Besides the export jobs themselves, other work was lost: that of supplying parts, tools or services to the export industries, and all sorts of goods and services to the export workers and their families. All this export-multiplier work was lost along with the export work.

In 1949 the Los Angeles export economy was probably at its nadir—perhaps lower than at any time since the Great Depression. At the war's end, many people had, in fact, predicted severe economic distress and depression for Los Angeles. They would have been right if the city had had nothing to grow on but its export work and the multiplier effect of that work. But as it turned out, work and jobs in Los Angeles did not decline; they grew. In 1949 Los Angeles had more jobs than it had ever had before. The city's economy had expanded while its exports had been contracting! What was happening, of course, was that Los Angeles was replacing imports at a great rate.

Much of this new local production work was being done by new local companies or by older ones that were adding new work, and most enterprises, in both categories, were small when they began replacing imports. The new enterprises started in corners of old loft buildings, in Quonset huts and in backyard garages. But they multiplied swiftly, mostly by the breakaway method. And many grew rapidly. They poured forth furnaces, sliding doors, mechanical saws, shoes, bathing suits, underwear, china, furniture, cameras, hand tools, hospital equipment, scientific instruments, engineering services and hundreds of other things.

One-eighth of all the new businesses started in the United States during the latter half of the 1940s were started in Los Angeles. Not all were replacing former imports, nor did all of them succeed. There was much trial and error. But many were replacing imports, and many did succeed.

Some of the companies started at this time were to become highly successful exporters—for example a company making sliding glass doors for local house builders. It was started in 1948 by a young engineer who had broken away from his job in the materials laboratory of Douglas Aircraft, had attempted to manufacture a furnace that had swiftly become obsolete, and had then started the door business in a Quonset hut with a young architect as partner and \$22,000 in capital. The company succeeded locally and then became an exporter. In 1955, when it moved into a new plant costing \$450,000, it had already become the largest supplier of sliding glass doors in the United States, exporting far and wide. Scores of important new exports and hundreds of lesser ones were to come out of new local work started in Los Angeles at this time.

While new companies were starting, still other imports in Los Angeles were being replaced in a different way. Many former exporters to the city were opening branch plants there to produce their goods and services close to what had already become a large market for their work. Among others, the automobile companies of Detroit opened new branch factories in Los Angeles and enlarged old ones. Their big suppliers opened Los Angeles branch plants to manufacture components for the cars. From the viewpoint of Detroit, the automobile industry was decentralizing and Detroit was losing export work it would otherwise have had. But from the viewpoint of Los Angeles, imported work was now being produced locally and other imports could be bought. Exports for the Los Angeles economy emerged from the branch plants too. The city was soon to become an exporter of "Detroit" automobiles throughout the territory west of the Rocky Mountains.

But since these and other branch plants were producing standard products being produced in other places too, their products did not become nationwide exports.

Though Los Angeles' imports, like its exports, were much reduced from former levels in the years following the war, and were lower than they would be later, the city was still able to import enough to obtain the materials for its new, locally produced goods and services. And so many goods and services formerly imported were now being produced in the city instead, that the imports the city could "not afford" were not missed. The city had those goods and services anyhow. So great was the city's shift of imports from finished goods to materials for work now done locally, that the city could actually afford "extra" imports, not imported before—such as the petroleum. Los Angeles could also import more of some things it had previously imported and had not replaced by new city work, such as additional farm produce that came, in part, from the new truck farms beyond the city. Thus, far from seeming to have declined (although they had), the city's imports seemed to have grown, just as if they had been earned by a growing export economy.

From the point of view of the world outside, Los Angeles was buying as large a quantity of imports as it could have bought in any case. But without the replacement and shift of imports there would have been many idle people in the city, at a much lower standard of living. The replacement work had not only expanded the total of economic activity in Los Angeles, but in the United States and in the world as a whole.

Similarly, in Shakespeare's time, a mighty episode of import replacing in London more than compensated for the immense losses incurred at that time in London's export work.* London in the late sixteenth and early seventeenth

*The reasons for these losses were different from the reasons for Los Angeles' losses, but they were probably comparable in severity. England's foreign trade was badly depressed

centuries must have been replacing many of its domestic imports but, as always, replacements of foreign imports were more obvious because the foreign imports (and in many cases the people doing the new local work) were so obviously exotic. So many foreign workers from the Continent set themselves up so rapidly in business in London that, ac-

at the time, which meant declines in London's formerly large foreign exports (and imports). In addition, the city's domestic exports, to other English cities and rural districts, dependent upon markets in those cities, must have been declining badly too because virtually all the old cities of England at this time, with the exception of London, were afflicted by a gratuitous—indeed, self-imposed—economic stagnation.

While it is apart from the present point, the nature of this stagnation is interesting. What had been happening in the provincial cities was the reversal of the former freedom of English craftsmen to become exporters in their own right, and hence the suppression of new exporting organizations and new export work. In Newcastle, for example, a craftsman was no longer allowed to import or export a cargo for himself; the trade of the city was given, by its own government, as a monopoly to a powerful merchant company whose members had obviously come to dominate the power structure of Newcastle. To make sure that craftsmen could not evade this prohibition, or rival merchants live on business from them, the regulation also forbade skippers or merchants to act as agents for craftsmen trying to export their own work.

Many of the old cities of England never recovered from the stagnation they brought upon themselves at this time; thenceforth they were more or less inert towns. It was almost certainly economic repression of this sort—sometimes enforced by trading companies, sometimes by old and well-established guilds—that the saddlers of Birmingham, then obscurely beginning its growth, were evading. Such cities as Birmingham and Sheffield, just formed and beginning to grow at this time, retained the old economic freedoms lost for the time being in many other settlements of England dominated by powerful but decadent and stagnant guilds and trading companies.

cording to Unwin, the new industrial suburbs, rapidly building up at the time from Clerkenwell to Whitechapel, took on a strong foreign flavor. Shakespeare himself, according to A.L. Rowse, lodged for a time in the household of a Huguenot maker of French headdresses who had moved his work to London. The new shops of Blackfriars contained much locally made luxury goods that Englishmen had formerly had to seek out abroad. A case could be made that the economic success of the golden age of Elizabethan England—and the initial capital for the foreign voyages of its great captains—depended on the fortunate circumstance that London was engaged in replacing imports at the time. How poor, and how economically stagnant and weak, England would have been without this movement!

As I have said, cases like these, in which exports are declining while imports are being replaced, are exceptional. Usually a city's exports are not declining while local goods are replacing imports. When export work is growing at the same time, a city's economy grows from the combination of these forces. But in these cases, also, the mighty economic force exerted by the replacement of imports can be discerned because growth is much too abrupt and rapid to be accounted for by growing exports alone. For example, Chicago, during its first episode of import replacing, multiplied itself almost by seven in a single decade, growing from a population of 12,000 to 80,000 between 1845 and 1855. And this was not a growth of an idle city population, but of people with jobs and opportunities; it was growth of Chicago's economy. Chicago at this time was a depot. It handled and processed goods, mainly flour and timber, shipped to Eastern markets through the Great Lakes and on the new railroads, and it served as a distribution point for products from the East shipped to the Midwest. Its depot work was growing and so were new exports which it had already generated (some machinery manufacturing, shipbuilding, a little regional banking), and which had grown out of its original work. But Chi-

cago's exports were not growing at such a rate that they and their multiplier effect could account for the city's fantastic growth of jobs.

What was also happening was an extraordinarily swift development of the city's own production for its own market. Chicago at this time was replacing many of its imports almost as rapidly as they were earned and found a market in the city. This is evident from the fact that at the beginning of the decade Chicago, like any other little Midwestern depot settlement, was importing most kinds of city-made goods and was supplying for itself only the kinds of things that every town supplied. But by the end of that decade it was producing a very large range of the common city-made goods of the time and some of the luxuries too—clocks, watches, medicines, many kinds of furniture, stoves, kitchen utensils, many kinds of tools, most building components.

Chicago was still not thought of, in 1855, as a manufacturing city although it obviously was one; it had not become much of an exporter of manufactured goods thus far except to its immediate hinterland. Yet it was manufacturing a great deal, chiefly for its own population and its own producers. Furthermore, its manufactures were so diverse that no particular product seems to have been of special importance in itself; that is apt to be the case when a city is replacing many different imports rapidly with local work.

The great cities of the world have had many repeated episodes of replacing imports and of explosive growth. Nobody knows when London had its first. It certainly had one in the thirteenth century (among other imports that London replaced at that time were the brass vessels it had previously been importing from Dinant, the city that overspecialized in its brass work and so had no other exports to make up for its losses when it lost that). But that was probably not London's first episode of import replacing and explosive growth. Paris, incidentally, was replacing

its imports from Dinant at about the same time as London. In the twelfth century, Paris had been no larger than half a dozen other French commercial and industrial centers, notable perhaps only for being less specialized in any way than the others. But in the thirteenth century Paris grew so rapidly that it became five or six times as large as any other French city, and this growth cannot be accounted for by any equivalent growth in exports. It was marked, however, just as we would expect, by an amazing growth in Paris' own local economy; that is, in the comprehensiveness of what Paris provided for its own people and its own enterprises.

Ancient Rome's first explosive growth—at least its first momentous episode—occurred at the beginning of the fourth century B.C. The city fathers tried to stop the great growth of the city at that time with programs of emigration and by discouraging immigration. But the mighty economic force exerted by the growth of Rome's local economy was not halted. I say growth of Rome's "local economy" because, as far as is known, this expansion cannot be accounted for by growth of Rome's exports at the time. The surge has long puzzled historians for that reason and also because it cannot be explained by conquest. Rome's first conquests—of Latium and then swiftly of the Italian peninsula—followed this episode. As Rome did, the ancient city-states typically rose like rockets to sudden size and power after earlier stages of gradual, relatively slow and obscure growth.

Wherever cities grow at all, they experience growth explosions of astonishing power. Villages and towns do not grow this way; but then they do not become cities, either. Even small cities that have grown only briefly, and then have stagnated decisively, have had at least one period of extraordinarily abrupt and rapid economic growth tucked into their histories. Often we can tell just when it happened by observing the architectural period of most of the

little city's buildings; so much was built in a single swift interval.

Although cities do not import less when they replace imports than they otherwise would, they do import less from some places as they shift to new purchases from others. What happens to cities that lose exports when their customer cities begin producing the same things for themselves? Stagnant cities lose out.* They fail to develop new exports that compensate for the losses. Creative cities do develop new exports that take the place of the old. Indeed, replacements of old imports and shifts to new ones by other cities afford to creative cities great new opportunities. Their own new and unprecedented exports can find new and growing markets.

The Import-Replacing Multiplier Effect

The city where I grew up, Scranton, Pennsylvania, experienced its first and only episode of rapid import replacing and explosive growth from about 1905 to 1920. Scranton's growth, at that time, was due to a combination of two causes. Its exports were growing.† It was also producing locally many humdrum former imports: beer

*As they also do when they lose export work that has become obsolete, and export industries that are transplanted into the countryside.

† Especially coal, textiles and a correspondence school that educated people by mail. The textile plants, for the most part, were transplanted industries, located in Scranton because the wives and daughters of the coal miners provided a pool of very cheap labor. The correspondence school had begun locally; its early students were chiefly miners who had had to leave school to work at a young age but were studying at home to qualify themselves as foremen, supervisors and mining engineers. To such courses of study the school added hundreds of others, and in time enrolled students from many countries of the world.

(legally until Prohibition, illegally afterwards), stationery, tombstones, stock brokerage services, mattresses, potato chips (called Saratoga chips because that was where they had first come from) and so on. But other goods and services, apart from locally produced former imports, were rapidly added into Scranton's local economy at that time too. Among them, I am glad to say—because they meant much to me as a child—were a zoo, a museum of natural history and a central public reference library. Several hospitals were added, several stuffy but imposing clubs, several department stores, such city departments as fire fighting and public health services, and a trolley-car system. With the exception of the trolley cars, which were among the first in the United States (and which were later painted fuchsia or silver or sky blue and had flowered chintz seat covers), these goods and services were already familiar in many other cities. But however familiar elsewhere, they were new to Scranton. They had not even been imported. Small cities, during explosive growth, almost always "round themselves out" with various goods and services already familiar in other cities but not previously available locally. The rounding out is apt to include a broadened range of financial, legal, warehousing and printing services too.

The economy grows in still another way: when imports are replaced, a city is almost sure to produce—for its own market—more of those things than it had previously imported. This happens because the very act of replacing former imports creates more jobs. Once Scranton began to produce tombstones, there were more jobs in Scranton for tombstone workers, and thus, eventually, more customers for tombstones. Once Chicago began making lamps for itself, there were more people to use lamps there. After San Francisco began producing jam and jelly instead of importing preserves from Boston, San Francisco contained more people to eat jam and jelly. Such increases in the local market will amount to little if a city is replacing

only one or two of its imports. But when it is replacing many kinds in rapid succession or simultaneously, the new markets in the city for each item amount to a considerable increase over the previous markets. Just as export growth creates a multiplier effect, so do replacements of imports. But there is a vital difference between the two effects.

In the case of an export-multiplier effect, some of the new imports earned by the export growth go directly back into the export work, the way ore imported into Pittsburgh goes directly into exported steel, or a high proportion of the textiles imported into New York go into exported clothing. The other imports earned by exports go into a city's local economy; but even so, many of them go indirectly into the export work that earns them. In the case of an import-replacing multiplier effect, however, none of the different (seemingly additional) imports go either directly or indirectly into exports from the city. All are added to the growing local economy. The greater volume of the locally produced jelly, lamps or tombstones—relative to the imports they replaced—is one result. The rounding out of the local economy is another. And because the employed population is growing, there are of course increases in production of things the city was already producing for itself anyway, before the import replacing; say, houses, ice cream, grade-school education.

In sum, the multiplier effect from import replacing is far more potent than the multiplier effect from growth of exports, because all shifted imports go to swell the local economy. An equivalent amount of imports earned by export growth do not. After a city has experienced an episode of import replacing and import shifting, its local economy is thus much larger than it was before the episode: not only larger absolutely but also *larger in proportion to its exports and imports*.

Accurate statistics do not exist today on ratios between the export economies and local economies of cities, especially large cities. Many attempts have been made to

compile such statistics but they contain a great deal of guesswork for the reason that the statistics are collected according to categories of activities (e.g., services, transportation, manufacturing, construction, entertainment, "other"), not according to actual destinations of the goods and services. The statistics usually also contain a major flaw: a poor job, if any, is done separating local producers' goods and services from exported goods and services. The division usually made is that between misleadingly named "non-basic" activities, meaning goods and services for the local population, and equally misleadingly named "basic" activities. The latter usually means exports and producers' goods and services supplied to exporters; but in practice there is immense confusion between these latter and producers' goods and services supplied to producers of local consumer goods. Nevertheless, rough and even ill-conceived as available statistics are, they indicate that, as a rule, the larger a city the larger is its local economy in proportion to its exports and imports.*

Import replacing and its potent multiplier explain why large cities have local economies proportionately so large. For those who wish to see the import-replacing process shown graphically, along with the resulting proportionate changes among the parts of a city's economy, a series of diagrams appears in Section II of the Appendix.

The question arises as to why all cities do not replace their imports from time to time. Why do some, like Scranton, do so significantly only once while others, like London,

*For instance, one study of "basic" and "non-basic" work shows the following numbers of "non-basic" jobs for every ten in these cities' "basic" economies: New York, 21; Detroit, 12; Cincinnati, 17; Albuquerque, 10; Madison, 8; Oshkosh, 6. The cities are listed in declining order of population. If local producers' goods and services supplied to export work were carefully separated from the exports themselves, the differences would be much greater and more startling.

do so again and again? The answer is that if a city stops generating new exports after an episode of import replacing, it will not earn many more imports to replace. It will not have the grist, so to speak, for another episode. Anything that halts the export-generating processes of a city ultimately kills the import-replacing process too.

When cities that have already had import-replacing episodes in their past, and thus already have large and comprehensive local economies, go on to replace imports rapidly yet again, they garner an economic margin in their local economies for adding extraordinary, even unprecedented, goods and services. It was just such cities, already big but growing rapidly, that first made important use of electricity, telephones, indoor plumbing, and so on. It was just such cities that took the lead in overcoming epidemics. It will probably be in just such cities that current acute practical problems are first overcome—and in which new ones will come to light. Large margins for new local goods and services are necessary to solve the big problems that become acute in such cities at times when the same problems are still only chronic in other places.

There is also room for extraordinary growth of learning and the arts in the large local economies of big cities. Scholars and artists are not out hoeing corn for the same reason that people administering antitetanus shots are not out hoeing corn either. Shakespeare's theater found room in a city economy that had grown room for it. This does not explain Shakespeare's genius, but it does explain why there was scope for that genius in the local economy of London rather than in Newcastle or, for that matter, in the local economy of Stratford-on-Avon.

The proportionately large local economies of large cities also explain why there is room in them for old crafts and old institutions even though so many new things are added. When the motion pictures come to an inert town or a stagnant little city, the opera house closes or converts to

motion pictures; there is not room in the economy for both. When television comes, the motion picture theater may close. But cities that replace many imports from time to time have room for jumbles of old and new things. At the very time when the greatest numbers of new things are being added, the local economy is also expanding most rapidly.

Although there are extraordinary opportunities to add unprecedented new goods and services into the local economies of already large and rapidly growing cities, the opportunities of course are not necessarily put to use wisely or productively. They can be frittered away and often have been. Perhaps the biblical Tower of Babel is as good a symbol as any: once upon a time a city achieved an immense opportunity for extraordinary work in its local economy, but misused it only on sterile vainglory. Nevertheless, the wastes of great economic opportunities in cities do not negate the fact that such opportunities for new and creative goods and services do arise. And at some times, in some places, people have used the opportunities well: to bring useful and wonderfully creative achievements into the world.

The Explosions

Let us go back to examining a young city that has just begun its growth. It is generating new exports from its meager local economy, as described in Chapter Four. It grows steadily but gradually, along with the steady but gradual growth of its exports. No matter how gradual this growth, if the city continues to generate new exports, sooner or later it must build up a rather large and diverse quantity of imports. At some point, inevitably, the time arrives when production of a few of those imports is economically feasible within the little city.

If people there are already doing work to which the

new work can be added, if they can find space in the right places for producing some of the former imports locally, if they can get capital, and if they are not either overtly or covertly prohibited from replacing imports (as people in colonial economies often are, for example), some of the imports will soon be replaced by local work. And now the city grows from this new work, at the same time shifting its imports and adding more local work from the import-replacing multiplier effect. Therefore the city has become a place where production of a few more of its various imports is economically feasible. Again replacements are made. Again some of the city's imports shift, and the city grows. Therefore the city has become a place where local production is now feasible that would have been out of the question when the process started. Torrents of various imports are rapidly replaced. The growth of the city has become so swift by this time that some of the very imports to which the city shifted earlier in this episode are themselves being replaced later in the episode. This is a process, in short, that inherently builds on itself and accelerates. An import-replacing episode, once it is vigorously under way, is so mighty an economic force that it does not seem to halt until it has reached its own conclusion.

But inevitably, the time comes when so many imports have been replaced that the current imports of the city have shifted overwhelmingly to: a) rurally produced goods; b) goods and services for which the city still affords a market too small to be worth producing locally for; and c) goods and services the city still lacks the technical capacity to produce. Suppose, during this process, the city's exports have been growing. Then imports have not only been shifting their composition; they have been increasing too—certainly in quantity and probably in variety. In this case, either the candidates among the imports for local production have become more numerous than they otherwise would have been; or else the moment has been has-

tened when the production of some of them becomes economically feasible. Thus the swift growth of a city's exports can prolong an episode of import replacing and explosive growth. Or the export growth can shorten the intervals between bursts so one burst follows quickly upon another.

During the great growth explosions of New York City in the last century and the first quarter of this century, the city's exports were also growing rapidly. The great explosions of growth in Tokyo since the war and of such cities as Hong Kong, Moscow and Milan have surely been intensified and prolonged because exports from those cities have been rapidly growing too. After an episode of explosive growth has died down, a city has in its local economy much new potential export work, as will be explained in the next chapter.

If the city does indeed continue to generate new exports, it will not only compensate for its own inevitable losses of exports—which must occur in any case—but it will also build up new funds of replaceable imports. Then, in time, the city will experience another episode of import replacing, import shifting, and exceedingly rapid growth.

So what we have here, if this summary is correct, is another reciprocating system of growth, though more complex than the one described in the preceding chapter. Its workings can be stated this way: a city builds up its imports and thus becomes capable of replacing many of them. By doing so it becomes capable of generating more exports. It thus builds up imports and becomes capable of replacing many of them. By doing so it becomes capable of generating more exports. It thus builds up imports . . . and so on.

Few sights are more flabbergasting than the sheer quantity and diversity of work and working places concentrated in a great city. How do such immense concentrations of work come to be? The answer, I think, is in the working of this remarkable reciprocating system.

Import Replacing and Economic Growth Rates

One consequence of replacing imports, a consequence which I mentioned at the beginning of this chapter, is the expansion of the sum total of all economic activity. I would now like to suggest that this process may be, in fact, the chief cause of economic expansion. There are several reasons for thinking so.

A national economy's rate of expansion—conventionally expressed as a percentage growth rate from year to year—is a sum of economic growth in all parts of the economy, less any contractions of economic activity during the same period. It is a net rate. Some places in the nation, such as stagnant regions or declining cities, may show no growth at all; in any case, their expansion is less than average. They have dragged the rate down. Other places—cities with the most rapidly growing economies—have a much higher rate of economic growth than the average. They have raised the net rate. Of course the same cities are not continually and steadily doing most to raise the net growth rate—only those growing explosively at the time. Not all the cities of a rapidly expanding economy are simultaneously replacing imports rapidly. The economy is a little like a corn popper in which not all the kernels are popping simultaneously; but all the time corn is popping.

A circumstance still more persuasive than comparative growth rates within a nation suggests that the process of import replacing may be the chief cause of economic expansion. Consider the fact that when cities rapidly replace imports, three direct results follow:

1. The sum total of economic activity expands rapidly.
2. Markets for rural goods increase rapidly because of shifts in the composition of city imports.
3. Jobs in cities grow very rapidly.

These in turn are the three major characteristics of an economy with a high growth rate—and they are rather

strange characteristics. For example, if there were no real world against which to test theories, one might plausibly suppose that numbers of agricultural workers would increase in an economy where solvent markets for agricultural goods are increasing very rapidly. But just the opposite happens in the real world. Great surges of agricultural expansion coincide with great surges in city jobs—not great surges in rural jobs.* Rural jobs, in fact, decline proportionately, and even absolutely, at precisely the times of great surges in a nation's agricultural production; of course, as we have seen, the workers who do remain in agriculture become more productive.

Now, because it has long been observed that the three changes I have listed occur simultaneously in an economy, if they occur at all, many attempts have been made to explain how they cause one another. One such recent attempt, put forward because past explanations are clearly unsatisfactory, is the study, *Why Growth Rates Differ*, published in 1967 by the Brookings Institution of Washington, D.C. The study notes accurately that the rapid economic expansion of the European Common Market in the 1950s was accompanied by large movements of workers from agriculture into industry. It also points out that the relatively slow growth rate of the economy in the United States during the same period was accompanied by only small movements of workers into industry from agriculture. (Many workers in the United States at this time moved from agriculture into idleness and makework, a point the study evades.) The study then goes on to pro-

*This, of course, is not at all the same as saying that great surges of agricultural expansion necessarily coincide with great surges in city *populations*. The populations of cities with stagnant economies can grow mightily as people move from poverty-stricken countrysides to idleness in cities, a situation that can occur in highly developed—but stagnating—economies as surely as in underdeveloped, stagnant economies. It is occurring widely, for example, in the United States now.

pose this connection: an economy's growth rate is largely determined by how many workers it has in agricultural jobs of low productivity, hence how many workers it has available for other work. But then what of India? Or Mississippi, or Egypt, or Portugal, or Peru?

The fallacy lies in the assumption that events happening together somehow cause one another. Yet events can all be different effects of a common cause. I am proposing that this trio of events is caused by rapid local production of former imports in cities. If this is so, it follows that the development and prosperity of underdeveloped, have-not countries, including the development and prosperity of their agriculture, must depend upon replacements of their city imports. This means replacements of many present imports from currently more highly developed economies, as well as replacements of imports that cities in such countries must generate, as exports, to one another.

If Japan had depended upon increasing her exports of silk, or other raw material, instead of rapidly producing in her own cities many of the imports the silk bought, Japan would today be a most backward and poverty-stricken country. The shifts of imports in Japan's cities have been so heavily to goods that cannot be produced in the cities that these imports also include much that cannot be produced anywhere else in Japan. That is why Japan can be a modern industrial nation, although it has hardly any iron and must import most of its fuels too. Japan does not waste its fund of imports on things its cities have been able to replace, nor does it go without those things.

The Parentage of Embryonic Cities

When I was discussing, in Chapter Four, how cities begin growing, I left hanging the question of how an embryonic city first creates its original export work. Also unanswered was the question of how an embryonic city happens to

have an expanding market for its early export work. These questions are crucial. An embryonic city must have an expanding market for its initial exports; otherwise, its local economy cannot expand either, and so cannot generate new export work.

By definition, the earliest cities had only the rural world and each other as customers for their initial exports. At first they must have exchanged with each other only the natural resources from their own territories. As their exports to one another grew, so must their local economies have grown—very gradually, very slowly—and so must their imports from the surrounding rural peoples have grown gradually and slowly. Then the embryonic earliest cities must have exchanged some of the craft goods made within their own communities. The craft goods could eventually have been replaced in the importing cities, that is, the little pre-agricultural cities could have engaged in mutual economic borrowing. There must have been many such instances when craft imports were replaced. Then, once the wild-food imports from the rural world were replaced and cities grew explosively (for the time), the formation of new cities would no longer be quite so chancy as before, nor their initial growth so slow. For from this time on, new embryonic cities could find ready-made expanding markets for their initial export work in older, explosively growing cities, just as in our own times and in historical times, older cities have provided the expanding markets for the initial exports of embryonic cities. Let us trace some of these relationships backward in time to see how the economies of new cities are born of the markets in older ones.

London has afforded an expanding market for the early export work of many younger cities—from Hong Kong to New York. The London market has also sometimes helped revive stagnant cities. Copenhagen, for example, was a poor and stagnant city in the early nineteenth century, and Denmark was then one of the world's poorest countries.

Starvation and disease had kept the country's population almost static for seven centuries. Occasionally, during the long poverty, there were fleeting periods of better times, when now and again the Lubeck or the Amsterdam market bought Danish grain, horses and bullocks. But these gains were temporary; no new work to speak of, no new streams of Danish exports, were built upon this trade. (Small wonder, for the trade was usually handled by rural landlords who had set up tight trading monopolies in the ports and, for anyone but these merchant-landlords, economic opportunity was nonexistent.) In the eighteenth century, Denmark had even lost most of this rudimentary trade owing to the growth of cheaper and more plentiful Dutch and English agricultural produce, and her people were on the thin edge of starvation.

Denmark could produce food, plenty of it, but it was not doing so because it lacked the city growth processes we have been discussing. There was no mechanism at work by which the economy could expand. Then, in the second quarter of the nineteenth century, London's explosive growth and its great shifts of imports afforded a new chance. Once again, Danish produce was in demand and this time the goods were chiefly processed in Copenhagen and shipped through Copenhagen, and in Copenhagen the new opportunity for city growth was at last well used. From its supply work to the trade and the processing, the city generated new exports—and indeed is still doing so today. In a short time, Copenhagen began to produce locally some of the imports it was earning, shifted its own imports, and provided an expanding market, itself, for rural Denmark and for many other places.

In the United States, the westward economic expansion has been conventionally depicted as a rural movement. In fact, the westward expansion included the establishment of scores of settlements that grew rapidly into cities. Those cities, when their growth began, did not find the expanding markets for their initial exports in the wilderness or in

the cabins of poor pioneers and homesteaders. They found their markets—their economic reasons for being—in older cities of the Eastern seaboard and abroad. The rural West, in its turn, found its markets in these Western cities.

Sometimes the older cities of the East and of Europe provided expanding markets at one remove for embryonic frontier cities. This, for instance, was how Detroit found an expanding market for its initial export of flour. The flour was shipped mainly to the West Indies. But the reason the market for North American flour in the West Indies had grown, and was still growing, was that the market for such products of the West Indies as limes (for the British Navy), rum and turpentine had grown, and was still growing, in England. This particular three-cornered trade, as it was called, with the West Indies at one of its corners, gave many an American city its start, beginning with colonial Philadelphia. But behind such trade lay import shifts and expanding markets in English cities, especially London.

The earlier effects of London's great import shifts in Shakespeare's time preceded even the Pilgrims to New England. Samaset, the Indian chief who amazed the Pilgrims by addressing them in broken English, had already put in a summer's work with an English fleet fishing off Cape Cod, most probably for the London market. Samaset coveted steel hatchets for his people. Apparently these had been refused him and his men by the English fishermen. The Indians were hopeful that the new little settlement at Plymouth would become a source of hatchets for them, and so it did. After the first hard years, Plymouth paid off its debts for the Atlantic passage and for supplies bought on credit, and the settlement went on to prosper owing to London's expanding market for Plymouth's exports of beaver pelts (bought mostly from the Indians) and clapboards. A lot of clapboards manufactured in Plymouth and in embryonic Boston must have helped feed the Great Fire of London.

But of course London itself was once an embryonic city and, far from providing an expanding market for others, could not have begun its growth as a city without an expanding market for its own initial exports. During the shrouded years between the fall of Rome and the emergence late in the tenth century of the embryonic medieval cities, London was probably a very rudimentary trading settlement. Bede described it in the eighth century as the "mart of many nations resorting to it by sea and land." Probably its trade was seasonal, like that of Dragor in Denmark at this time and the rude Baltic ports where furs and minerals seem to have been exchanged, but only at certain times of the year, set by custom. The line between bartering and raiding must often have been unclear to the people who fared among these settlements, and it must have been a line frequently crossed. London's chief goods for barter were probably salt fish. Trade among such settlements in the eighth and ninth centuries must have been rather like the earliest trade among the earliest cities: small, increasing as yet infinitesimally if at all, and consisting of exchange in almost nothing except a few territorial natural resources, sometimes processed but usually not.

How slow the growth of Europe's trading settlements (including London) might have been if, like the earliest cities, they had continued to have only each other and the rural world as markets is a question that cannot be answered—as is the question whether these rudimentary trading posts would, indeed, ever have grown into cities at all. Dragor, for instance, did not. But fortunately for the economic life of Europe, these eighth- and ninth-century trading settlements did not, as it turned out, have to recapitulate the chancy first growth of the earliest cities with no older cities to serve as expanding markets. For in the tenth and eleventh centuries Venice had become an explosively growing city with an expanding market for raw materials from the west and north of Europe. It was

this market that made possible the relatively swift economic growth of Europe that followed. Venice required materials such as leather (especially cordovan, processed and handled in the settlement of Cordoba in Spain); tin, some of which probably moved through London; the Friesian cloths of Flanders; wool, moving not only into and through London, but into and through many another trade depot; perhaps wine as well as wool from Paris and its vicinity; furs from Germany and Muscovy; and amber, that ancient Baltic resource. Some of this trade was three-cornered: London, for example, supplied fish to expanding little inland Continental cities; Cordoba supplied some of its leather to the now expanding little market in London.* But behind all this lay the import-shifting, explosively expanding market of Venice. It was this trade, stretching through the ports and inland depots of north Italy, up into the Continent westward and north, curving east again through the North Sea and the Baltic, which was pursued by those tenth-century vagabond traders, described by Pirenne as being drawn from the riffraff of Europe.

But of course Venice at one time, far from providing an expanding market for embryonic cities and, through them, for the rural world too, had itself been an embryonic city. Where did it find its own initial expanding markets? The poor, fish-eating, marsh-dwelling, perhaps fugitive Veneti of the fifth and sixth centuries gathered salt. Almost surely the first significant and expanding market they found for this salt—and probably, soon, for timber too—was in Constantinople. Venetian merchants took to trading with the old cities of Islam and long continued to do so, although this trade with the infidels was regarded as a scandal by the rest of European Christendom.

* Which is why the early leather workers of the city were called "cordwainers." Later the term came to mean the makers of fine shoes, but at first it included all craftsmen using fine, soft leather.

Constantinople, where Venice found an expanding market, was not always so. Once it too had required expanding markets in older cities. Its customer cities—not only for the government services that had been transplanted from Rome to Constantinople (which was previously the old, small city of Byzantium), but also for its commercial services—were other cities of the Roman Empire. Rome had provided the initial expanding market for some of these. Others were older than Rome, but even some of these had had stagnated economies revived by import shifting in Rome, much as Copenhagen was revived by import shifting in London. Rome was a mighty market for imports, the mightiest in the history of the world until recent times. "Into her three ports of Ostia, Portus and the emporium beneath the Aventine," wrote Carcopino in *Daily Life in Ancient Rome*, "poured the tiles and bricks, the wines and fruits of Italy; the corn of Egypt and Africa; the oil of Spain; the venison, the timbers and the wool of Gaul; the cured meats of Baetica; the dates of the oases; the marbles of Tuscany, of Greece, and of Numidia; the porphyries of the Arabian Desert; the lead, silver and copper of the Iberian Peninsula; the ivory of the Syrtes and the Mauretanas, the gold of Dalmatia and of Dacia; the tin of the Cassiterides, now the Scilly Isles, and the amber of the Baltic; the papyri of the valley of the Nile; the glass of Phoenicia and of Syria; the stuffs of the Orient; the incense of Arabia; the spices, the corals, and the gems of India; the silks of the Far East."

What immense, and repeated, episodes of import replacing and import shifting in Rome must have lain behind that flow. We get a faint hint of their magnitude from the establishments of the foreign shipfitters on the Piazzale delle Corporazioni of Ostia, who had evidently transplanted work to the market, rather like people who established branch plants in Los Angeles. As Carcopino lists them, there were fitters of Alexandria; fitters of Narbonne and Arles in Gaul; of Cagliari and Porto-Torres in Sardinia;

Carthage; Hippo-Diarrhytus, the modern Bizerta; Curbis, now Courba; Missua, now Sidi Daud; Gummi, now Bordj Cedria; Musluvium, now Sidi Rekane; and Sabratha, the ivory port of the desert.

Not only Rome, but many another city of the Roman Empire replaced imports and, just as happens in cities of our own time, many of the replaced imports became exports for the cities that had replaced them. The Russian classicist and historian, Michael Rostovtzeff, tells, in *Rome*, of the earthenware vessels of eastern design that spread over the Roman world. At first they were imported into Italy from Greece and Asia Minor. But before the second century B.C. these imports had been replaced in Italy and had already become specialties of, and exports from, Italian cities, particularly those of north Italy. "In the first century A.D. southern Gaul begins to compete," Rostovtzeff continues, and "in the second half of the century the manufacture moves farther north, and reaches the Rhine in the second century. These vessels now conquer not only the northern and northeastern markets but Italy as well; and simultaneously Asia Minor is producing the same article after the same patterns for the southern and southeastern markets. In the second century A.D. all the provinces, both East and West, are turning out in immense numbers the earthenware lamps which had once been almost a monopoly of the workshops in north Italy. . . . Indeed local imitations of the products from great centers of industry crop up everywhere."

Just as happens in our own times, cities that did not generate new exports lost out economically as a consequence of import replacing in customer cities, although during the centuries of the most vigorous import replacing in the Roman world, the total economy was rapidly expanding, just as we would expect. But during this movement, Greek manufactures, once widely exported, "disappeared almost entirely from the world's markets." The cities of Greece were generating no new exports; they had stagnated.

In the second century A.D., when the wealth of the empire seemed to be at its height, an ominous stagnation was actually setting in almost everywhere, and development rates in the cities of the western empire must have been in process of declining to almost nothing. "Nothing now," notes Rostovtzeff of the later empire, "except articles of luxury accessible to few, finds a distant market." What this means, of course, is that new work was no longer being added to old, new exports were no longer being generated in the cities. And of course there were then no more new imports of any significance for customer cities to replace. The little movements at the hubs had ceased, and the great wheels of economic life were grinding to a halt.*

*Not only did creation of new goods and services cease, but improvements were no longer being made to old products. Of the later empire, for example, Rostovtzeff notes, "The quality [of manufactured products] grows inferior; there is less both of mechanical skill and beauty. Technique becomes monotonous and somewhat old fashioned. . . . It is important also to note this: ruins and tombs have yielded up objects of Roman production by the hundred thousand, and these warrant the assertion that practically no new discovery was made in technique: on the contrary, many earlier discoveries fell into disuse."

Nor did new settlements established in distant provinces at the height of the empire's power and extent become self-generating cities, as so many earlier Roman provincial centers had been for at least a time. They remained, rather, centers of administration only, government company towns. When Roman administration was withdrawn from Britain, for example, the Roman settlements there almost immediately collapsed. They had developed no other significant economic reasons for being.

Unwin, commenting on the fact that cities were no longer centers of economic opportunity (as they once had been) in the western empire, notes that their inhabitants had become so oppressed by the official taskmasters that they "had to be prohibited from fleeing into the country." And of course he was speaking of "free" inhabitants, not slaves.

But let us go back to Rome before its abysmal stagnation and economic decay. Once Rome itself had been an embryonic city which needed expanding markets for its own initial exports. When Rome was still only an inconsequential little settlement occupied by herdsmen (who were possibly also raiders) on a hill protected by ravines—the hill that was to become the Palatine—looking across at another hill occupied by the Sabines, the Etruscans had a dozen flourishing cities in Etruria to the north. The three most ancient of these cities were on the Tyrrhenian coast; the younger were inland. Presumably those cities traded with each other. Certainly they traded with older cities of Phoenicia, Cyprus and Assyria, and with Urartu, a once-rich city-state in the area of Mount Ararat in Asia Minor. These Etruscan cities were Rome's first customers, her first markets of any consequence. How did they come to provide expanding markets for Rome? I suspect it began with import replacing by the Etruscans, for they did replace imports. They had once, for example, imported metal work from Urartu, and possibly from other cities also. But subsequently, the Etruscans had become great metal workers on their own behalf. After mining pockets of ore near their cities, they proceeded to undertake large iron-mining operations on the nearby island of Elba. When the Etruscans shifted imports, their cities must have become expanding markets for materials they had previously bought either in much lesser amounts or not at all. And it is then that Rome would have found its initial export opportunities. But what specific goods or services could Rome have supplied? My guess is leather—cattle hides. Embryonic Rome was well qualified to process and dispatch cattle hides. The very word for money in Latin, *pecunia*, comes from the word for cattle, *pecus*.

What I am saying is that every city has a direct economic ancestry, a literal economic parentage, in a still older city or cities. New cities do not arise by spontaneous generation. The spark of city economic life is passed on

from older cities to younger. It lives on today in cities whose ancestors have long since gone to dust. New York, far from having sprung from the Erie Canal (a mere artifact of New York), is more likely the great-great-great-great-grandcity of Urartu, say, by a descent that traces back through London, Venice, Constantinople, Rome, and Vetulonia or Tarquinii, oldest of the Etruscan cities. These links of life may extend—perilously tenuous at times but unbroken—backward through the cities of Crete, Phoenicia, Egypt, the Indus, Babylonia, Sumeria, Mesopotamia, back to Çatal Hüyük itself and beyond, to the unknown ancestors of Çatal Hüyük.