ing 10% formalin. The tissues were then washed in water, dehydrated in alcohol, and cleared in cedarwood oil. After clearing, they were hydrated and placed in distilled water for 1–2 hr. This procedure seemed to give the tissues a greater clarity and stainability. The connective tissue elements took less silver stain, and small nerve fibers appeared finer and darker. Individual types of fibers could be distinguished in the roots of cranial nerves that lay in the pia-arachnoid. Subsequently the standard Bodian (*1*) technique for staining paraffin sections was employed. The length of time the tissues were left in the various solutions varied with the tissue under study and was determined by direct observation. In general, they were left in the Protargol solution for 32–48 hr, and in the other solutions for approximately the same period as suggested by Bodian for section-staining. It was necessary, however, to flush the solutions from within the vessels each time a change was made. This was easily accomplished by gentle pressure on the blood vessels exerted with a round-tipped glass rod. After staining, the tissues were dehydrated and cleared in cedarwood oil and xylene. Mounting in clarite and permount proved satisfactory, and no fading was seen after 6 months.

The technique consistently demonstrated the nerve fibers along blood vessels. Small and large fibers, singly or in bundles, were readily distinguished (Figs. 1, 2). These preparations made it possible to follow nerve fibers along blood vessels for relatively long distances.

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Molluscan Shells as a Practical Source of Uroporphyrin I

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To obtain a supply of uroporphyrins for laboratory work has always presented difficulties. Human cases of porphyrinuria have been the main source, but large quantities of urine must be handled to extract the uroporphyrin, and the cases themselves are uncommon. Extraction from urine by the simplified method of Sveinsson, Rimington, and Barnes (*6*) considerably shortens the procedure, but where large amounts of uroporphyrin are needed an alternative source is most desirable. Possible animal sources (the bones of *Sciurus*; the feathers of *Turacus* which yield turacin) involve scarce and expensive material. Very large amounts of uroporphyrin in an easily manageable form have, however, been found in molluscan shells.

Shell porphyrins were originally recognized by Fischer and Jordan (*3*), and have since been extracted by several workers (Fischer and Haarer [*2*], Waldenström [*9*], and Tixier [*7, 8*]). The supposed pentacarboxylic conchoporphyrin of Fischer and Jordan was found by Nicholas and Comfort (*5*) to be a mixture of uro- and coproporphyrin. In most of the porphyrin-containing forms, uroporphyrin I occurs in an almost pure state. Many species are suitable for use as a source: Porphyrins have been shown to occur only in marine genera, and in largest quantity among the pearl oysters (*1*). The most convenient material for large-scale extraction is the Persian lingah oyster (*Pinctada vulgaris*), which is an article of commerce, and may yield as much as 10 mg per g of shell. *Trochus niloticus*, also used in the button industry, is an inferior source, owing to the thickness of the shell and the large amount of unpigmented mother-of-pearl.

The technique described by Tixier (*7*), in which shells are extracted with methanolic HCl to esterify the pigment, has the drawback of expense, since several liters of solvent are required per kg of shell. The following technique gives satisfactory results.

Shells of *Pinctada vulgaris* are selected under the ultraviolet lamp for their porphyrin content. They are coarsely broken, and the powder is added in small amounts to concentrated aqueous HCl in a very large beaker, allowing 500 ml of solvent to each 50 g of shell. Octanol and other antifoam agents should not be added, since these contaminate the product. The extraction is left to proceed at room temperature for 24 hr, the mixture brought to pH 1 approximately, and the debris removed by filtering over glass wool.

A chromatographic column is prepared by shaking pure acid-washed talc with *N* HCl, and sedimenting it over suction in a large tube (2.5-in. diameter) plugged with cotton wool. The filtered porphyrin solution is passed through this column by suction, and the chromatogram washed with 20% acetone in tap water. Partial development takes place, with separation of red, blue, and violet nonporphyrin bands. The extent of the porphyrin zone is checked by fluoroscopy. Red fluorescence in the subsidiary blue band should be ignored, as it appears to be due to an unidentified nonporphyrin pigment (*1*).

The column is extruded and the main porphyrin zone extracted with acetone containing 10% concentrated aqueous HCl. The filtered extract is concentrated *in vacuo* until it no longer smells of acetone, then diluted with an equal volume of distilled water, and adjusted to pH 3.2 by addition of saturated sodium acetate solution until precipitation of the uroporphyrin occurs. It is left overnight in the ice chest, the precipitate collected on a sintered glass filter, redissolved in concentrated aqueous HCl, and reprecipitated by neutralization. The final precipitate is then dried, esterified in a small volume of methanolic HCl, transferred to chloroform by dilution with water, chromatographed once or twice on alumina, and crystallized from chloroform-ethyl acetate mixture. The yield is approximately 1 mg of ester per g of shell.

The homogeneity of the sample should be checked by paper chromatography, using the method of Nicholas and Rimington (*4*). Uroporphyrin III has not been detected so far in molluscan shells.

Other species of *Pinctada* and *Pteria*, as well as of *Placuna*, *Malleus*, and *Pinna*, vary widely in their suitability, and in the quantity of porphyrin and nonporphyrin pigment present. The common pearl oyster (*Pinctada margaritifera*) is unsuitable. Of American species, *Pteria radiata* Lam. is a relatively good source, and smaller amounts can be obtained from many Trochidae and from *Trivia* spp. The only form containing amounts of porphyrin comparable to those in *Pinctada vulgaris* is the relatively unobtainable *Cypraea mappa*, the nature of whose porphyrin has not been established.

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Recent Patterns of Employment and Unemployment

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The adoption of the federal old-age insurance law in 1935, and the passage of state unemployment insurance laws about the same time, created a new and rich source of data on employment and unemployment in this country.

Since 1937, a vast amount of detailed information on the employment and unemployment experience of American workers has been collected as a by-product of the operations of these social insurance programs. The brief span of 12 years since 1937 has been strongly affected by World War II. However, the employment data now reported regularly by every covered firm, and the unemployment information supplied by jobless workers claiming unemployment benefits, have already revealed certain patterns and relationships. This paper will discuss briefly some of the patterns of employment and unemployment observed thus far.

A brief description of the information available may be helpful as a background. (A more detailed description is given in [*2*].) The federal old-age insurance law covers about two-thirds of all employment in this country. The following groups are excluded: government workers, self-employed persons, railroad employees, agricultural workers, persons engaged in domestic service, and employees of nonprofitmaking religious, educational, and charitable organizations. The New York Unemployment Insurance Law, which will be used as an example of the state programs, includes the same industries as the federal act but covers only firms with 4 or more employees, thus excluding workers in small firms with 1, 2, or 3 employees.

All covered employers report quarterly the earnings during each calendar quarter for each individual who was employed at any time during this period. Individual key-punch cards are then prepared for each person and sorted by social security number to give a complete earnings record for each worker. In addition, employers report certain total figures, such as the number of persons employed during the week ending nearest the 15th of each month in the quarter. These reports are coded by industry and geographic area and summarized to provide comprehensive data on employment.

One simple employment pattern revealed by these data is the average number of weeks of work per person in a calendar year. This can be derived as follows: In the state of New York, for the year 1939, the number of persons working in the midweek of each of the 12 months was obtained by calculating the data from the employer reports. The average of these 12 numbers was 3,114,000. Studies of weekly employment figures of individual firms for all 52 weeks of the year have shown that the average of the 12 mid-week-of-the-month figures closely approximates the average weekly employment for the year. Thus, the average weekly covered employment in the state in 1939 may be estimated at 3,114,000.

The total man-weeks of work during 1939 can be derived as $52 \times 3{,}114{,}000$, or about 162 million man-weeks. A count of the number of different workers with one or more quarterly wage cards showed that 4,450,000 different persons had worked in covered employment during 1939. There were 162 million man-weeks spread among 4,450,000 persons, or an average of 36.4 weeks of work per person.

In New York State, during the 10 years from 1939 to 1948, average employment rose from 3,114,000 in 1939 to 4,366,000 in 1948, and the number of individual workers during a calendar year rose from 4,450,000 in 1939 to 6,350,000 in 1948. Yet the average number of weeks of work per person showed little variation.

During the 3 prewar years, 1939–41, the range was from 36.0 to 36.4. During the 4 wartime years, 1942–45, the average number of weeks worked per person ranged from 34.2 to 34.6. The 3 postwar years, 1946–48, showed a range from 35.5 to 35.8. For the entire 10-year period, the range was from 34.2 weeks in 1942 to 36.4 weeks in 1939. The relative stability of this average is noteworthy in view of the dynamic changes in employment resulting from World War II and the sharp rise in both the level of employment and the number of persons in the labor market.

A similar analysis applied to data on employment covered by the old-age insurance law recently published by the federal Bureau of Old-Age and Survivors Insurance (*4*) showed 36.1 weeks of work per person in 1947 and 37.2 weeks in 1948.

A second type of analysis uses the employment data arising out of the long-range, continuous-work-history