見　本

日情協 50－5

ＰＯＳ海外事情調査報告書

昭和51年3月

財団法人　日本情報開発協会

ＰＯＳ利用推進委員会

目　　次

ＰＯＳに関する最近の海外事情を調査するため，ＰＯＳ利用推進委員会はアメリカおよびヨーロッパに下記の調査員を派遣した。

アメリカ

森　　竜　雄　氏（リテイリングコンサルタント）

ヨーロッパ

泰　　郷次郎　氏（ピート・マーウィック・ミッチェル，プリンシパル）

田　中　香　右　（日本情報開発協会理事）

本書はその記録であるが，アメリカにおいてはコードおよびシンボルの標準化の進展に伴い，各方面においてＰＯＳシステムの展開速度が早まり，数多くの事例が出現している。

しかし，ヨーロッパにおいては現在のＰＯＳシステムとは自社コードによるキーインシステムを指すものであり，ヨーロッパとしての何らかの統一コード，統一シンボルによるＰＯＳの展開にはなお数年を要するものと考えられる。

しかし，ヨーロッパの漸進主義にも日本としては聞くべき点が多い。

報告記録とともに参考資料を付載したので，本文とともに参照されればさいわいである。

第 1 部

米 国 事 情 調 査 報 告

Mervyn's

訪　問　日：昭和５１年１月７日

所　在　地：25001 Industrial Blvd.
Haywand, California 94545

面　接　者：Mr. Pon Devencenzi, Manager,
Corporate EDP Center
Mr. Mervin G. Morris,
Chairman of the Board
Mr. John F. Kilmartin, President

この店はアメリカの百貨店業界において最もＰＯＳターミナルを活用しているということで有名な百貨店グループであり，企業の方はディスカウントストアスタイルの店である。したがってデパートメントストアよりもプライスの低いところをねらって展開しており，ＰＯＳターミナルを中心に，大きな投資をし，活用していることで注目されている。売上げは現在６００億円，店数23店，ここ数年の売上げ高伸び率は４０％強で成長性の高い企業である。利益率も対売上高３％，純利益率でも高いディスカウントストアである。約１０年前に創業し，当初より売上げ時点におけ

るデータの収集を行い，積極的に展開してきた店である。ＰＯＳターミナルの採用は'72年，１０店に導入し，それまではレジとしてＮＣＲのクラスファイブのメカレジを使用，それに紙テープ，さん孔の装置にてクラシフィケーション単位の売上げ記録をとり，クラシフィケーション単位の管理をしていた。クラシフィケーションといっても，このMervynsは衣料全般を販売しており，それを５００のクラシフィケーションに分けて従来管理していた。それをうけて'72年全店にＮＣＲ ＰＯＳターミナル２８０システムを導入し，クラシフィケーション単位の管理からＰＯＳターミナル管理へと切り換えたわけである。その時点では，各店でデータコレクターを置き，従来のクラスファイブによりクラシフィケーション単位で早く処理できるようにした。その後，'74年より全部のＰＯＳターミナルにライトペンを付け，売り上げ時点で単品の売上げも記録するようにしている。その対象となった商品は５００の内約３００におよぶファッション関係の商品であり，その３００の商品にカラーバーコードの記録の入った値札をつけ，ライトペンでインプットするという形態のＰＯＳターミナルの採用に踏みきったのである。現在は，全店で約８００台のＰＯＳターミナルを使用しており，内約６割の５００台のターミナルにライトペンをつけ，売上げ時点の単品の記録を刻々ととっている。

そしてその日の終りに本店に２３店より電話回線でデータを集め，翌日の朝までに単品の在庫記録をレポートするということで，最も積極的なユニットコントロールをＰＯＳターミナルによって採用している。この店はとくにディスカウントストアで，デパートメントストアに対抗しているが，売上げの約３割が特売品であるので，それに対する在庫管理もＰＯＳターミナルを使用している。同時に約２００万の口座といわれるMervyn'sの個人会社のクレジットのチェックをもＰＯＳターミナルのポジティブなチェックでオンラインにより'74年の暮より展開している。全店において約２万アイテムのファッションについての在庫管理をＰＯＳターミナルの採用において展開している。そしてそれが２４店に及んでおり，規模の面では世界１である。その投資としては，この数年間，対売上げ高の約1.2％を当てて来たが，その投資を十分補ってあまりある純利益を確保している。よって今後店数を展開するにあたりＰＯＳターミナルは欠くことのできないものと，バイヤー，店長，経営者は云っている。

システムの中でファッションユニットコントロール関係についてはＮＣＲ社がMervyn's社と組み展開したＮＣＲのシステムである。又もう１つの事業の柱であるOpen-to-Buy のシステム仕入れ枠の管理システム，この内容についてはMervign's社が

独自で開発したシステムである。ユニットコントロールへＰＯＳターミナルを採用するに当って仕入予算枠の管理ということからはじめるべきであろうと思われる。

なお，Mervyn's における商品管理については全部ディストリビューションセンターに入庫してそこで荷うけ検査をし，値づけをし，出荷検品をし各店に出すという集中管理方式で，この面は創業当時より運営されており，商品管理に対するトレーニングは発足当時より行っていることは，見のがせないことであろう。

Burger King Corporation

訪　問　日：昭和５１年１月８日

所　在　地：7360 North Kendall Drive
D.O.Box 520783, Biscayne
Facility Miami, Florida 33152

面　接　者：Mr.Harold F.Bedtlofe, Director
Operations Systems
Managment
Mr.Oliver, Control Manager

Burger King Corporation は年商約５００億のFoodサービス業で，店数は約全国に４００店あり，内１００店は自社の店舗であり，残り３００はフランチャイズの店である。アメリカのFoodサービス業におけるＰＯＳの採用はここ数年逐次浸透して来ているが，このBurger King 社が最もＰＯＳターミナルを積極的に採用している会社だといわれている。この社においてまず自社の１００については全店ＰＯＳターミナルを入れて，本部にデータを収集するというシステムを採用している。ＰＯＳターミナルによって約５０種程度のメニューの売上げ記録をプリ

セット型のオペレーション器で売上げの都度データとして記録し，閉店後，電話回線により各店におけるメニュー別の売上げ数を本部の方にデータ収集する。またあらゆる経費をターミナルを通して毎日データとして集めている。経費面のデータをインプットするときは，ＰＯＳの盤面に各経費のインプット種類別ごとに用意されたマスクをしてキーインするということで，１つのターミナルであらゆるデータのインプットができるように考えている。全店についてＰＯＳターミナルを採用したのは，'７５年秋で，その結果のメリットとして，ロスの管理面で対売上げで0.５％程の改善効果をもたらしたこと，レジの打ちまちがえのロスも相当程度削減されたという２点を直接効果として上げている。他に各店における人件費の標準数字，各メニュー別の材料単位の標準数字をコントローラーが厳しく監査している。そういった面にも今後ＰＯＳの採用効果がさらに上がって来るのではないかと見ている。さらにフランチャイズの店についてもこのシステムを採用してそれぞれの店の改善効果，利益の改善に役立てたいと逐次展開していくというところである。

Harman's World of Sporting Goods

訪　問　日：昭和５１年１月９日

所　在　地：Division of U R Grall & Co.
2 Germak Drive
Corteret, N.J. 07008

面　接　者：Mr. Norman M. Laskin, Director
of MIS Deportment
Systems, Analyst
Merchandire Product Group
W.R.Grace & Co.

Mr. Ryuichi Suzuki
（親会社のＳＥ）
President
TRG. Systems
（コンピュータサービス会社の社長）

この会社は現在年商１５０億程度に達している全米１のスポーツ用品専門チェーン店であり，米国のスポーツ店におけるＰＯＳターミナル導入実態が最もよくつかめるのではないかと思われる。

現在５０店をニューヨーク，マンハッタン地区，ニュージャージー，コネチカット州およびシカゴ近辺に持っている。全商品をニュージャージーの本部ディストリビューションセンターを経由して各店に供給するという商品の集中管理体制を採用している。

この店は全店にSinger 社とＮＣＲ社，２社のＰＯＳターミナルを２年前から採用しており，そして売上げの都度，商品コードをキーインで記録し商品管理をしている。値札は自社のディストリビューションセンターにおいて値づけをし，同時にコード付けもする。そして各店で売上げの都度，７桁の商品コードをキーで打ち込むということである。商品管理が対象としているアイテム数は 12,000 アイテムである。この 12,000 アイテムの全商品についてディストリビューションセンターと各店における在庫管理を毎日のバッチ処理で行っている。現在は，コンピュータセンターはコンピュータのサービス専門会社にまかせているが，１～２年後には自社でディストリビューションセンターを持って展開する計画とのことである。

各店におけるＰＯＳターミナルは約４～５台ずつあるので，全店でおよそ２００台のＰＯＳターミナルを採用しているということである。この会社もマーチャンダイズマネジメントを本部のディストリビューションセンターが値づけ，検収を一括しており，

最近，ふえつつある商品数をこのファッション関係ユニットコントロールで徹底的にしぼっていくことで効果を上げている。よって基本的な専門店のユニットコントロールということで日本のユーザーの参考になるのではないかと思われる。

National Retail Merchant Associations Annual Meeting参加

参　加　日：昭和５１年１月１１日～１３日

所　在　地：100 West 21st Street
New York.N.Y.10001

面　接　者：Mr.Irving I.Solomon,
Vice President

National Retail Merchant Association の年次大会には小売業関係のビジネスショーが同時開催されている。今回のビジネスショー中，ＰＯＳターミナル関係でとくに注目されたのはSinger 社が撤退したなどでメーカー数が大きく減って来たことである。ＰＯＳのハード関係については予想以上に新製品の導入はなく，ユニトートだけが現在のＰＯＳターミナルを改造したもので，その他は昨年と同じシステムで展開していたにすぎない。主なＰＯＳターミナルのメーカーとしてはＮＣＲ，ＩＢＭ，ゼネラルインスツルメントコーポレーション，スエダ，それに小間だけでSinger も参加していた。今回のハード面で注目されたのは，ＯＣＲ・Ａ・フォントの値札作成機で，デニソン，モナー

ク社，佐藤機工，ソーダバー等がこのＯＣＲ・Ａ・フォント値札作成機についてくわしくデモンストレーションしたのが，ＰＯＳの関連機器ということで一番注目された内容である。

セミナーの方で注目されたのは，National Relail Merchant AssociationsのＯＣＲ・Ａ・フォント値札によるソースマーキングの状況である。百貨店業界におけるソースマーキングということでは現在全米１のフェデレーテッドデパートメントストアとディバイス社とが提携をして展開している。これについては売上げ高の0.3％程のコストをかける必要があるが，ソースマーキングの適用によって２～３割のコストダウンと誤まりのないデータの記録ができることにより今後の効果が期待されている。現在百貨店業界においてＯＣＲ・Ａ・フォント値札の採用の状況としては，シアーズ社７店，Ｊ．Ｃ．ペニー社２店，モンゴメリー社が１店である。このショーでもう１つ注目されていることはＯＣＲ・Ａ・フォントの読取精度がここ１～２ケ月内に急激に高まってきたことである，読みやすく，まちがいのない段階にまでなってきており，技術面ではほとんど問題がなくなってきており，あとはコストの面の問題だけである。ＯＣＲ・Ａ・フォントのウォンド・リーダーということではレチナ社が１手で開発に当っている。日本向けにはＯＣＲ・Ｂ・フォントであるが，これについ

てもレチナ社は積極的な気構えを示している。

J.C. Penney Middletown

訪　問　日：昭和５１年１月１４日

所　在　地：RT211E

Middletown N.Y.

面　接　者：Mr. Gary Hamilton, Operations Manager

Store Manager

District Manager

この店はJ.C Penney社のOCR フォント・ウォンド・リーダー実験１号店であり，昨年１１月より始めている。約８０台のＰＯＳターミナルを採用し，内７割にウォンド・リーダーをつけ，ウォンドリーディングをしている，入荷のときOCR･A･フォントの値札をつけ，売上げの都度ウォンド・リーディングをするということが定着している。そしてその成果としてはレジの計上の総合所用時間が従来の処理の１５％程削減されたことである。また，いま１つはインプットミスが減り，商品管理に十分使えるようになって来たことである。さらに，この店はSinger社のターミナルを採用した店だが，他にもＮＣＲのターミナルも採用しており，

いずれもよい成果を得ている。よって今後どのようにウォンド・リーディングのシステムを採用していくかに注目されている。J.C. Penney 社はシアーズ社と異り，各地点のディストリビューションセンターを経由して各商品を供給していくというシステムを採用しているので，値札作成機も高速のものが必要となるゆえ，今後のJ.C. Penney 社の方向が注目される。

Distribution Codes, Inc.

訪　問　日：昭和５１年１月１５日

所　在　地：401 Wythe Street
Alexandria, Virginia 22314

面　接　者：Mr. John T. Langan, Director of Systems Development
Mr. Henry G. Littrell Ⅲ, Director of Technical Services

この会社は全米のグローサリー関係の標準化，ＵＰＣシンボルサイン，ＵＰＣコードの制定など'７２年より担当しているところである。ＰＯＳのスーパー関係の標準化は'７３年よりスタートしたが，現在，グローサリー関係の商品については７４～５％ぐらいのソースマーキング率が実現しており，ＰＯＳ当初の予定通りの進度ですすめられている。他の商品，アルコール関係などは現在３０％程度で今後普及するようである。また健康，美容関係においても３０％程の普及率で今後の伸びが見込まれている。これらスーパー関係の標準化の成功に刺激をうけて，他の関係商品についても標準化がはじまっており，この会社がすべて事務局に

なるということで展開している。その中には出版関係の返品率を管理するためソースマーキングが始まっている。またユニバーサルプロダクトコードということでは広くあらゆる産業界におけるコードの標準化ということで展開している。そして日本における今後の標準化について，事務局の担当者は注目している。

National Association of Food Chain

訪問日：	昭和５１年１月１５日
面接者：	Mr.Knistensen Mrs.Mary Cagney, Secretary of President NAFC

現在スパーマーケットにおける固定スキャナーの採用という点では，１月現在で，約５０店が採用しているにすぎず，これは予想より遅れた率である。その遅れのネックになっているのは，全米で見られる値づけ廃止規制の動きである。その対策において，この協会が政府筋の窓口となって活動しているが，固定スキャナーつきＰＯＳの採用に当っては消費者とのリレーションが遅れていたことに原因の多くはあると見ており，日本でこれを採用するときは，この点を最初よりとり上げてほしいとのことである。

Division of Health Standards,

Occupational Safety & Helth

Administration, Deportment of Labour

訪　問　日	： 昭和５１年１月１５日
所　在　地	： Ｎ３６６０ 2nd Street, Constitution Ave. Washington D.C
面　接　者	： Mr.David Lee, Safety Engineer

この連邦政府団体の訪問理由は，今後日本においても問題になってくると思われる，ＰＯＳ固定スキャナーつきレーザー光線規制規格において，立法下の状況を知るためである。この関係についてはすでに規格のマニュアルも出来ており，その作成者にも会った，この規格が制定されるきっかけになったのは，１つには，調理用にレーザー光線を採用するということ，もう１つは，スーパー関係におけるＰＯＳターミナールの採用も大きな問題になるという２点からである。よってこの連邦政府における規格が出発点になり各洲でも同じような規格を採用している。今後，日本でも必要になってくると思われる。

Giant Food Inc.

訪問日：	昭和51年1月16日
所在地：	6900 Sheriff Road Landover, Maryland 20785
面接者：	Mr.Donald R.Buchanan, Vice President, Data Procesoing Mr.Henry L.Morris, Manager, Point-of-Sale Systems Mr.David B.Sykes, Vice President, Financial

現在，アメリカにおけるスーパーで固定スキャナつきＰＯＳターミナルの採用，ということで最も積極的に検討している会社である。よって，消費者との値づけ廃止規制の矢表に立っている状態である。この会社では，６店がすでに固定スキャナーつきＰＯＳターミナル採用に踏みきっており，さらに４店で導入予定がある。本格的に固定スキャナーつきＰＯＳターミナルを採用しているのは全米でも，このGiant Food１社だけである。昨年１月

に出来た１号店のみが売価をはずしてスキャナだけによるプライスのルックアップ表示を採用し，他の５店は従来通り売価を表示するということで展開している。１号店の実験結果では，売上げ高対比で約２％の改善，直接のコストダウンが見込まれており，２％中半分がチェックアウトの省力化ということで削減効果が得られている。次ぎには値づけの廃止で，２５～３０％の改善が上げられている。この改善効果が立法措置によって各洲で問題となっており，固定スキャナつきＰＯＳターミナルの採用において大きな歯止めとなってくるわけである。その他ソフトメリットとしては在庫管理，経費削減の面でも効果が期待されるが，先の直接メリットの面で対売上げで２％なので十分ペイできると見ている。

Sears, Louisville

訪　問　日：昭和５１年１月１７日

① Down town Store, Singer

所在地：Louisville Department Store 820 W Broadway

② St.Matthews Ratail Store, Singer

所在地：4121 Shellyville Road

③ Clarksville Retail Store, NCR

所在地：Greentree Mall, State Rd 131

シアーズ社ではすでに７店，ＯＣＲ・Ａ・フォント・ウォンド・リーダー採用の実験店をもっている。全米第１号の実験者がここである。他にダウンタウン店，セントマシューズ店もＯＣＲ・Ａ・フォント・ウォンド・リーダーの実験店である。この２店は，各８０台のSinger社のＰＯＳターミナルを採用しているが，その内６割がＯＣＲ・Ａ・フォント・ウォンド・リーダーである。一年間消費者の反応を見，確信のもてたところで昨年４月より開始している。結果は，総合的なレジの所用時間が約２０％短縮，

およびインプットのミスについてユニットコントロールのデータの精度を確保できた2点で改善効果を上げている。このシアーズ社はメーカーから直送で各店に商品が送られるので，検収，値札の作成を各店で行っている。それらのミスは1％以内におさえ込めており，この実験店による効果で，ほぼＯＣＲ・Ａ・フォント・ウォンド・リーダーの採用によるユニットコントロールの成功が見込まれている。

Lucky Corporation Magna Mart

訪　問　日：昭和５１年１月１８日

所　在　地：９６３１　San Perdo空港近辺

面　接　者：Mr. Zannis, District Manager

全米第４位の Lucky 社が昨年暮に展開した店で，固定スキャナつき POS ターミナルを全面的に採用しているスーパーである。よって売価をはずしているので２％程の改善効果を実現出来ている唯一の店であるが，地元スーパーとの安値合戦で今後のなり行きが注目されている。

NCR Corporation World wide Headquarters

訪　問　日　：　昭和５１年１月１９～２０日

所　在　地　：　Dayton, Ohio 45479

面　接　者　：　Mr. Fred S. Hemphill, Visitor Program Marager International Marketing Services

Mr. 羽島，日本よりの駐在員

Mr. Anders B. Samuelsson, Vocational Systems Specialist International Petail Systems

Mr. Marsh, President Marsh Supermarket

Mr. Joe B. Burnham, Vice President, Systems

Mr. J. R. Poole, Manager, Depart-ment-Discount Stores and General Systems Retail Sales and Market Development

Mr. Dale Falknon, Mgr. Food

Systems International Div.

Mr. Edward A. Bratle, Mgr., office Products Program Maanagement

Mr. Richard B. Meyers, Project Mgr. Inventory Control and Distributive Systems International Retail Systems

NCR社はSinger社が撤退したことにより，世界1のPOSターミナルメーカーとなった。ここではファッション・ユニット・コントロールとステープル・アイテム・ユニット・コントロールについてのマニュアルを入手でき，それについての個人授業もうけることができた。次にはNCRターミナルの固定スキャナー採用の世界第1号店であるMarshスーパーの幹部と会合ができ，POSターミナル移行時点の問題点ということで事情聴取をし，かつ現場を見学した。それによると全商品にシンボルサインを入れ，固定スキャナつきPOSターミナルを大がかりに採用してい

ることでは，ここが世界最初の店といえる。採算は引き合うとのことだが，ここオハイオ州においての値札規制問題法案如何によることで，まずは１号店のみで実験をしている状態とのことである。またＮＣＲ本社にて，大手のデパートメントストアグループ，ディスカウントストアグループないしは専門店グループにおけるＰＯＳターミナル採用の方向という面で説明を受けた。デパートメントストアグループでは，クレジットのチェックシステムを中心としたＰＯＳターミナル採用はすでに本格化され，さらにグループごとに統一化し，コンピュータセンターを共通にし，システムを統一にしていこうとする動きが，今後の新しい方向である。ディスカウントストアグループにおいては，全米第１のケーマートが採用の方向に移行しつつある。またファッション関係のスペシャリティーグループもダラーコントロール中心にデータの収集の改善を計ろうという動きが始まりつつある。それから，今後，デパートメントストアのユニット・コントロール導入で一番中心となるＯＣＲ・Ａ・フォントのタグリーダの見通しについてＮＣＲの担当者の意見を求めた。それによると，レチナ社のターミナルが急激にレベルアップし，機械のエンジニアリングの問題は解消したし，本格的にＯＣＲ・Ａ・フォントの採用に踏みきる素地ができたのではないかと見ている。

Super Market Institute

訪　問　日：昭和５１年１月２１～２２日

所　在　地：３０３，E,Ohio

ここではＰＯＳ関係の文献を調査収集した。全米第５位のスーパーマーケットJewell 社がキーイン式のＰＯＳターミナルをほぼ全店に採用している。その中でGrand Bazaar 店第３号店を訪問して来た。ここは，ナショナルセミコンダクター社のＰＯＳターミナルを採用して，従来のメカレジに比べＥＣＲとして利用し，売上げ対比で0.３％の改善効果があるとして，キーイン式で本格的に行っている。よって，固定スキャナつきＰＯＳターミナル採用はまだ先になるようである。

Simpson's-Sears LTD

訪問日 ： 昭和５１年１月２３日

所在地 ： 222 Jarvis Street
Tronto, Ontario, Canada

面接者 ： Mr. M. F. Anderson, General Manager of Method, Planning and Development
Mr. O. G. Cafferata, National Manager of Systems
Mr. W. Reid, Project Manager Store Systems
Mr. W. Saelman, Project Manager Fashon Center and Retail Inventory Systems

この社は現在3,０００億円程に達しているカナダの百貨店グループであり，店数は６０店ある，ほゞ全店にＮＣＲのＰＯＳターミナルを採用し，ダラーコントロールによるデータ収集およびクレジットのチェックを行なっている。中でもトロント地区において

はTelephone ショッピングを一昨年暮より行なっているので，その経過とPOS ターミナルの利用ということで，どのように進めているかについて見学した。まずTelephone ショップでは１万世帯が加盟しており，家庭の電話からカタログ番号を音声で入力することによって，在庫，単価の応答をし，ＯＫであれば口座数をキーインすることによって，販売につなげていく，という実験である。これは技術的には問題ないにもかかわらず伸びない理由は，カナダにおいて，カタログ販売が郵便関係の恩典がなく，また販売の規制により高利益の業界にならないことにある，次に，POS ターミナルの利用については，ダラーコントロール，クレジットのチェックを全店の５０店で採用している。ユニットコントロールないしステープルアイテムのユニットコントロールについては，現在１店においてシステムチェックをこの二年間行なって来たが，まだ結論が出てないとのことである。１店がカラーバーコードの値札で実験をし，他の全店では，デニソン値札の回収でユニットコントロールを行なっている。これをどのように各セッションで行なっているかについては，マニュアルを入手して来ているのでデパートメントストアにおける今後のユニットコントロール関係の方向において大きな参考となるのではないかと思う。

Square One Shopping Center

訪問日 ： 昭和５１年１月２３日

所在地 ： １００City Center Drive
Mississauga, Ontario

面接者 ： Mr. George J. Becker, Assistant Manager

Simpson's－Sears が核になって出店し，成功している例である，Simpson's-Searsにおける各店のデータ収集をＰＯＳターミナルがどのようにやっているかの現場を見学した，ただし，ここではユニットコントロールについてはデニソンタグ値札回収による店でダラーコントロールのデータ，クレジッドチェックをＰＯＳ ターミナルによって行なっている，そのデータを各店でデータコレクトして本部に集めて来ている。クレジットチェックについてはオンラインで行なっている。

第 2 部

欧 州 事 情 調 査 報 告

NCR London(UK)

訪　問　日：昭和５１年１月１９日

所　在　地：206 Marylebone Road
London
NWI 6Ly
01-723 7070

面　接　者：Mr. Thomson, Directer
Mr. G.C. Miller, Assistant Directer
Mr. Hickman, Manager
Mr. G.S. George, Manager

英国におけるＰＯＳシステム普及状況

英国におけるＰＯＳの潜在マーケットとしては次のような分野が考えられる。

1. 百貨店
2. チェイン・ストア（主にディスカウント型）
3. 食料品主体のスーパーマーケット
4. マルティプルズ（電気製品等を主に他にいくつか関連商品

を扱う店）

5. ホテル，レストラン

6. その他（ガソリンスタンド等）

百貨店，スーパー，マルティプルズに於ては既にＰＯＳシステムを採用している店も多い。例えば，百貨店では，ピーター・ジョーンズ及びベントールズ。スーパーでは，協同組合形式のWarlington Cooperative Societyが採用している。マルティプルズと呼ばれる種類の店では，Comet という電気製品を主に扱っている問屋で採用されている。

次にくるグループとしては，チェーン・ストア又はヴァラエティ・ストアと呼ばれるディスカウント型の店及びホテル，レストラン関連である。これらのＰＯＳ採用は今後の成長が大いに期待される。ヴァラエティ・チェーンでＰＯＳ採用済の所には，ウールワースとBOOTS があげられる。ホテルではRank系列の３つのホテルが採用を決定した。３つを合わせると約２０００室となる予定である。ＮＣＲでは“INNTACT”というソフトウェアをもっているが，ホテルの場合約４００室をBreak-evenの目安としているとのことである。

上記５分野以外では，英国ではＰＯＳの採用は殆どみられない。すなわち，日本でのようにガソリン・スタンドでの採用は殆どみ

うけられないとのことである。

ＮＣＲでのインタビューの結果他の競争会社については詳しく聞くことが出来なかったが，上の話の中でててきた，ウールワースの場合はSingerであり，BOOTS の場合はSweda とのことであり，日本では殆ど採用されていないSinger 及びSwedaは英国ではＮＣＲの強力な競争相手であったようである。

（ Singer は最近脱落）

The John Lewis Partnership

訪　問　日：　昭和５１年１月２０日

所　在　地：　10 Clipstome Street
London WIA 3DF
01-637 3434

面　接　者：　Mr. I.A.J. Anderson, Directer
Management Services

The John Lewis Partnership の概要

名前の通り，株式会社ではなく，パートナーシップの組織として，非常にユニークな小売業者である。１７の百貨店と６０のスーパーマーケットをもち，年間２７０百万ポンドの売上中約１００百万ポンドは食料品売上である。

経営管理方法としては，集中管理方式が徹低しており，全てが中央での決定に従って動いている。

顧客層は中級から上級クラスを中心としている。営業方針の根本をなすものは，"Total Valueにおいて，他店に絶体まけない"ことであり，品質と値段のつりあいに関し，常に競争相手の商品を徹底して調査研究し，必ずそれらにミートして行くという

方針である。そのために，Inteligence Dept．という専門の部門をもっている。彼らのスローガンは“Never under served”である。

食品関係についても同様の方針を採用している。又，繊維関係製品については，その確実な供給を確保するために，製造部門へも相当の投資を行っている。

コンピューター及びＰＯＳ導入の経過

最初にコンピューターが導入されたのは，１９６３年であった。現在では，全業務にわたってコンピュータ化が進んでいる。例えば，

◦倉庫の自動化－コンピューター連動

◦発注，受入，経理処理の一貫コンピュータ化

◦パートナーの配当金計算

ＰＯＳ機器は，１９６８年にSwedaのパンチペーパーテープ採用が最初である。その後キンボール式のもの，ＮＣＲのカラーバーコードのもの，等を採用しているが，過去において，殆どのＰＯＳメーカーの機器を実験又は一時採用した経験をもっている。中央の処理センターのコンピューターはＩＢＭが主体である。

クレジットカードに関しては，会社独自の顧客が約５０万人あ

り，ＰＯＳシステムの機能はここでも十分に活用されている。ただし，事故率は低く，クレジット・オーソリゼーションはオンラインで行う必要をみとめていない。

コーディングに関しては，独自のコードを採用している。構成は３ケタと５ケタの組合せである。ピーター・ジョーンズの店では，ＮＣＲのＰＯＳ機器をつかっているが，キィーイン方式である。ＩＢＭのスキャナーをつかっている店，ピットニー・ボーズをつかっている所もある。

ＰＯＳを導入したために，それまで，できなかったものの中で，特に効果の上ったものとしては，

◦商品の補充の自動化

◦顧客への請求書発送が，締切日翌日にできるようになった。ことである。

ＵＰＣ共通コードに関しては，次の二つの理由から，楽天的見方をしていない。

◦消費者の反ばつが心配される。

◦その実施には，非常な努力と経費がかゝり，もし，うまく行かなかった場合，もとのシステムに返るのにも多大の費用がかゝると予想される。

ピーター・ジョーンズ店のＰＯＳ

ピーター・ジョーンズ店は，ロンドンの南西部の市街地に位置し，家具，台所用品の充実を特徴としている，百貨店である。この地下売場の，台所用品（テーブルセット，電気製品も含む）売場で，ＮＣＲの端末機をつかって売上と同時に，商品コードをキーインしている。これが，バックオフィスのコンセントレーターにより，マグネテックテープに記憶される。現在は，本社のセンターに閉店後，テープをとどけているが，ごく近い将来，電送に切りかえる計画であると話してくれた。

Burberry's

訪　問　日：昭和５１年１月２０日

所　在　地：Haymarket London

SW1y 4DQ

面　接　者：Mr.R. Lach , Store Manager

Mr.K. Mckay , Manager

バーバリーは英国のみならず，国際的にも非常に有名な，オーバーコートを中心とした高級（男性中心）衣料店である。訪れた店はピカデリーサーカスの近くの，最も古く伝統のある，店で，英国人のみならず，多くの海外からの客でにぎわっている店である。

この店の特徴は，お客様に，非常にゆったりとした，落ちついた気分で，買物をしていただくため，そのインテリアーは非常に，クラシックでエレガントにできている。この考え方は，金銭のとりあつかいにもおよんでいて，以前は店のどこにもキャッシュレジスターはみあたらなかった。客は，ソファーに座って，店員のもってくる商品を吟味し，売上処理は，客のみえないバックオフィスで行うという，徹底した，雰囲気尊重の方針がつらぬかれ

ている。ＰＯＳ導入の際，一番問題になったのは，この方針をくずすことなく，如何にＰＯＳシステムをとり入れるかであった。

現在，ＮＣＲの端末をつかって，実験中であるが，その結果は良好であり，近い将来，本格的に導入するとのことであった。ストアマネージャーの Mr. Lack の最大の関心事は，如何に端末をお客の目からみえない所に，かくすかであり，そのため，特別のカウンターの設計し，発注しているといって，その青写真をみせられた。

この店での我々の収獲は，ＰＯＳ普及の困難性の問題を，典型的な形で示している点であった。即ち，製造業に於て，システムを，コンピューター化して行く場合，又，会計システムをコンピューター化して行く場合は，少くとも一産業を通じての共通部分が多く，システム化の基礎をみつけだすのがそれほど困難でないことである。一方，小売業という産業をとった場合，とりあつかい商品により，大きく異ってくるのみでなく，バーバリーのケースにみられた如く，同じ商品をとりあつかっていても，その客筋及び店のイメージの違いによって，要求されるシステムが大きな影響をうけるということである。非常にこまかい例であるが，例えば，レシートのレイアウト及びデザインについても，バーバリーでは非常に格式の高いものを要求し，安っぽい，通常のキャッシ

ュレジスターから出るスリップでは困るとのことであった。

以上のように，今後ＰＯＳが普及するためには，共通コードであるとか，共通につかえるソフトであるとか，共通化の方向とは全く逆に，個別化の問題を解決しないかぎり，ＰＯＳの普及はむずかしいのではないかという問題をバーバリーのケースが提起しているように考えられた。

The Scotch House Ltd.

訪問日 ： 昭和５１年１月２０日

所在地 ： Knights Bridge, London SW1X7PB
01−581 2151

面接者 ： Mr. J. St. George, Manager (NCR)

Scotch House は，Burberry's の傘下にあるスコットランド特産品専門販売店である。

Burberry's グループはBurberry's ４店の他Scotch House がロンドンのKnightsbridgeとRegent St. およびEdinbugh に３店ある。

このようなBurberry's グループのＰＯＳ 関連情況は次のようである。

1. 商品アイテム数

約2,０００種類である。

2. 平均客単価

約５０ポンドである。

3. ＰＯＳ 端末機

Burberry's に４台，Scotch の各店に１台配置されて

いる。Burberry's では通常のレジがないがScotch House では通常のレジを併用している。

4. クレジットカードによる売上が全売上に占める割合

Burberry'sチェーンを通じて約１０％である。

5. ＰＯＳ 運用情況

データは自動読取り方式でＰＯＳ 端末機に入力される。入力されたデータはカセットテープに記録され，このカセットテープがBurberry's チェーンのデータセンターに輸送される。したがって現在，通信回線は使用していない。

自動読取り方式としては，現在，カラーバーコード方式，モノクロバーコード方式，ＯＣＲ－Ａフォント 方式を併行して実験中である。

6. ＰＯＳ によるメリット

Burbsrry'sチェーンは従来現場伝票の圧搾空気管による経理本部における集中処理方式によっていたが，POS採用によって処理速度が３倍に向上したとしている。

また，販売記録の機密保持および正確さの点において充分な効果が上っているとしている。

7. 今後，解決すべき問題

第一は従来のシステムから新POSシステムへの全面移行に伴

う諸問題である。

第2はマニュアルによる方式に比べ請求書およびレシートをどのようにして発行するかという問題である。

以上がBurberry'sチェーンにおけるPOS 実験の概要であるが自動読取り方式は全くの実験中であって，見学時においてはデータ入力は全てキーイン方式によっていた。

しかし，Burberry'sチェーンにおけるPOS 導入は地味ではあるが着実に進行している。

Bentall's／Bracknell店

訪問日	：昭和51年1月20日
所在地	：Bracknell, Berks
面接者	：Mr.A.Pashley, Assitant Store Manager

Bentall's は Earling 店, Kingston 店, Bracknell 店, Worthing 店, Tonbridge Wells店の5店で形成する百貨店チェーンである。そのＰＯＳ導入情況は次のとおりである。

1. 商品アイテム数

   約２５万種類である。

2. 平均客単価

   約2ポンドである。

3. ＰＯＳ端末機

   現在, Bracknell店にＮＣＲ２８０型を45台設置している。なお, Bracknell店においては通常のレジ4台を存置している。

4. クレジットカードが全売上に占める割合

約１１％

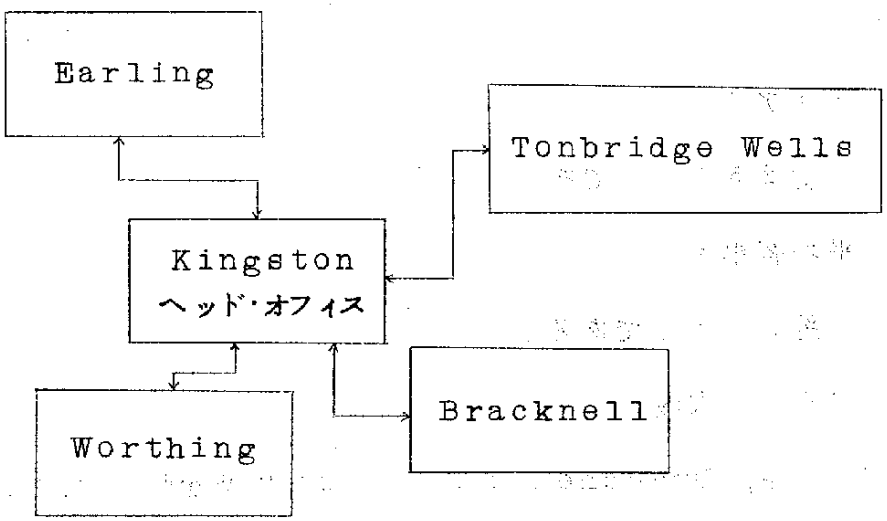
5. ハードウェアシステム

ＮＣＲ２８０型ＰＯＳ端末機６ないし８台をＮＣＲ７２６型コレクターで集束し，これをＮＣＲセンチュリー・コンピューターに結んでいる。

6. タ　グ

自動読取りタグについて研究しているが現在は全てキーイン方式によっている。

7. 通信回線使用情況



8. ＰＯＳによるメリット

売行傾向の的確な分析による販売の実現にあると考えてい

る。

9. 同業界の動向

百貨店業界においてはいずれタグ自動読取りシステムとクレジットカード・オーソリゼーションシステム実現の方向に進むと考えている。

10. ＰＯＳに関する問題点

現在はまだメーカーのサポートにたよる部分が相当に多いことが問題である。

11. コードおよびシンボルについて

コードについては自店コードによる。この点では標準化にかならずしも拘束されないとしている。

以上がBentall'sの方針であって，自主コードによるキーイン方式でＰＯＳ実験を進めている。

NCR Paris(France)

訪　問　日：昭和５１年１月２１日

所　在　地：１９１，Rue de Vaugirard

７５７４０　Paris Cedex １５

(1)５７８，６１－３６

面　接　者：Mr. G. Singey，Directeur，NCR

Mr. E. Ballerand，Directer, MMM

フランスにおけるＰＯＳ採用状況

フランスにおけるＰＯＳの採用は，フランスにおける最近の小売業界の発展のパターンと歩調を共にしている。すなわち，ハイパーマーケットと呼ばれる店の非常な発展ぶりである。ハイパー・マーケットとは日本でいえば大型の郊外のスーパーマーケットが食料品と同じ位のスペースを非食品の部門にもさいている店に匹敵する。これらの店は非食品としては，肌着，ワイシャツ，普段着全般，台所用品，文房具，靴，等，日常品の基本的なものを，種類は少ないが，大量においてあり，その値段も，質のわりに安く，実質的なものが中心である。

ハイパー・マーケットの発展ぶりは，めざましく，それにひき

かえ，伝統的な百貨店は相対的にその力が弱められているのが，現在フランスの実状のようである。したがって，ＰＯＳの採用も，ハイパー・マーケット主導のパターンを示している。これは，英国で，John Lewis Partnership が百貨店を中心にＰＯＳを発展させてきたものと対比させることにより，フランスでの特徴がうきぼりにされるであろう。ＮＣＲのてもとにある資料によると，ＰＯＳターミナルの設置状況は次の如くである。

ＮＣＲ	2,000 terminals
Singer	1,000 〃
Sweda	800 〃
アンケア・アンデス（西独）	250 terminals
ＩＢＭ	パイロットテスト2

この数字はＮＣＲの数字のため，やゝバイアスがあるのでないかと思われるが，全体をつかむのにはさしつかえないと思われる。

ＰＯＳのメリットに対する実感

ＰＯＳのメリットについては，もうすでに理論を城を脱し，各所で，その実際的メリットが認識されている。その証拠に，今年に入ってからのＮＣＲの受注はうなぎのぼりであり，将来を楽観している。最近オーシャンのハイパー・マーケットの実績を示す

と，ＰＯＳターミナルの設置により，一台当り一時間２８人の客の処理が３５人に増加し，又今まであった４５台のキャシュレジスターを３９のターミナルに減らすことができた。又，閉店後売上統計をとる人間を一人減らすことができたと報告されている。これはメーカーの意見であるので，多少割引いて聞かなければ，ならないが，その後の採用店見学で，これらのことは十分うなずけられた。

コード共通化の見通し

結論からいえは，Mr. Singey の見通しでは，３年以内にアメリカのＵＰＣと殆ど同じものが採用されるであろうということであった。というのは，既にその実験は終りの段階にきているし，オランダではＵＰＣを採用している。今後３年間の見通しとしては，まず，１９７７年の中でろにソース・マーキングが普及しはじめ，１９７７年の終りには，商業ベースのアプリケーションが出，１９７８年には，本格的に採用されることになろうということであった。

小規模店のＰＯＳ採用の可能性

大規模ハイパー・マーケットでの採用は容易に理解できるが，

小規模店のフランスでの見通しについて質問した所，非常に現実的な答えがかえってきた。即ち，店舗数の少ないスペシャリティストアでは，カセットテープ付のＥＣＲで十分ではないか。又テープも電送するケースは少ないであろう。なぜなら，フランスでは電話回線の使用料は高く，又，リライアブルでもないからである。やゝ大きい店の場合，チェーンでなくとも，約1,０００万円位の投資でミニコンピューターを中心としたＰＯＳが構成可能であり，この方面では大いに期待できると思われる。

フランスにおけるクレジットカード

フランス人は伝統的に現金買いが多く，クレジットは普及していなく，これからも普及するとは考えられない。例えば百貨店のプランタンではクレジット売上は５％に満たないと聞いている。これは同じヨーロッパでも英国とは大分違うと感じられた。

たゞ，クレジットを広げようとする，キャンペインは，行われており，現金買いだけでないファイナンシングの方法についての広報活動も最近活ばつであることにかわりはない。

ちなみに，クレジットカードについて，次のような面白い統計を示してくれた。

ヨーロッパにおけるクレジットカード利用状況

国	人口	カード所持者数	一人当り1回売上($)	一ケ月当り利用回数
フランス	51百万人	1百万人	4ドル	0.6 百万回
スペイン	33	1.5	3	0.5
スエーデン	8	0.2	6	0.2.5
英国	56	6.0	18	3.5
日本	103	3.9	5	2.6

Carrefour Ulis2 ストア

訪　問　日：昭和５１年１月２２日
所　在　地：Ulis　２団地，パリ郊外
面　接　者：Mr. B. Saveco, Manager

カールフールは上述のハイパーマーケットのブームをフランスでつくった会社であり，ハイパーマーケットと云えばカールフールといわれる位，知名度の高い会社である。その高度成長ぶりもさることながら，徹底した合理主義と店舗単位の完全独立採算のデイセントラリゼーションの経営監理方式をとっていることでユニークであり，注目をあつめている。その徹底したデイセントラリゼーション方式は，売上６５.３億フラン（約4,３１０億円），税引前利益2.６億フラン（約１７２億円）の会社（１９７４年度）にして，その本社には，１０数名の役員とスタッフがいるだけということからも，その徹底ぶりが察せられる。

我々の訪問したのは，Ulis２というパリ郊外にある店舗であり，カールフールの店で，ＤＯＳを導入しているのはこの一店だけであると聞いた。これももちろん，店長の権限で決定したもので，メーカーその他も全く，制限をうけていないとストア・マネ

ージャーは語ってくれた。

カールフール・ユーリィ・ドゥＰＯＳシステム

Ulis2（ユーリィ・ドゥ）ストアのＰＯＳシステムの概要は次のとおりである。

取扱商品数：食品3,０００種で売上の約８０％をしめる。

非食品は１5,０００～３０,０００（時期により変動）

ＰＯＳターミナルの数：１６台

通常のキャシュレジスターの数：１９台

クレジット・カード：とりあつかわない。

主体コンピューター：ＩＢＭ３７０／１３５

商品タグ：マグネティック・チケット

電送方法：電話線リース

ＰＯＳのメリット：一貫したシステム化可能，売上推移の追跡

ＰＯＳの問題点：コーディング問題

IBM France

訪　問　日：昭和５１年１月２３日

所　在　地：Tour Septentrio N-20, Av. Gambetta 92, Courbevoir, Paris

面　接　者：Mr. Ian Chapman, Directer
Mr. Eduard Souvignier, SE
Miss. Katherine Jeffus, SE
Mr. Olivier de Marolles, SE

フランスにはバラエティストアが１０５社ありその総売上高は４７０百万ドルである。また，ハイパーマーケットが１０社ありその総売上高は１００百万ドルである。百貨店は８社あり，その総売上高は３３４百万ドルに達している。

ＩＢＭのＰＯＳ実験はパリにおける百貨店Galeries Lafayette で行なわれている。

実験の目的には２つある。

第１：従業員数の削減

現在では１人の販売要員に対し，1.8人の後方要員がいる。また，１０人の従業員について１人の監督者がいる。

人件費の平均上昇率は１２％であり，１９７５年においてはこの上昇率は１５％に達した。

アメリカにおいて粗利益中に占める人件費の割合が５０％に達すると危険であるといわれている。フランスにおいてはこの割合は６８％ないし７０％にも達している。これは重大な問題である。

第２：迅速正確な販売分析情報の提供

各種の責任段階に応じて迅速に正確な販売分析情報を提供することは，必要なときにただちに各人の販売活動を助ける。

上記のような目標に対し解決の方法を求めるに際し，ＩＢＭ Franceは次の３つの原則を立てた。

1. 百貨店側のプロジェクトグループは販売経験には富むがＥＤＰについては，技術的に素人であるメンバーで構成した。

   ＰＯＳに関するハードウェアもソフトウェアも販売現場段階でのＥＤＰ専門知識を必要としないようなフレキシブルなものであることにした。

2. システムのキーポイントはデータエントリーにある。その意味は最適な値札システムと販売店における自動データ入

力である。

3. 歩一歩ゆっくりと着実にプロジェクトを進めること。

このようにして，3月にわたりＩＢＭは必要な情報の種類を定義し，システム構成を定め，１９７４年９月ＩＢＭのＰＯＳシステムがLafayetteのBoulevard Haussmann店に導入された。機器構成は，オンラインによる１５ＰＯＳ端末を持つＩＢＭ３６５０システム，コントローラ１台，値札作成機１台，ＣＲＴ１台，倉庫にプリンター１台である。

ＰＯＳ端末はLafayetteのBoulevard Haussmann店３階の婦人服売場に設置された。実験は１９７４年の秋から冬にかけ４ケ月間実施された。その結果の要点は次のとおりである。

最初に直面した問題

Boulevard Haussmann店は建築後８０年を経た古い建物である。

そこで(イ)電源電圧変動が激しいため，定電圧装置を設えた新しい電力ラインを必要とした。(ロ)各種の屋内配線が入り組んでいるのでＰＯＳ関係配線にはシールドケーブルを必要とした。(ハ)ＰＯＳシステムのため特に床組を補強した。ただし，これは不必要であったことが後で判明した。

実験結果

従業員の反応

現場の販売店員とキャッシャーは最初新システムに消極的であったが，しばらくすると新システムを好むようになった。その主原因は仕事が時間内に終わるという点にあった。従来のレジによれば1売上ごとに20秒を要したがPOSシステムによればこの時間は15秒に減少した。また，POS端末操作に対するガイダンス・パネルが整備しているので，操作ミスがほとんどゼロとなった。

客の反応

客層から新システムに対し特にマイナスの反応はなかった。新端末に客が群がって困ったという程度のことである。IBMの磁気ストライプ値札は客にとって読み易いものであった。

ハードおよびソフトに関する問題

ハードおよびソフトに関し各々2，3の問題はあったが，全て解決された。ソフトウェアとしては最初Release Ⅰを適用し，1975年6月にRelease Ⅱにとり変えた。

取引の種類など

取引の種類としては，現金買い，配送委託付現金買い，配送

時払い，返品，従業員購入，その他２６種類があるが，これらは全てＰＯＳシステムに引きつがれ全て自動化された。

値札関係のコスト

値札作成機，値札のストック，ＣＲＴ，モデムおよび値札要員に要した費用は２０７１００フランすなわち４６０００ドルであった。

これは値札１０００枚当りに換算すれば１５.３ドルであった。

今後の計画

ＩＢＭ France はこの Lafayette における実験を全婦人既製服および子供服に及ぼそうとしている。また，ＣＲＴを利用した仕入管理，発注，自動支払いシステムなどの開発をめざしている。

Karstadt, Essen

訪　問　日：昭和５１年１月２６日

所　在　地：４３００ Essen, Theodor-Althoff-Str. 2

面　接　者：Mr. P. S, Niederhausen, Manager (Karstadt)

Mr. A. Sachsenweger, Manager (NCR Germany)

Karstadt コンツェルンは，ヨーロッパ最大の小売り企業である。おおむね，２万ないし２万５千平方メートルの売り場を持ち，４万ないし１５万種類の商品を扱う Karstadt 百貨店グループと，おおむね８百ないし３千平方メートルの売り場を持ち，６千ないし１万３千５百種類の商品を扱う KEPA スーパーマーケットグループによって Karstadt コンツェルンは構成されている。

１９７４年におけるコンツェルン全体の売上げは 7.１２十億マルクであり，総売場面積は８８０,９００平方メートルに達している。従業員総数は７０,４００人で，総人件費は1,４０７.４百万マルクであ

る。

また，１９７４年における税引後利益は１２６.５百万マルク，資本金３００百万マルクに対し，配当総額は６０百万マルクであった。

Karstadt におけるＰＯＳ関連事情

1. レジ台数

Karstadt 全体でＮＣＲ製レジ8,７００台，Anker 製レジ2,０００台を保有している。２，３年内に食品部門にＰＯＳ導入を計画し，１０年以内に4,０００台のＰＯＳ端末を設置する計画である。

2. クレジットカード

クレジットカードを扱っていない。支払いの２０％は小切手で，８０％は現金である。したがってクレジットカード・オーソリゼーションの問題はない。

3. コンピュータ設備

ＵＮＩＶＡＣ４９４型２台，ＩＢＭ３７０／４５，ＩＢＭ３７０／６５各１台を Essen の本部に設置している。

4. 商品コード

１２万種類の商品について Karstadt 独自の８ディジットのＳＫＵ（Stock Keeping Unit）コードを付けて

いる。

5. 通信回線

Essen のKarstadt 本部と各倉庫の間にのみ専用線を使用している。本部と各支店の間には通信回線を使用していない。その理由としては，ドイツにおける郵便事情が非常に良好で信頼できるからであるとしている。データはカセットテープにおさめられ郵便で処理センターに送られる。

上記のようにKarstadtにおけるPOSは自社コードによるフル・キーインシステムであって，2，3年後から自動読取りシステムの採用を考慮している。

NCR West Germany

訪　問　日	： 昭和５１年１月２８日
所　在　地	： 89 Augsburg, Ulmer Strasse 160
面　接　者	： Mr. J. W. Seeger, Manager
	Mr. E. Clemens, Manager

全西独にはパン屋と肉屋を除き約３５５,０００の小売企業があり，その全売上げは１９７４年において，２５８十億マルクであり，その内訳は，次のとおりである。

食　　品	８４.４十億マルク
衣料品・靴	５７.３　〃
家具・備品・電気製品	３７.３　〃
そ の 他	７９.０　〃

全小売企業の内１～４支店を持つ専門店が６５.４％，５支店以上の専門店が１６.３％，百貨店が１０.５％，通信販売企業が4.7％，消費生活協同組合が3.1％となっている。

また，約1,０００のセルフサービススーパー店が4百万平方メートルの売場面積と約２６十億マルクの売上げを持っている。

なお，全国で１カ所１５,０００平方メートルを超す売場面積を持

つ買い物センターが５３カ所あり，その総売場面積は1.2百万平方メートル，総売上げは6.5十億マルクに達している。

ドイツにおいては現金による買物が主で現在も将来もクレジットカードが優勢になるとは考えられていない。

ただし，１９７４年から始められた Eurocheque 制度は注目に値する。ドイツにおいては全世帯の６０～７０％がこの Eurochequeを所持している。そしてドイツにおける Eurocheque には３００マルクを限度とする信用付与がある。

ＰＯＳに関してドイツは漸進主義をとっている。すなわち現在のＰＯＳシステムはおおむね自店コードによるフル・キーインシステムである。

値札自動読取りシステムは２～３年後から導入されるであろう。

コード方式についてはアメリカのＵＰＣに国別フラッグ２デジットを加えたＷＰＣがヨーロッパで検討されているが，ドイツはこれに対しバリアブル・コード方式を提案している。

（巻末資料参照）

Migros

訪　問　日	： 昭和５１年１月３１日
所　在　地	： １５２ Limmatstrasse, Zurich
面　接　者	： Mr. K. Leupp, Directer
	Mr. M. Scheim, Manager(NCR)
	Mr. M. R. Puenzieux, Manager(NCR)

Migros は協同組合組織による小売チェーンであって，食品の加工施設も保有している。

１９７４年における協同組合の加入組合員数は９８７,８０１人に達し，１２支部，４４４店舗，１１９移動販売自動車を保有し，年間売上高は5,423.8百万スイスフランを数えている。

Migros は6年前に同心円状のコードシンボルによるＰＯＳの実験店として有名であるが，この方式はその後中止された。

現在，Migros においてはドイツにおけると同じく自社コード，フル・キーイン方式のＰＯＳシステムが採用されている。

スイスにおいてもＷＰＣの行方に注目していて，その結着を待ってシンボル方式を決定し値札の自動読取りに移行するものと考えられる。

la Rinascente－イタリア

訪　問　日：昭和５１年２月２日

所　在　地：Via Siovenale 15
20136, Milano

面　接　者：Mr. Ing. Aldo de Thierry, Director of EDP Information System

リナシエンテはイタリア最大の小売業の一つであり，以下の店舗をもっている。

ヴァラエティ，ストア	２００
百　貨　店	8
キャシュアンドキャリー（問屋）	2
スーパーマーケット（ハイパーを含む）	２０

ＰＯＳシステムの採用店は：

百　貨　店	2
キャシュ アンド キャリー	2
ハイパー・マーケット	3

見学した，ミラノの百貨店では完全自動読取方式であり，今回

訪問したヨーロッパ中で最もすすんだシステムとして注目に値するものであった。以下にそのシステムの特徴と概要をMr.

Mr. Thiesryから直接うかがった内容をもとに紹介する。

取扱商品数：百貨店，約６０,０００

ハイパーマーケット，約３０,０００

キャッシァンドキャリー，約１５,０００

ターミナル数：キャッシュアンドキャリー

１０～１５ターミナル

Singer製

マグネティック・タグ（Singer）使用

Price look-up 機能有

百　貨　店

ミラノ店 ― １１０台

トリノ店 ―　５０台

いずれもSweda ７００シリーズ

ハイパー・マーケット

Sweda ５００シリーズ４０台の店一つ

ＮＣＲスタンドアロン形式の店一つ

オリヴェティ採用したが後中止した店一つ

なお今年中ばまでに全てをSweda にきりか

える計画

クレジットカード：独自のカードもたず。

売上はわずか。

読取方式とタグ：Sweda とSingrが中心。

読取方式は，百貨店及びキャシュアンドキャリーはマグネティック・テープのタグ使用，ハイパーマーケットはキイイン方式。百貨店のタグの特徴は，Multi-languageのKinball tag をつかっていて，Kinballの通常のものプラス，マグネティック，ストライプ両方どちらでも使えるようなタグを使っていることである。

コンピューターシステム：

百貨店；“Nova 1200” 2台全ターミナル直結

キャシュアンドキャリー；“System 10” ホストコンピューターに直接

ハイパー・マーケット；System 80 2台

中央ホストコンピューター；ＩＢＭ３７０／１５５

１６ディスクドライブ ９テープドライブ ３プリンター

データ電送：２０ケ所の倉庫のＮＤＳシステムが，ホストコンピューターと直結されている。ＮＤＳシステムはテープ，

カードリーダー，ＢＳＣアダプターおよびプリンターから構成されている。

配送指示書（マークカード様式）がまずマグネテック・テープによみこまれ，これをその日の午後にホストコンピューターに電送。夜間，プロセスされ，各倉庫に翌早期電送される。２０ケ所のどの倉庫から，どことどこの店舗に，どの順序で配送するのがいいかの最適解がコンピューターによりとかれるわけである。リナシエンテでは，この電送システムについてはすでに4年の経験を有しているとのことであった。

ＰＯＳの将来の採用計画：百貨店に於ては，その取引形態が複雑多岐にわたるため，ターミナルは，より高度のものが要求される。従って，そのコストも高くなり，大規模百貨店でないと採算上困難であるので，現在の2店舗以外の店舗に拡張採用する計画はない。

キャシュ・アンド・キャリーについては，定められた，領収書発行の必要から，ＰＯＳターミナルの採用は将来も行われるはずである。

ハイパー・マーケット用のＰＯＳターミナルはコストも低く，メリットもすぐに出やすいため，今後増加するであ

ろう。

ＰＯＳの問題点：リナシェンテでもそうであるが，通常ＰＯＳシステムでは，キャシュの入ってくる所からアプローチするため，その方面の問題は解決されている。しかし，これは解決するべき問題の半分にしか担当しない。なぜならば，商品を受けいれる時点でのアイテムコントロールが統一された形でシステム化することがむずかしいからである。これこそ，ＰＯＳの将来問題のポイントである。

コードとシンボル：リナシェンテでは，食品，非食品とも，９桁のコードを使用している。最初の３桁が部門コード，後の６桁がアイテムコードである。キャシュ・アンド・ギャリーでは１００％自動読取，百貨店ではミラノ店で１００％，トリノは約９０％が自動読取である。

ヨーロッパ共通コードについては，各国事情が違うので，別々の発展をすると考えられる。例えば，イタリーでは，サプライヤーの規模はアメリカにくらべ非常に小さく，小売業者も，伝統的で小規模であり，アメリカ式のコード及びシンボルは適しないと考える。

リナシェンテ百貨店，ミラノ店

この店舗は，ミラノの中心地ドーモのすじ横にある。リナシェンテ百貨店の中で最も大きい店舗である。そのＰＯＳ採用規模，ソフィスティケーションのレベルは，今回我々がヨーロッパで見聞したものの中では随一のものであった。このシステムの概要は，面接者のMr. Aldo de Thierry自身によって書かれた報告書を一部いただいたので，その翻訳を以下に紹介いたします。

（翻訳添付）

資　　料　　1

UPC-BAR・CODE　システムと消費者運動

本文の米国事情報告にあるとおり，POSによる UPC-BAR・CODE方式は人の解読できる価格表示を省略するため，米国各州においてこれに反対する（可読価格表示を求める）消費者運動が起きている。

しかし，可読価格表示を併用することは，POS設置者側からすればコスト上昇につながる。

以下の資料は，この様な消費者運動に対し，米国の各種委員会等において，Super Merket Institute Inc.が行なったスーパーマーケット側からの証言と，消費者側の証言である。

GIANT FOOD INC.
COMPUTER ASSISTED CHECKOUT FACT SHEET

On February 2, 1975, Giant Food Inc. of Landover, Maryland began a test of a Computer Assisted Checkout system at a new store in Severna Park, Maryland. Giant has prepared this fact sheet to help answer questions about various aspects of the test, the equipment and the concept of Computer Assisted Checkout.

WHAT IS THE COMPUTER ASSISTED CHECKOUT?

It is a system whereby food items that have their own identifying code are passed over an optical scanner at the checkout. Price and inventory information are then automatically recorded by the store's computer. The customer sees the retail price of each item on a visual screen as merchandise is passed over the scanner, and a description register tape is given to the customer when the transaction is completed.

HOW DOES THE EQUIPMENT OPERATE?

The checker passes the customer's purchases over the scanner built into the checkstand. The scanner reads the Universal Product Code symbol on each product and automatically retrieves that product's name and price, set by Giant headquarters, from the more than 7,000 items recorded in the store computer. This information appears on a visual display and is printed on the customer's receipt tape. For products which do not contain a Universal Product Code symbol, the checker keys the price directly into the keyboard terminal.

WHAT IS THE UNIVERSAL PRODUCT CODE (UPC)?

It is a coding system that will be used throughout the country by most food manufacturers to provide each individual product with its own unique identification number.

WHAT IS THE UNIVERSAL PRODUCT CODE SYMBOL?

The UPC symbol is a series of bars and spaces of varying widths which represent the numerical code in a form which can be read by the scanning equipment. The product label contains both the human readable numerical code and the scanner readable symbol.

IS THE PRICE IN THE CODE?

The price is not contained in the code. It is recorded in the memory of the store computer.

COMPUTER ASSISTED CHECKOUT FACT SHEET

WHY IS GIANT TESTING THIS EQUIPMENT?

The only way we can help to moderate rapidly escalating food prices while earning the reasonable profit we must have to stay in business is to improve productivity and efficiency. The Computer Assisted Checkout seems to offer great potential for helping achieve this improvement.

WHAT ARE THE POTENTIAL ADVANTAGES OFFERED BY THE COMPUTER ASSISTED CHECKOUT?

The key word is potential, for we are conducting the test to learn what the advantages really are. We feel that the advantages are likely to include: quicker checkout; more accurate checkout; a receipt tape which has been improved to include more descriptive information about the products purchased; no need to separate out the multiple priced items since the machine "remembers" which items have already been checked through, and will always charge the correct amount. Eventually, the system promises to provide for better personnel scheduling through the data it will be compiling, and improved supply of merchandise on the shelf through more sophisticated re-ordering procedures.

WHAT ABOUT JOB SECURITY?

Of course this has been of concern to us. The three-year contract which we recently negotiated with the Retail Clerks Union guarantees that no person will lose his/her job because of automation.

IS THE EQUIPMENT SAFE?

We have been thoroughly assured by Governmental authorities that the low-grade laser which the scanner uses to read the UPC symbol is completely safe.

WHAT ABOUT THE ISSUE OF REMOVING PRICES FROM INDIVIDUAL PRODUCTS?

From the start, a key concern voiced by the advisory group of consumers who have worked with us on formulating our test was whether our test should include the removal of prices of individual cans or packages on the shelf of the test store. They understood that the prices for merchandise marked with the UPC symbol would be transmitted to the checkout terminal when the item was scanned, but they felt the prices should still be on the merchandise for comparison purposes. We listened to their views, and carefully considered their position. Ultimately we decided not to individually price mark about half the items in our first test store.

COMPUTER ASSISTED CHECKOUT FACT SHEET

There have been projections that a company such as Giant can save over $2.27 million a year if it does not have to mark each individual can or package. These are savings that we would share with consumers. On an industry basis, savings could amount to $250 - $300 million a year. We felt the need to learn whether such savings were possible, and whether in practice the lack of price marking would be an acceptable trade-off to consumers for a potential stabilization, or even lowering of prices.

Our second test store will be opened in Glen Burnie, Maryland in late 1975. For this test, prices will be stamped on the packages.

HOW WILL YOU MEASURE CONSUMER ACCEPTANCE?

We will be conducting opinion surveys in the test stores. The customer's vote of confidence is perhaps the best indication for the success of the computer assisted checkout. Thus far, the overwhelming majority of customer comments have favored the new system.

WHAT ARE THE TRADE-OFFS WHICH MIGHT MAKE THE LACK OF INDIVIDUAL PRICE MARKINGS ACCEPTABLE?

The most significant, tangible improvement the consumer will see is the new register tape. The new tape includes: an understandable description of each item bearing a UPC symbol; the price of each item; an indication of whether the item is taxable; a record of credits and store coupons; a record of the tax total, the amount tendered, food stamps due and paid, and the change due the customer; and the date, time, store number and checkout lane for that customer's transaction. Customers will thus have a receipt tape they can use in budgeting and keeping household records. Now, if they so choose, they can keep track of how prices vary from week to week, and they can circle an item on the tape and check back weeks - or even months - to see the price history of the products they buy. They can also use the tapes to check our prices against those of our competitors.

Another improvement is in a new unit price label. We learned from our consumer advisory group that our old labels could stand improvement in terms of readability and reliability. A greatly improved new label has been designed and installed. No price changes are allowed in the test store unless the unit price label has been changed first.

As for other trade-offs, we hope that the system will prove to be quicker, more accurate and will help to provide better service through personnel scheduling and inventory control. These are improvements which would benefit both Giant and the consumer.

Also, marking crayons are available for all those who wish to mark prices directly on their packages.

COMPUTER ASSISTED CHECKOUT FACT SHEET

WHAT ABOUT LEGISLATION TO KEEP PRICES ON THE INDIVIDUAL ITEMS?

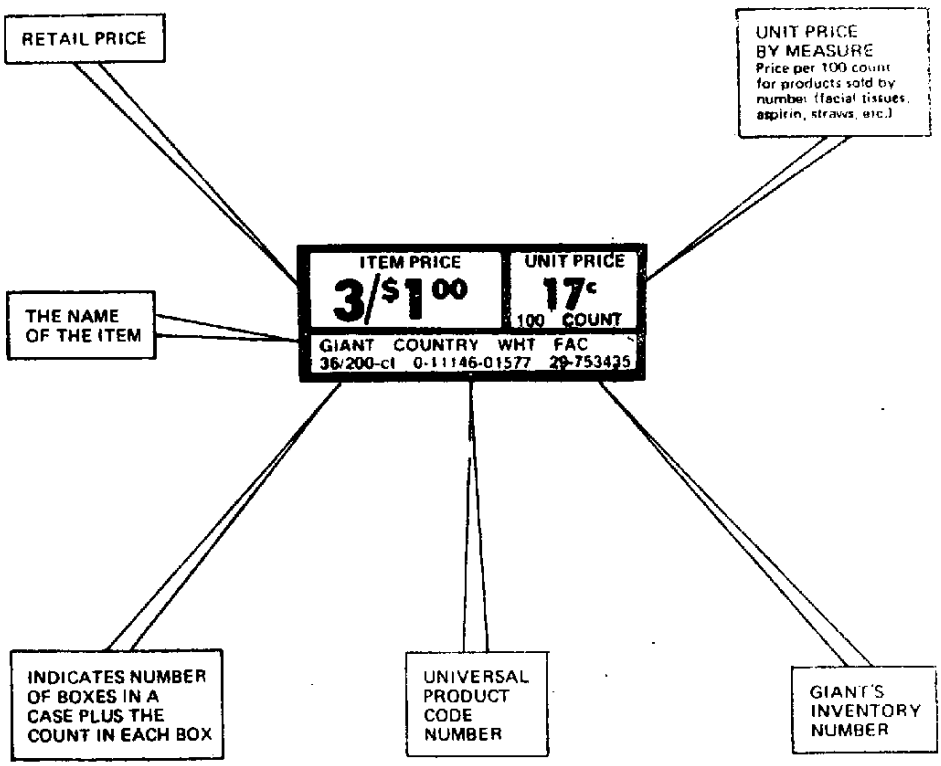
We feel that legislation is premature until the test has been conducted, and the results evaluated.

WHAT ARE THE PROJECTED SAVINGS?

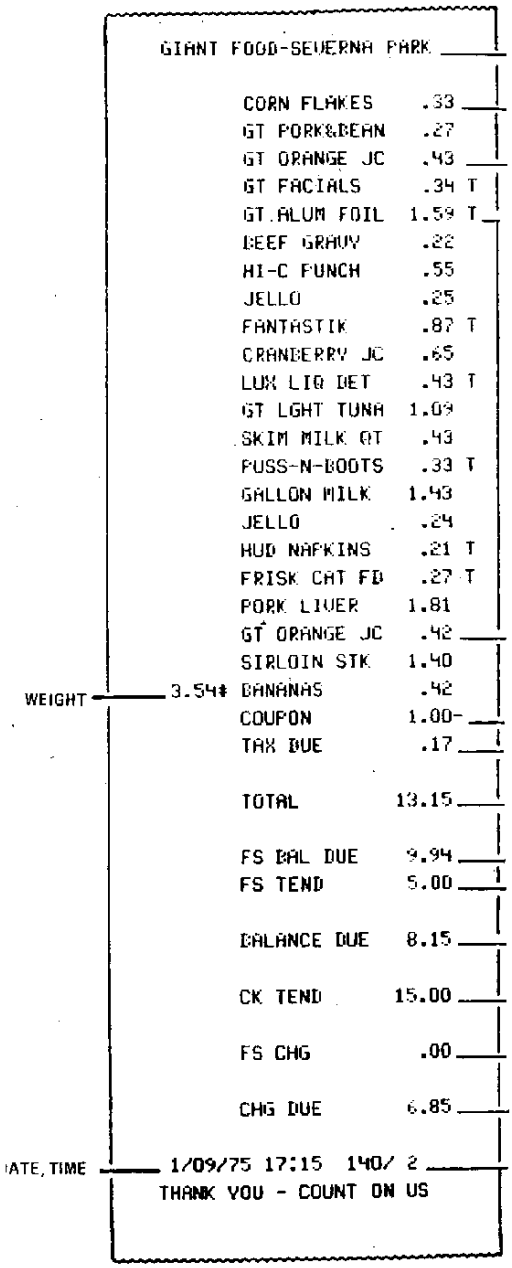
Below is a table illustrating what Giant has projected as potential monthly operational savings for an average store. The test will help validate or correct these projections.

Front end	$5,080
Price marking	1,859
Register replacement	373
Reordering	1,033
Balancing/reporting	669
Under rings	909
Monthly operational savings per store	$9,923

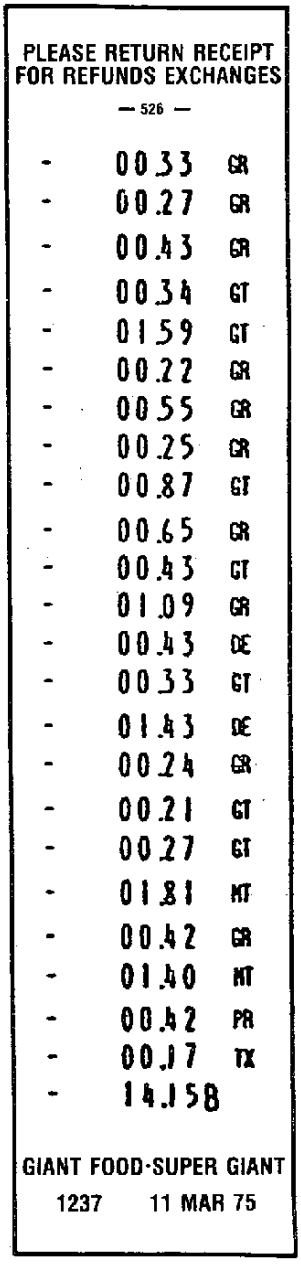
GIANT FOOD INC.
NEW UNIT PRICE LABELS



COMPUTER-ASSISTED CHECKOUT SALES RECEIPT



CONVENTIONAL CASH REGISTER SALES RECEIPT



COMPUTER ASSISTED SUPER MARKET CHECKOUT SYSTEMS:

A SCIENTIFIC ADVANCE IN THE PUBLIC INTEREST

a Background Paper

Prepared by

Food Distribution Information Council

Super Market Institute, Inc.

Chicago, Illinois

TABLE OF CONTENTS

ILLUSTRATIONS

AUTOMATED SUPER MARKET CHECKOUT SYSTEMS

I. INTRODUCTION

The latest computer technology is coming to the super market checkout counter, and the results can be faster and better service, less upward pressure on prices and increased efficiency. Altogether, this technological advance offers great potential for improved productivity, which can help contain inflation of food prices.

Science is already speeding up the checkout in super markets in a handful of states and in Canada. Tests of the new equipment are progressing in Europe. The new systems provide many important benefits for shoppers, store employees and super market operators.

The new development is considered by many to be the most important grocery innovation since introduction of self service more than fifty years ago.

Actually the new automation will require little change in your traditional shopping experience. Shoppers will select items from the shelves and cart them as usual to a checkout counter where they will find a new kind of cash register. There still will be a checkout clerk to greet you, answer your questions, take your money and bag your purchases.

Shoppers will not notice startling changes in equipment of the super markets now testing the new systems. Most of the new science is inside the cash registers, under the checkout counters and in mini-computers that you may not see at all. Shopping will be faster, simpler, and quieter, but it will not change abruptly any more than banking changed 15 years ago when bank checking was computerized with the introduction of machine-readable identification numbers printed in black magnetic ink.

II. THE UNIVERSAL PRODUCT CODE

Everyone can see now a vital part of the important development in the rectangular blocks of vertical dark lines that are beginning to appear on products going on your market shelves in cartons, cans, bags, or bottles.

The blocks of lines, which are of varying thickness, are usually one by one-and-a-half inches -- the size of a large postage stamp. They may be enlarged a little on a big item or reduced a bit on a small one. You will find them even on packages of chewing gum.

The bars and spaces represent a code that may be machine-read by a scanner. Directly beneath the symbols marked on packages you will find numbers, which represent the numerical equivalent of the code. While people cannot read the code, they can read the numbers. Each different product -- manufacturer, size, color and flavor -- can be identified by a 10-digit number.

On grocery products, you will notice a zero to the left and ten numbers underneath the code symbols. The five digits to the left identify the manufacturer or packager who is the source of the product. The five digits on the right identify the specific product -- what it is, its size, flavor, and so on.

The combination of lines are symbols of the new Universal Product Code, which gave the thousands of products sold in grocery stores electronic, machine-readable identification.

More than 2,500 manufacturers, including all major food companies in the United States and Canada, now have UPC numbers and are placing the symbol on their products as rapidly as old label stocks are exhausted. More than half the products reaching your super market are now thus marked. The percentage marked will rise to nearly 90 percent by the end of 1975.

Products not coded by their manufacturers can be coded in your super market. Such products as meat, cheese and produce, will be coded in the store. Produce, if not prepackaged, can be weighed on scales attached to the computer with automatic calculation of price.

III. THE COMPUTER-ASSISTED CHECKOUT STAND

The Universal Product Code has advantages by itself for the food business. It improves product identification, enabling food manufacturers, wholesalers and retailers to tract product movement more accurately. They can thus respond better to customer preferences, improve inventory control and reduce the incidence of out-of-stock shelves.

Most important, however, the UPC makes practical the computer-assisted checkout stand, a retailing dream for 40 years. It brings to the grocery industry the speed, accuracy and cost cutting advantages of the latest electronic technology.

While much like the usual checkout stand in appearance, you will find an automated stand spectacularly different in its working. The electronic cash terminal is simpler than the old electro-mechanical register. It has fewer keys than today's register, and the keys work faster, more accurately -- with a hum instead of a clank.

The new registers are almost silent. You will hear only a pleasant hum from them. The noise, clanging, banging and ringing of the past are gone.

In fact, your checkout clerk will do very little register punching. Instead of lifting and turning each of your items to find a tiny and perhaps smudged price mark, the checker looks for the easily seen Universal Product Code symbol. Facing this down, the checker pulls your purchase across in a single, swift, rhythmic motion. (See Illustration B, next page)

Beaneath the slot is an electronic scanner of less than one milliwatt (1/100th of a watt) power connected to a mini-computer in which as many as 22,000 item descriptions and prices may be stored. In the split second that the symbol is over the slot, the scanner "reads" it and orders "a price look up" for it in the computer. In turn, the computer flashes the name and sometimes the brand as well along with the price in green, amber or red light on a sizeable viewing screen visible both to you and the checker. This is recorded at the same time in the same detail on your sales receipt, which is a detailed computer print-out. One computer can serve a dozen checkout stands or more.

Installation of automated equipment does not mean any change in the way prices are determined. The symbols and numbers identify products; they do not price them. Grocers will still set prices for their merchandise in today's highly competitive market.

With scanners working, one possible option to further increase savings is that items coded with the UPC symbol may not have to be individually price-marked. In such cases, you will find the price clearly posted on the shelf on which the items are displayed. You will see it on the screen at the checkout register, and you will take home a far more detailed record of purchases than ever before on your sales slip. With scanners retrieving prices,

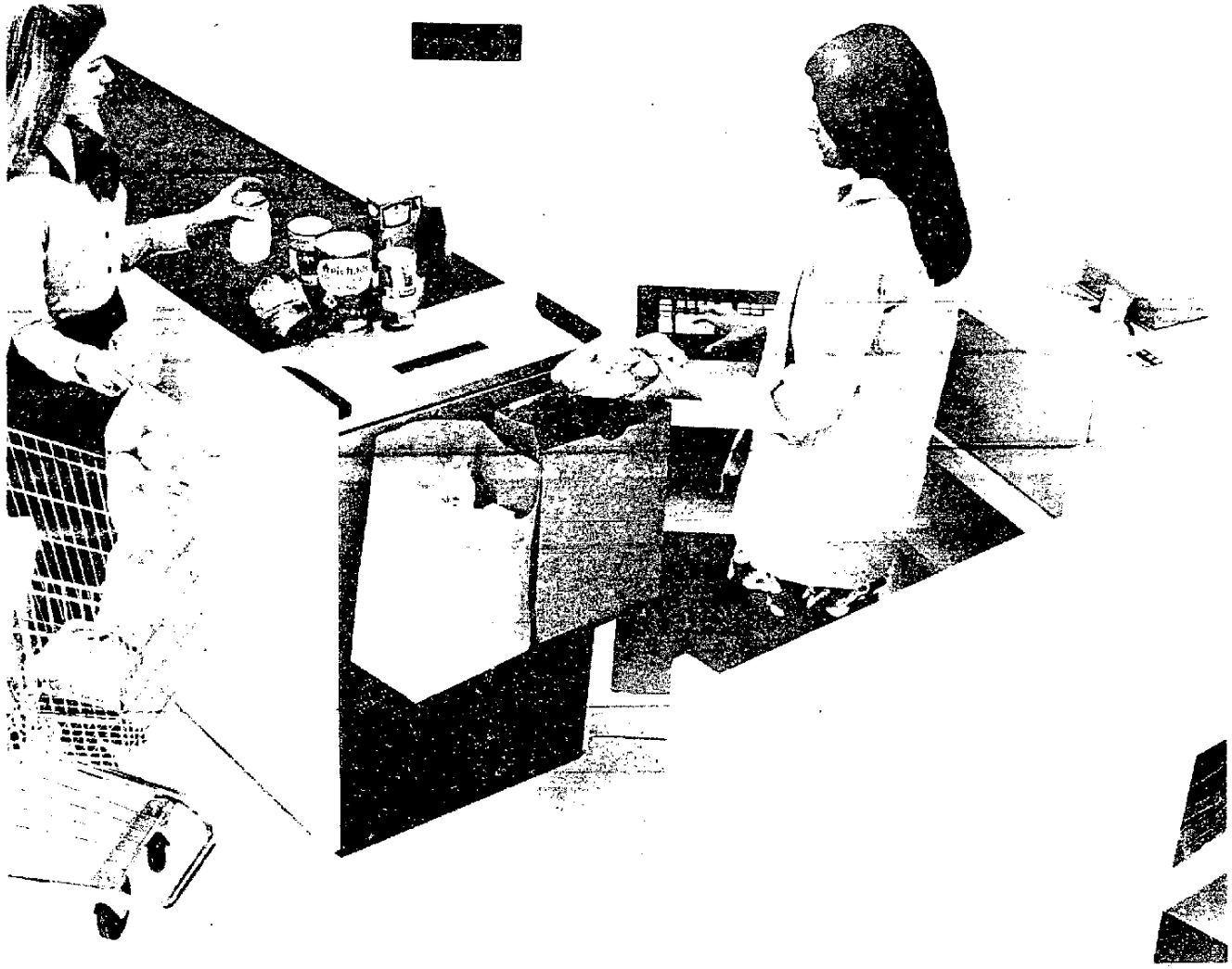


Illustration B

greater savings can be realized since the necessity to price mark each item no longer exists. At the same time, the store copy of this receipt gives your super market a better and faster record than ever before of exactly what you are buying. As it carries the minute and hour of your purchase as well as the date, it provides information that can result in better service to you.

IV. BENEFITS FOR SHOPPERS

The new technology makes possible many new benefits for shoppers.

A. The most important customer benefit of the new systems is the potential to relieve upward pressure on food prices and keep the customer's food costs down. Although computer-assisted systems are costly, in every case projected cost savings far exceed additional costs for store operators. There is no reason to believe that installation of the systems can result in higher prices for customers. Quite the contrary, the industry's hope is that the improved productivity provided by computer-assisted systems will hold prices down.

A better system of price identification is also being developed with the computer-assisted checkout systems. At a time when food costs are fluctuating unpredictably--downward as well as upward--there are obvious advantages to a system which can make price changes easier and with less customer annoyance or inconvenience. Smudged price markings, which can confuse customers and checkers, can be eliminated. Experience of recent years has persuaded many in the food industry that the present pricing system is a failure and must be replaced. Customers want complete pricing information.

Also, the computer-assisted system offers the retail industry an opportunity to adjust work schedules to cut out one of the least satisfying jobs in the store today: hand-stamping prices on every individual package. Hand stamping is costly, time-consuming, often redundant, and leaves lots of room for human error. Labor savings can help the store keep prices down, improve service--or both.

B. Another obvious benefit is the saving of time--time which you may use otherwise for pleasure or profit.

Checkout lines will move faster. Thanks to scanning, reduced key punching and the calculating wonders of the electronic register, you and your purchases can go through checkout in up to

one third less time than you do today. Shoppers anxious to get restless children out of the store and home know how annoying checkout delays can be and can easily appreciate the advantages of speeding up the process.

C. A third major benefit is a tremendous increase in the accuracy of the checkout. Accuracy of automated equipment tested in Zurich, Switzerland in 1972 was described as "phenomenally high." Only 13 wrong price ring-ups were detected out of 924,837 items scanned during a ten-week test. In a 15-month test in a Kroger store in Kenwood, Ohio, checker mistakes dropped 75 percent.

Under the old system, checkers must punch every item into an old-fashioned cash register. Studies have shown that a substantial number of keyings are wrong -- either over-rings, which cause the shopper to pay too much, or under-rings, which give the store less than the established price for the item.

With a computer-assisted system, a customer need never again worry about whether a checker properly rings items priced "2 for" or "3 for." The computer will remember which multiple priced items have already been checked and will always charge the correct amount for the number of items you buy. For example, if you buy three items priced 3 for 29 cents, the system will charge 10 cents for the first item, 10 cents for the second, and 9 cents for the third -- without a hitch.

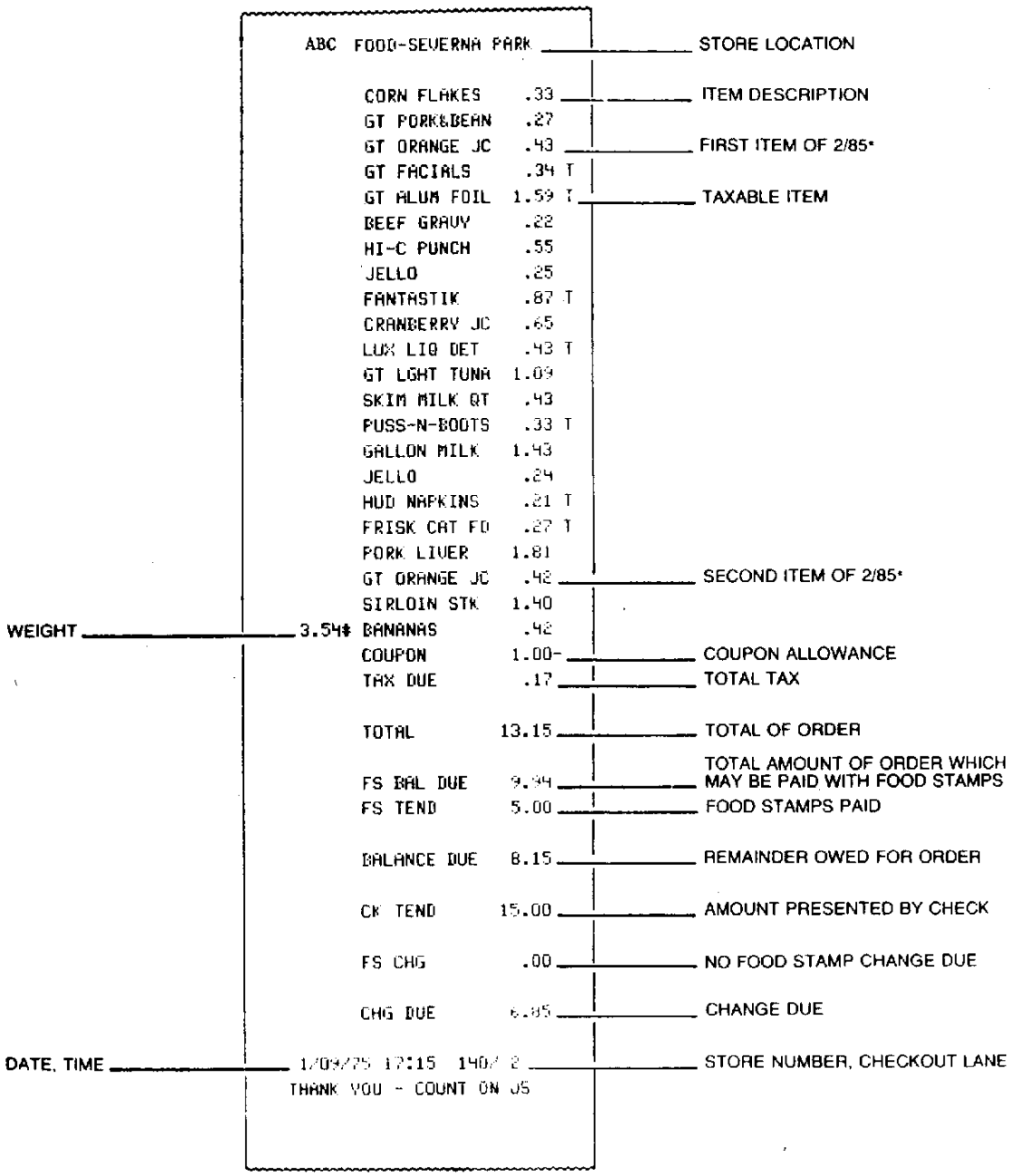
D. A fourth major shopping benefit of the system is the new detailed sales receipt. In the past, grocery receipts listed item prices and identified purchases only as "gro" for groceries, "mt" for meat and "pro" for produce. With computer printouts of up to 22 letters and numbers per line, the receipt from one of the new electronic registers will identify items by name and often by brand as well. (See Illustration C, next page)

Shoppers will find the new sales receipt useful for budget planning and for making future shopping lists. It will make a detailed study of the costs of a shopping trip much easier by eliminating the need to check each item or to try to match a bagful of items with prices identified only as "gro."

The new receipt tape will help shoppers compare the prices of items from store to store. A shopper can take the tape along on a trip to a competitor's store and compare prices--to the penny--on a bagful of items. A standardized format for product descriptions is being developed to make such comparison shopping even easier.

Illustration C

COMPUTER - ASSISTED CHECKOUT: SAMPLE SALES RECEIPT



The new sales receipts will also automatically identify taxable items and calculate the tax, note bottle deposits refunded, facilitate the handling of coupons, handle food stamp transactions easier and more accurately, calculate trading stamps due on each transaction, indicate the amount of cash or checks tendered and the change returned. The receipt will also indicate the check lane used, the date, hour and minute of your transaction.

E. Fifth, and perhaps most important, all of these benefits add up to improved customer service. Service will be faster, and it will also be better. Data provided by the system will help stores to schedule employees more efficiently, keep shelves better stocked and display products more effectively. It will also help stores eliminate the chance that an advertised special will be out-of-stock when a shopper arrives.

Computers eventually may be geared to re-order staple grocery items automatically when stocks reach a certain level. The computers are already producing instant reports that used to take hours of time for store managers.

Fresh fruits and vegetables may be weighed faster and more accurately using scales at the checkout, which can be plugged in to the computer. The checker may simply place the item -- for example, a bag of bananas -- on the scale, enter the code for bananas, and the system will compute the price in a fraction of a second. Stores utilizing this feature of the automated equipment still have scales in the produce department for customers who wish to check the weights on their purchases.

By saving labor at the checkout, the new system also offers the store an opportunity to improve customer service throughout the store without increasing labor costs.

V. BENEFITS FOR SUPER MARKETS

From the super market operator's point of view, potential benefits of the automated system are many. Increases in productivity of up to 45 percent were recorded at the Kroger test. These productivity savings translate into cost savings for the operator, which can be passed on to customers in more reasonable prices, better service or both.

Sales increases are made possible by faster checkout of customers. Efficiency is increased, and labor costs can be reduced or held down. The system saves work as well as time for the store's checkers. There is little or no lifting of

packages with an automated system, and the electronic terminal does all of the arithmetic. Because the electronic equipment has fewer keys than today's registers, clerks can be trained to operate it faster and more easily.

Other benefits for super markets are reduced bad check losses, reduced losses from mistakes on taxable items, and reduced coupon handling costs.

The system will also improve the efficiency of the store's financial controls, and curb losses from some kinds of theft or fraud. It will vastly improve the store's inventory record keeping.

Most important, benefits of the system for super markets will enable operators to keep rising prices in check, improve customer service and make shopping a better experience for everyone.

VI. VOLUNTARY INDUSTRY COOPERATION

The Universal Product Code and the automated checkout systems are the result of voluntary cooperation in the grocery industry than many consider as remarkable as the technology involved. Clarence Saunders, who launched self-service with his Piggly-Wiggly stores in 1916, spent the last twenty years of his life trying to perfect an automated grocery that he called the Keedoozle. A now retired food association executive, Wallace N. Flint, proposed an automated checkout and punch card coding of items in his 1932 master's thesis at the Harvard Business School.

But it was not until the middle 1950's that electronic scanning equipment was developed. Both super markets and banks began to experiment with it. After a committee report, the American Bankers Association on July 23, 1956, announced "the banking industry requests that all electronic machinery for automatic check handling, regardless of manufacture, be able to read and process checks coded with figures printed in magnetic ink."

To use the code, banks had to add machinery, old checks had to be used up and some odd "bed sheet" checks had to be redesigned in conventional dimensions. But within four years most checks were coded. Banks made no special charges for the magnetic ink. For its checking account customers the First National City Bank of New York on August 1, 1961, ended a 3 cents charge for checks deposited and cut from 7 1/2 to 6 cents a charge for checks paid.

While computer-assisted checkout systems are revolutionary to the super market industry, they are not anything entirely new. The banking industry's success with similar equipment has proven that it can be introduced with minimal adjustments to a business system serving millions of customers.

In the banking industry, for example, few (if any) employees lost jobs because of the new technology. Many who had been sorting checks learned to use the new automatic equipment. More people are employed in banking now than ever before.

Achieving a similar goal in the grocery field will be more difficult. Instead of one small item to be coded, there are thousands, in all kinds of shapes and sizes. As super market costs have risen and earnings dropped, several groups and companies have continued studies and experiments.

Scanning was proved practical by a 15-month test in 1972-73 at a Kroger super market in Kenwood, Ohio, a suburb of Cincinnati. Items marked with an experimental code symbol were scanned at five lanes checking out 8,040,254 items priced at $4,858,945 for 492,750 customers. Customer waiting time was cut 40 percent, sales per checkstand hour rose from $207 to $300 and checker mistakes dropped 75 percent.

VII. PUBLIC ACCEPTANCE

Customer response to the systems in experimental tests so far conducted has been strong and positive. However, some labor leaders, consumer advocates and elected officials have voiced reservations about the Universal Product Code and computer-assisted super market checkout systems. They have insisted that stores share potential savings with employees and customers. The competitive nature of the food distribution industry assures this.

Before each test store has opened, the super market company conducting the test has had a consumer panel working with store management to assure maximum attention to consumer benefits of the system. Each store is conducting extensive consumer research to meet consumer needs.

The system is not expected to lead to extensive layoffs of store personnel. In fact, no one has to lose a job because of computer-assisted checkout systems. As the hour and minute records of your shopping are analyzed, more part time workers may be hired to maintain service at the peak periods revealed.

Unions are now asking for contracts that will maintain job security. For example, before opening its computer-assisted test store in Severna Park, Maryland, Giant Food, Inc., negotiated a union contract which guaranteed that no one then employed would lose a job because of computer-assisted checkout system. The history of introduction of technological advances which improve productivity shows that such innovations ultimately aid the workforce.

Virginia Knauer, White House consumer adviser, at first was critical of scanning but after seeing a demonstration in Raleigh, North Carolina, supported it. "I think computers have become a way of life," she said, "and most Americans like new concepts, any way to get them better service."

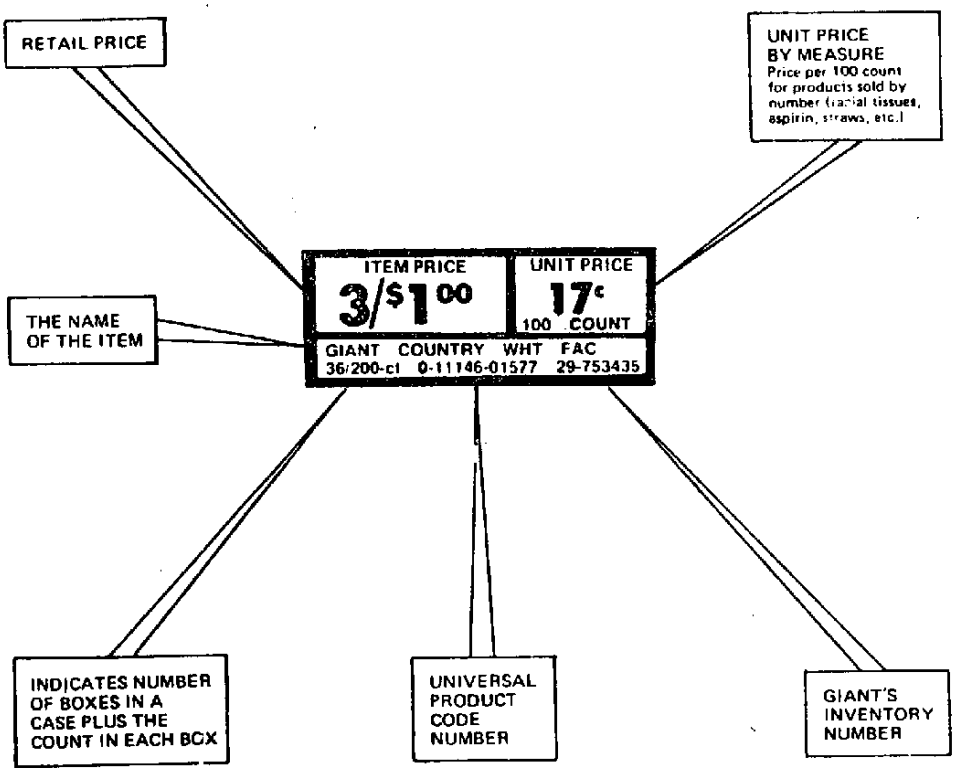
She believes, however, that individual prices should be continued on products if consumers want them. Some say they need these for comparison with other items and because they feel shelf prices are inadequate. Many stores are answering this with bigger and more easily read shelf prices. Besides the item price, these usually now display also the unit price (the cost per pound or ounce or other measure). (See Illustration D - next page.)

Shoppers who want to copy the shelf price on the item they are buying at Steinberg's are given grease pencils with which to do so. This Montreal store, the first to use scanners in Canada, has dropped individual price marking of UPC coded items with almost no complaints.

For shoppers concerned about keeping food costs down, the unit prices on the shelf edge permit value comparisons between brands and package sizes that are more useful than item prices. Economists at the United States Department of Agriculture believe the average housewife can save $60 a year for each member of her family by studying unit prices.

Illustration D

GIANT FOOD INC.
NEW UNIT PRICE LABELS



EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL ON WAGE AND PRICE STABILITY
726 JACKSON PLACE, N.W.
WASHINGTON, D.C. 20506

May 7, 1975

For information call:
(202) 456-6757

MEMORANDUM FOR CORRESPONDENTS:

Following is the text of a telegram Albert Rees, Director of the Council on Wage and Price Stability, sent to Representative Norman A. Murdock of the Ohio legislature in response to his request for a Council opinion on a bill which would compel prices to appear on grocery store items:

> We are informed that H. 720, a bill to require prices in arabic numbers to be marked on merchandise displayed for sale, is being considered by the Ohio legislature. Such bills would deprive consumers of much of the considerable savings to be achieved through automated checkstands. Such systems should be given a complete and fair test to ascertain whether or not adequate price information can be given consumers through shelf labels and itemized receipts. H. 720 would prevent testing and therefore, we urge that it be defeated.

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CWPS-41

STATEMENT BY JOSEPH B. DANZANSKY, PRESIDENT, GIANT FOOD INC., BEFORE THE SMITHSONIAN INSTITUTION'S RESIDENT ASSOCIATE PROGRAM WINTER COURSE, "A REAPPRAISAL OF THE ROLE OF THE PROFESSIONAL IN CONTEMPORARY AMERICA," THURSDAY, MARCH 20, 1975.

The topic of this series, "A Reappraisal of the Role of the Professional in Contemporary America" is both interesting and intriguing. I must confess, however, that I was a bit surprised when I was invited to be one of your lecturers. Supermarket executives are called many names today, but "professional" is not frequently among them.

These are times of great change, and our perceptions of things are in a constant state of reappraisal. So, perhaps it is indeed fitting that we begin to regard the retail food merchant as a professional.

Traditionally, we have regarded the professional as one who engages in an occupation requiring training in the liberal arts or the sciences, and advanced study in a specialized field. He worked hard so his children could become "professionals" and not grocers. The traditional grocer didn't exactly fit that image. If today's retailer is to survive, he must reappraise his relationship to the community and broaden his outlook to encompass a strong sensitivity to the social, economic and political movements of our time.

When I left the practice of the law to become President of Giant eons ago -- or so 1964 seems today -- I was chided by some of my colleagues who said I was trading the stimulation and excitement of my profession for the pedestrian and mundane world of the grocery store. I must tell you, however, that I spend precious little of my time studying the price of peas. I spend a lot more

time dealing with government at all levels, with community action groups, with members of the news media, with labor union representatives -- and last, but by no means least, with consumer advocates. Yes, since the famous "ladycotts" first exploded on the national scene back in 1966, the retail food store has been the focus of consumer attention.

Speaking of the "ladycotts," I think you will be interested in the real story of how this first of the modern consumer mass movements was begun.

During the early days of the Nixon Administration, I attended a supermarket industry meeting in Boston, which was addressed by Pierre Rinfret. Before Nixon's election, Rinfret was one of his chief economic advisors, and at the time of this meeting, he still had the new President's ear.

Rinfret told our group, with no small degree of pride, that he and a group of Nixon workers had engineered those first demonstrations against high food prices to embarass the Johnson Administration, and create a Republican momentum in the 1966 Congressional elections which would lead to a Nixon victory in 1968.

I guess you could say that this was the first of the so-called "dirty tricks." If I ever doubted the connection between economics and politics before, that experience set me straight.

Let me hasten to add, however, that I am not implying that the consumer movement itself was phony back in 1966 or that its aims were spurious. Esther Peterson had already been appointed

the first Special Assistant for Consumer Affairs by President Johnson -- in fact, she had already been serving for two years when the ladycotts erupted. And Ralph Nader had already become a folk hero after General Motors stupidly tried to discredit his book by putting private detectives on his trail to find something unsavory about his personal life. These pioneers and a few others had already begun to forge the constructive force that underpins today's consumer movement.

What is consumerism? Should business regard it as a threat? Well, I know of no more revered prophet of the free enterprise system than Peter Drucker, and here is what he has to say on the subject:

"Despite the emphasis on marketing and the marketing approach, marketing is still rhetoric rather than reality in far too many businesses. "Consumerism" proves this. For what consumer ism demands of business is that it actually market. It demands that business start out with the needs, the realities, the values of the consumer. It demands that business define its goal as the satisfaction of customer needs. It demands that business base its reward on its contribution to the consumer. That after twenty years of marketing rhetoric consumerism could become a powerful popular movement proves that not much marketing has been practiced. Consumerism is the 'shame of marketing.'

"But consumerism is also the opportunity of marketing. It will force businesses to become market-focussed in their actions as well as in their pronouncements.

"True marketing starts out...with the customer, his demographics, his realities, his needs, his values. It does not ask, "What do we want to sell?' It asks, 'What does the customer want to buy?' It does not say, 'This is what our product or service does.' It says, 'These are the satisfactions the customer looks for, values, and needs.

"Indeed, selling and marketing are antithetical rather than synonymous or even complementary.

"There will always, one can assume, be need for some selling. But the aim of marketing is to make selling superfluous. The aim of marketing is to know and understand the customer so well that the product or service fits him and sells itself."

Drucker has distilled into a few lines the substance of the Giant philosophy which has been responsible for our rather spectacular success in this market since 1936. It also describes the line of our thinking which resulted in the reappraisal of our relationship to the public which in turn resulted in the establishment of our precedented-setting consumer program and our hiring of Esther Peterson to direct it back in 1970.

At this point, I want to apologize if this talk seems at times to be a Giant commercial. Giant was the first major company to bring a major consumer advocate into its management with broad and independent powers.

This experience, I suppose, is the reason I was invited to be here with you. What I will be attempting to do for a good part of the time allotted to me is use our experience as a case study. So if I keep mentioning Giant, I hope you will bear with me.

Now, I would like to turn the clock back to the early 1960's when the modern force we know as the consumer movement was being born.

When consumerism first emerged, the business community was thunderstruck. They reacted to it as something un-American -- as a force that was bent on destroying our free enterprise system.

Esther Peterson was called the greatest threat to business in our history for proposing the Fair Labeling and Packaging Act. Speakers referred to her as "that woman who sends shivers up and down the backs of people." Business almost uniformly failed to realize the legitimacy of the consumer movement, or that consumerism could be used effectively as a marketing tool.

Most business leaders misjudged the depth and commitment of consumer spokesmen. They were unable to comprehend that in our complicated and impersonal society, consumers and their spokesmen have much to say that is of value to all elements of our economy.

Since then, much progress has been made. However, business generally has reacted to the growing consumer awareness in five distinct ways or steps:

STEP 1 When consumer groups make a charge, deny everything. I don't mean this in a sinister or dishonest way. To accept

the legitimacy of consumerism as a force in the first place involves a philosophical and emotional wrench.

STEP 2 If denying everything doesn't work, try to discredit whoever made the charge. Again, this is part of the wrenching process. If business is not yet able to accept the sincerity of consumer groups, it questions their motives.

STEP 3 When consumers get no redress and seek legislative action, oppose everything. Business still can't see that reasonable and timely voluntary reform is the best deterrent to restrictive legislation.

STEP 4 If legislation is passed or regulations written, try to "defang" anything that is enacted by working against implementation and appropriations or getting an opponent of law appointed to administer it.

STEP 5 Do something about the problems. After repeated frustration, the awakening comes and business reappraises its entrenched viewpoint. It realizes that service to the consumer is its first obligation if it is to grow and prosper. It realizes that the best way to cope with the problems is to look at the allegations seriously, give responsible consumer spokesmen a fair hearing, and make a serious effort to do something constructive to correct any shortcomings.

We like to think that our company arrived at STEP 5 earlier than most, although it too had to agonize its way through the five steps during the 1960's. Three reasons underlay Giant's decision to launch its own "Project Reappraisal" and begin to play a leading role in the emerging dialogue between consumers and business:

1. Food retailing is our most consumer-oriented industry. On the average, a person visits a supermarket twice a week. It is one of the few remaining cash-and-carry businesses, and shoppers are aware of the smallest price fluctuations on thousands of items.

2. Food retailing is the most competitive industry in the nation. The average customer passes two other supermarkets on the way to shop. Management can't afford to take the consumer for granted; someone else is always down the street, ready to offer similar products and services at comparable prices.

3. Community service had always been a part of Giant's tradition. The company had early developed the habit of trying to anticipate new social and economic winds and trimming its sails accordingly. This sensitivity to new, developing forces prompted us to volunteer to work with Esther Peterson during her early White House days, when most other people in the industry were still at STEP 1.

After Esther Peterson left the White House, I asked her to help me develop a corporate consumer program based on a totally new concept. A company's consumer representative has traditionally served as its ambassador to the consumer. Under this new concept, the consumer adviser would serve as the consumer's ambassador to the company's top management - a crucial difference.

Mrs. Peterson turned my offer down repeatedly over the next few months; she didn't want to chance becoming a publicity gimmick. Finally, we agreed on a formula:

She was to have complete freedom to speak out according to her convictions, both publicly and within the company. She was to have a hand at the levers of corporate power - to participate in decision making at the top, in a role not limited to so-called "consumer matters." Finally, the company committed itself to try some of the programs she believed in. She wanted to make a reality of the recommendations of the President's Committee on Consumer Interests, the White House Conference on Food, Nutrition and Health, the Food Marketing Commission reports, and other studies that the taxpayers had paid for. When I readily agreed to these terms, she accepted the job.

The announcement of Mrs. Peterson's appointment pleased neither consumer advocates nor many of our own executives. The consumers thought she had "sold out," while the executives thought she would keep them from selling out of anything. The first order of business, therefore, was to open a series of dialogues aimed at winning the confidence of the mutually antagonistic groups.

Our previous experience with consumer advocates had not always been happy. Some of the advocates who approached us were, in their inexperience, often shrill and unreasonable. For example, a group had once invited me to a meeting to discuss food prices. When I arrived for the meeting, I was asked by the waiting news media to comment on a news release put out by the consumer groups which gave the results of the meeting that had not yet been held! The positions attributed to us were inaccurate and damaging to the company.

Consumer advocates, on the other hand, thought that we were insensitive to their concerns. Our company had enjoyed a good relationship with the community for many years and had provided such customer services as cooking demonstrations and recipes. The consumer advocates were unsuccessful in convincing us that new consumer programs which they were demanding were not the ideas of a few cranks but badly needed reforms.

In short, communications were stalled on dead center.

The first essential step in establishing this dialogue was to win the support and confidence of the company's key vice presidents, many of whom had been seared by previous confrontations with consumer groups. A Consumer Action Task Force already existed at the company. It was composed of key people whose support and cooperation would be crucial to the success of any consumer program. It was, in effect, the company's power structure and could implement as well as devise. It included the vice presidents in charge of store operations, advertising and sales promotion, purchasing, manufacturing, warehousing, and distribution, and was chaired by my assistant. The task force had agreed to embark on a unit pricing program, and development of it was under way when Esther Peterson came on board.

The task force became the medium for a process of mutual education. It took time and building of trust, but as the vice presidents gradually came to understand that consumerism is a constructive force, they began to reappraise their stereotyped preconceptions, and their suspicion and hostility began to ebb. In turn, Esther Peterson got a priceless look at the inner workings of a corporation, and began to reappraise many of her own preconceptions about business and business people.

Then we began an effort to build bridges between our company and consumer groups.

A first step was to begin a series of dialogues explaining what we were trying to do and asking for the help of consumer advocates. The dialogues were organized on issues rather than on generalities. From these dialogues grew a series of advisory committees in such areas as the environment, nutrition, and drugs, to name a few.

While these dialogues were taking place, we were hammering out a series of objectives to serve as the framework for our consumer program. President Kennedy had given an important impetus to the budding consumer movement by sending the first Presidential Consumer Message to Congress. It contained his Consumer Bill of Rights. Those were the right to safety, the right to be informed, the right to be heard, and the right to choose.

Our task force members unanimously agreed to adopt this format, adding the right to redress and the right to service. The difficulty came in spelling out those rights in concrete form. When we started talking about specifics such as nutrition labeling, chemical additives, unsafe toys, and so on, some of our people got nervous. I was warned that many of the proposed programs were untested, that we had insufficient information in some cases (about food additives, for example), and that we had no way of knowing whether Giant could deliver.

We agreed that some of the proposals should be further explored before we became committed to them publicly. We also agreed

that if, after a reasonable period of time, the programs did not live up to our hopes, we would drop them. (None has been dropped so far. In fact, some have been initiated by the vice presidents on their own, without prompting.) The task force members swallowed hard, crossed their fingers, and accepted most of the pledge. The Giant Food Consumers' Bill of Rights was adopted and appeared as a full-page advertisement in local newspapers. Today it hangs on the walls of all our vice presidents' offices as a constant reminder of our commitment to consumers.

Since publication of the Consumer Bill of Rights, most of our commitments have been carried out, -- enough, at any rate, to prove that they can be fulfilled. In the next few minutes I shall describe, in terms of the five principal rights (the right to service is self-explanatory), how all these commitments were met. Many of the programs undertaken, of course, fall under the heading of more than one right.

THE RIGHT TO SAFETY

One of the most important steps taken by the company to ensure the Right to Safety was the establishment of a Quality Assurance and Sanitation Department, reporting directly to my office. Its staff develops product specifications, maintains surveillance over food products in its own microbiology and food chemistry laboratories, sets sanitation policies, and oversees implementation through its inspection program.

A hot topic at the outset of our consumer program was the presence of phosphates in laundry products. We learned from

an Ecology Advisory Committee, after a good deal of investigation, that experts didn't agree on the ecological effects of various laundry ingredients. So we offered shoppers a choice of ecologically acceptable products under our own label: a low-phosphate detergent, a phosphate-free detergent, and a good old-fashioned laundry soap. In this effort we learned the importance of always getting the opinion of experts.

The effect of pesticides on the environment was also an important issue. Following the committee's suggestion, we reviewed the pesticides on our shelves and removed the "hard" varieties.

Also on this committee's recommendation, we began selling and promoting our own line of recycled paper products - towels, toilet paper and napkins. At about the same time, the company closed all its store incinerators and built a cardboard recycling facility, which saves about 250,000 trees a year. Later, we designated some of our stores as paper-collection sites. The proceeds from this paper salvage effort go to the United Way.

We assembled the Ecology Advisory Committee by inviting the participation of recognized environmental groups, local consumer councils, members of delegations that had called on the company, and individuals who had written intelligent letters to us. There is no one way to form an effective committee. Some of the most effective members of the groups working with Giant are housewives who have a penchant for constructive participation.

Consumers have also been concerned with the safety of chemical additives. We decided that, where possible, we would offer shoppers a choice between products with and without additives.

For example, we now produce, in addition to our regular red maraschino cherries, cherries without the #2 red dye that is normally added. The natural color of maraschino cherries is yellow. These yellow cherries have now become very popular conversation pieces at cocktail parties.

An amusing encounter with Uncle Sam occurred during an attempt to develop hot dogs that were free of nitrates and nitrites, which can be a cancer-producing factor. Through proper channels -- following instructions -- we sent some of the experimental hot dogs to the U.S. Department of Agriculture to be tested for bacterial growth. Inquiring about the results after a long delay, we found that an official had thought they were a gift, and had eaten them! (He liked them.)

The issue of nitrate and nitrite content in meats illustrates the need to consider the trade-offs that often are implicit in changes that consumers demand. After long experimentation by our suppliers aimed at developing a hot dog without these additives, it was found that such a packaged product could be given a shelf life of only three days. Consumers' habit of keeping hot dogs for a long time, rather than freezing or eating them immediately, raised the specter of spoilage and food poisoning. One of our

advisory committees, composed of home economists, reluctantly concluded that the trade-off in perishability was not worth the risk. So we shelved the project temporarily, while awaiting new technology and the results of efforts with our suppliers to reduce the amount of nitrates and nitrites in this product.

The effort was not wasted, however. The consumers who participated in the development and ultimate rejection of this product are no longer knocking at Giant's door asking for it. Would they have responded in the same way if Giant had told them, "It won't work," instead of bringing them into the decision-making process? We doubt it.

The possibility of accidents from products or packaging has always been high on the list of problems, particularly accidents caused by exploding soda bottles. We therefore began bottling our private label soft drinks in so-called "Shatter Guard" bottles, which hold broken glass together and therefore reduce the hazard.

Just before the 1973 Christmas season, we completed a program aimed at removing hazards from the toy marketplace as well as providing consumers with information on toy safety. An

Ad Hoc Advisory Committee on Toys, composed of consumers, child specialists, manufacturers, and government representatives developed a program including the following:

. Testing toys in the Giant Quality Assurance Laboratory

. Alerting consumers to products for which parental guidance is advised.

. Labeling toys for age suitability.

. Publishing a "Consumers' Guide to Toys."

THE RIGHT TO BE INFORMED

Giant expresses the commitment to the consumers' right to be informed in three ways: (1) through improvements in labeling that provide better information at the point of purchase, (2) through institutional advertisements, tied closely to our consumer programs, and (3) through commentary on issues of the day affecting consumers and food retailers.

We attempt to keep consumers informed about our programs through speeches and through newspaper, radio and television announcements and interviews. Also, we keep store personnel up to date through lunches, informal meetings, and through company publications. This communication is important, because our programs would lose value if the people who meet the customers were uninformed about them.

We instituted unit pricing for the more than 9,000 items (now exceeding 10,000) in our stores. Unit pricing has proved to be a superb inventory management procedure. It has more than paid for itself by reducing price-marking errors and by improving

inventory control and the company's in-stock condition. Before unit pricing, each store was found to have about 300 price-marking errors per inspection. Now pricing errors have been practically eliminated.

Processors and retailers have been dating products for years for freshness control - except that the dates have been in code. Consumers have often asked that the dates be in plain English so that they too could determine the freshness of the goods they were buying. Many company officers feared that shoppers would buy only those goods carrying the most recent dates, leaving huge inventories of perfectly good food to spoil. The fears have been groundless: once customers could understand the dating, by and large their confidence in the store increased and they bought the items on top.

At the same time, the knowledge that customers could determine the freshness of an item caused store clerks to sharpen their rotation practices. Open dating has improved our rotation, reduced spoilage, and helped to sell more private-label products (we can open date only our own brands). We are now beginning "care" labeling to help the customer take better care of the commodity after getting it home. The message on the label tells the customer, in effect, "If you take care of it, here is how long this food will last."

Taking our cue from a major recommendation of the White House Conference on Food, Nutrition and Health, we determined to work out a scheme of nutrition labeling. We invited people

representing all concerned groups to meet and develop a plan on which all of us could agree. Dr. Jean Mayer, Chairman of the White House Conference, chaired our committee of 13. Some industry members were reluctant at first to sit down with representative consumers, especially any who were close to Ralph Nader, but gradually the group learned how to work together.

While nutrition labeling was being debated across the country and resisted by some national manufacturers, Giant and government officials and private-label suppliers could see ahead and cooperated fully in developing a plan. The plan is part of the basis of the labeling system which the Food and Drug Administration has since developed, although it differs in some respects from our scheme.

During the same time, we were approached by a group of idealistic law students who were interested in full disclosure of ingredients on items covered by federal standards of identity. (If recipes for certain foods are listed with the federal government, listing of the ingredients on the package is not required. Most consumers are unaware, therefore, that caffeine is an ingredient in cola drinks, for example.) Working with the students, we began a disclosure program of listing ingredients in order of predominance on all our private label products, even though we were not required to do so.

One of the areas first explored by our Nutrition Labeling Advisory Committee was percentage of ingredient labeling. It found that the area posed a host of problems. For example, should

the percentage of ingredients be figured before or after cooking? And what about dehydrated ingredients?

A subcommittee eventually dealt with the technical problems of percentage of ingredient labeling. Instead of attempting to provide the percentages of all ingredients, the group decided to do so only on the major claimed ingredient. Labels would show, for example, the amount of pork in pork and beans (less than 1%) and the amount of beef in beef stew (25%).

Giant decided to disclose the exact quantities of all active ingredients in nonprescription drugs and to make a full disclosure of ingredients in all health and beauty aids bearing the Giant label. This information is particularly important to people with allergies and other health problems. Our health and beauty aids labeling program forms much of the basis for the federal program that was recently announced.

This program, like the others, was developed by a distinguished advisory panel of scientists, educators, consumers, and industry representatives.

We announced each step in the consumer programs to the public in advertisements keyed to the Consumers' Bill of Rights and to the slogan, "We're Committed." Giant's programs have retained their credibility, we think, because the advertising connected with them has been kept separate from our ordinary product advertising.

We have not hesitated to be very frank with the public in our ads. In early 1972, painfully aware that high meat prices were a cause of great concern to our customers, we spoke out about them. We decided to inform the consumer about the reasons for high meat prices and what can be done about them. In what was to become a most controversial ad, we did just that. We pointed out that excessive demand drives prices up, and we told the public about good protein substitutes.

Today, after coming through our more recent and even more disastrous supply and price problems, that ad seems pretty tame. In the climate of 1972, however, the ad incensed cattlemen and their elected representatives. A Congressional hearing followed during which Giant was accused of destroying the American farmer. By the end of the year, however, the industry had gained a more balanced perspective. The ad was selected as the best consumer ad of 1972 in the national industry competition.

In August 1973 we ran an advertisement pleading with shoppers not to panic or hoard and recommending good protein alternatives to buy. More recently, we advised people not to buy sugar. This time, no one protested.

We have made mistakes in our consumer program, but we have not hesitated to admit them in these public messages. Noteworthy was our attempt to label ground beef according to its fat content. We announced a 90-day test and then found that the state of the art would not enable us to obtain measurements of the proportions of fat in each category of ground beef that met our

accuracy standards. So we dropped the system and made our failure known. "The test is a flop," the ad said, and so it was. But we haven't given up; we're now working on a new technique. We have not been harmed when we have been candid. Apparently, people admire those who are not afraid to own up to their errors. This now seems so right and easy. A few short years ago we would have ignored it and hoped that our customers would not remember the failure. It's all part of our "Project Reappraisal."

THE RIGHT TO CHOOSE

It would seem that the implementation of the right to choose would pose no difficulties for a company that offers shoppers a choice of 10,000 items in its grocery departments alone. Yet there are times when the right to choose must be weighed against other considerations.

For example, as we have seen, the desire of some who want certain potentially harmful or hazardous products removed from the shelves must be balanced against the desire of other people to buy them. Fruit-scented cleaning products, foods containing additives, and chemical laundry products are examples. Often the demand for these products is in response to heavy national advertising by manufacturers.

We are also faced with the demands of some who feel that the supermarket is the place to implement social policy actively, such as those who advocate the boycott of certain foods to support various causes. I am often in sympathy with the causes the boycotters support, and I find this a difficult question. However, I have been unable to convince myself that a retailer has the right to refuse to carry a product that consumers want to buy,

strictly on the basis of the retailer's own social or political beliefs.

The most familiar aspect of this dilemma are the boycotts that have been underway since the early 1960's by Cesar Chavez and his United Farm Workers Union. Personally, I am in sympathy with the aspirations of American farm workers. When legislation was passed back in the 1930's, giving industrial workers the right to bargain collectively and providing them with minimum wages and other benefits, the farm bloc in Congress was successful in exempting farm workers. At that time, the income of farm and city workers was not that far apart. In the intervening years, however, industrial workers have become the backbone of the middle class, while farm workers have made little progress in lifting themselves from poverty. I support federal legislation that would right these wrongs, even though it would substantially raise the price of fruits and vegetables for us and for the consumer. I think no one wants to enjoy lower prices by exploiting workers who live near or below the poverty line.

The union, however, has concentrated its efforts on retailers, who are neither their employers or the government. They ask us to refuse to sell to the public those products which are produced by industries they are trying to organize. Many of our customers support the UFW, and don't care to buy grapes, or iceberg lettuce, or Gallo wine.

However, there are even more of our customers who do want to buy these products, and don't want us telling them they can't

buy them.

Do we have a right to tell these customers to go to our competition to get what they have a right to expect in a food store?

This question is complicated further because requests to boycott come not only from the United Farm Workers -- although they get the most publicity -- but from innumerable other groups. Each of these groups sincerely believes its cause is so imperative and so just that they, too, can dictate what we carry and what we do not.

There are few categories of merchandise in our stores that we have not been asked to boycott at some time for reasons other than those related to the quality, wholesomeness or price of the goods.

We therefore adhere to our position that our business is non-political, and we will carry any merchandise which is wholesome and which our customers want.

In the case of the United Farm Workers, however, we have made a special effort to be helpful over the years because of their contribution to the products we do sell in our stores. We have a commitment to purchase products from suppliers under contract to their union whenever such merchandise is available which meets our specifications. We have asked them to supply us with the names of approved suppliers, which they have done on occasion. We have informed the union that we will only buy from others when their approved suppliers cannot fill our needs, and then, only to fill in the shortfall. At one time, most of our product did come from UFW-approved suppliers. Unfortunately, after signing up most of the industry, the UFW subsequently lost most of its contracts, and they now cannot provide us with alternate sources of supply for grapes and iceberg lettuce.

Gallo wine is by far the largest supplier of wine in the country, and was the leading seller in our wine departments. We told the UFW that we could not remove Gallo wines from sale entirely because of the very great demand, but we agreed not to feature it or advertise it. Consequently, our sales of Gallo dropped dramatically, although they are still substantial.

At my initiative, in my capacity as Chairman of the Board of the National Association of Food Chains, representatives of the retail food industry met with Mr. Chavez last fall to improve communications and see if it were possible to identify areas of common agreement. We told him we would support legislation to cover farm workers under the National Labor Relations Act. We also offered

our support for his legislative efforts to stop the flow of illegal aliens into this country. Mr. Chavez told us he would not engage in secondary boycotting, but would engage in informational picketing only at supermarkets, unless the supermarket in question campaigned against him.

Unfortunately, this promise didn't quite work out that way. A couple of weeks ago, fifty pickets from the United Farm Workers appeared in front of our White Oak, Maryland store with signs such as, "Danzansky is a scab," "Giant is a scab" and "Where is Esther?" The mention of Esther Peterson is particularly unfair, because she has been using her good offices as a bridge to government, industry and labor to help UFW achieve its aims. However, they blame her for not being able to "deliver" Giant. The UFW pickets also handed out a scurrilous leaflet about us which abounded in falsehoods.

All in all, I guess it was an improvement over several years ago when pickets showed up at my home and my synagogue carrying signs reading, "UGF Chairman Danzansky kills little children in California" and demonstrators threatened to pour blood on our produce. We obtained a Court Order preventing this kind of protest.

THE RIGHT TO BE HEARD

This leads us directly into the next consumer right -- the right to be heard. In the case of the farm workers, there's no doubt that this right is being exercised.

In meeting our commitment to this consumer right, we have been careful to separate out those whom I call the "consumer demagogues" -- the usually self-appointed spokesmen who are short on expertise and long on rhetoric. The consumer representatives we

rely on are generally the elected officers of bona fide groups and are recognized authorities in the field. They form the backbone of our various consumer advisory committees and ensure that the consumer's voice is heard by our company on every important issue -- and on some that are not so important.

There are some who believe we ought to embrace the demagogues, too, to keep them happy and to buy them off. However, we have been committed to a genuine program, based on substance and not appearances. We do not want to waste time on those with personal hangups or political motivation.

Early in our consumer program, when Esther Peterson was putting together her advisory committees, she was approached by one of the questionable consumer spokesmen who wanted to be on her committees. She was told that since she represented a political party and a second politically-oriented group, we couldn't include her because we didn't want to compromise the objectivity of our program. In later discussions, still smarting from this rebuff, she told Esther Peterson, "Tell Joe Danzansky that he is going to have to deal with me -- and at the national level."

She then set about to fulfill her promise, and has since conducted what appears to be a vendetta against Giant. It is she who has promoted the spurious charges of monopoly and oligopoly against us, charges that were discarded by the Federal Trade Commission a couple of years ago as being without merit. She and her friends put so much political heat on some members of Congress and FTC that they were forced to reopen the investigation. We're

going to cooperate fully with it -- but it is going to cost our company and the government substantial sums of money -- money that comes from you as taxpayers and as food shoppers -- and the results are going to be the same: a dry hole.

To give you an idea of the mentality of this gently brought up young lady, who herself is a member of the Washington establishment, is a Smith graduate and who claims to have majored in the Existentialist Predicament, I would like to quote a few words from some of her Congressional testimony last year:

"I can tell you, however, that this cruel and inhumane condition of inordinately high food prices cannot be tolerated much longer by D. C. shoppers. Since our past city government officials, some of whom continue in office, have been totally unresponsive to this problem and our federal officials have responded in a negative manner and our supermarket officials connive to continue this intolerable situation, the frustrations of our D. C. citizens may again break out in a most devastating manner. We will not be controlled by more policemen on the street. We will not be appeased by the purchase of a new baseball team. We will not be deceived by donations of food to poor people in campaigns or by training sessions for D. C. jail inmates. The D. C. citizen can only be satisfied by the breakup of this terrible supermarket monopoly which impoverishes and humiliates us both spiritually and monetarily."

Parenthetically, the Washington Metropolitan Council of Governments held in-depth hearings on food prices recently, in which we and this young lady both participated.

After considering all the evidence, COG adopted a report last week, which said, in part, "The COG Food Prices Committee, after reviewing testimony presented at the Forum and other information obtained later, concluded that Washington area supermarket chain prices are no higher than many other areas, particularly large metropolitan areas on the East Coast. In some instances, where supermarket prices are higher here than other places, the differences are caused by higher wages and/or by higher transportation costs. The Committee said existing information does not demonstrate that Washington's supermarket prices are excessively high."

I will return to this subject in a few minutes, but first, I would like to mention some of the other steps we have taken to ensure the consumer's right to be heard.

An essential part of our commitment to this right is a good system for registering customer complaints and for having them acted upon promptly. An effective program requires immediate attention to customer calls and customer mail. Our Customer Service Department and our Consumer Affairs Department handle all customer correspondence and calls, using no form responses. This is no mean feat, considering that we receive about 30,000 customer calls a month, and about 300 letters. Product complaints are immediately referred to our suppliers and our laboratory, which send the customer a report.

THE RIGHT TO REDRESS

We experienced little difficulty in implementing the right to redress. The food retailing industry offers an unconditional, money-back guarantee on all products.

Some customers do abuse this right. For example, our store managers often make refunds on items that were sold by our competitors, not us. The managers are instructed to make refunds without comment, in order to avoid embarrassing customers. In my opinion, however, responsibility is a two-way street. Losses from these unjustified returns - as well as from pilferage - eventually are reflected in higher retail prices.

Do we have regrets about launching our consumer program? What seemed to some people to be a highly risky alliance has turned out to be a breakthrough for consumers as well as a competitive asset for our company. Furthermore, in these times of shortages and inflation, our forthrightness with the public has sometimes earned us a more sympathetic ear for our side of the story.

On balance, therefore, I must say that we are glad we have such a program and would do it again if we had a chance to retrace our steps. And, we plan to continue the momentum our consumer programs have developed.

This is not to imply that our satisfaction is unequivocal, however. Until a very few months ago, I would have told you that our faith in the rationality of the responsible leaders of the consumer movement was virtually limitless. We had buil mutual faith and confidence in each other based upon a step-by-step joint approach to mutual areas of concern -- or so we thought. In retrospect, however, it seems that the rationality and responsibility of some of the consumer leaders we have been working with stopped at the water's edge. So long as we were able to agree with them about the big issues, as we did almost without exception during the first four years of our association, they were accommodating and flexible about details. When a major difference of opinion finally did arise, however, the relationship we thought we had forged suddenly seemed to evaporate and we were back to the confrontation politics of five years ago.

After building the substantial consumer track record I have described to you, we felt that we had earned the right to expect that should differences arise with our consumer representatives, we would be entitled to treatment somewhat different from that which might be accorded another company which had not been a pioneer in consumer cooperation.

We thought that it should be possible to decline to accept one of their suggestions without having them rush back to the barricades. In short, we thought that it was understood that give and take involves some giving on their part as well as taking.

A year ago, Giant decided to be one of the industry pioneers in testing what may be the biggest breakthrough for both the retailer and the consumer since the invention of the supermarket -- the computer-assisted checkout system. Once we decided to go into the system, we involved consumers in our planning. They had about 17 questions or concerns about the equipment, ranging from some apprehension about the safety of laser beams to the issue of personal privacy. We were able to come to a common understanding on all these concerns -- except one. That was the issue of whether our company should be allowed to test, in one store, how much money the company and the consumer might be able to save if individual prices were not stamped on all individual packages. We had developed a vastly improved shelf marking system and a detailed customer receipt tape listing most items by name, instead of just by department. For example, the tape now reads, "Jello 2/49" instead of "GR 2 for 49," (the GR standing for grocery). We wanted to test both the savings available,

and acceptability of such a new system to consumers. We promised to open a second test store with prices on the packages. We offered to let the consumer groups pick their own independent researcher to evaluate the test, and said we would be bound by the results.

A number of our consumer advisors flatly refused to agree to a "no price marking" test. They declared that the issue of price marking was "not negotiable." They then began a concentrated effort to secure legislation at both the local and national level to prohibit us from conducting the test. They began an effective media campaign against us. They picketed our new store when it opened, handing out an inflammatory pamphlet in violation of an agreement that both the company and the consumer groups would show each other all literature in this subject prior to publication. The consumer advisors had been permitted to make many changes in our explanatory film and handout, and at their request we agreed not to run any ads about the new system to avoid prejudicing consumers during the test, but they did not show us their material.

When the consumers' violation of our agreement was brought to their attention, they apologized but refused to let us suggest changes in the handout, or to consider having it revised. We then ran an explanatory ad to counter the pamphlet, which the consumer groups attacked as a violation of our promise to them!

We were stunned by these developments. Then we undertook to counter their drive in the Maryland legislature to ban our test. It has been an uphill battle, but I think we are going to win. We

believe it is important to win this battle, not only because of the potential of the new checkout system, but because we think we must prove that cooperation, not confrontation, is the wave of the future and the present.

The consumer representatives who have opposed us on this issue have been joined by some labor people in spite of our agreement with labor that no one will lose his or her job because of this new technology. Shades of featherbedding! Increased productivity is our only hope for lower food prices. True consumerists must be militant in their position against any practice that will build in unnecessary and artificial costs which are ultimately reflected in retail prices.

So, here we are, four years after beginning our consumer program, licking our wounds and wondering what went wrong. I must admit that those of us in our company who advocated this approach to consumers are being reminded, "I told you so" by those who were skeptical back in 1970. Internally, our program of dialogue with consumers has been set back. We have to start all over again in our efforts to win over some key executives of the company. They feel that they have been badly burned and that their good faith has been abused, with some merit.

However, we are big boys and we know that the consumer movement is in its adolescence, if not in its infancy. We are inclined to let bygones be bygones. Our hand is out, and we hope our new self-styled adversaries will see fit to grasp it. Confrontation may get headlines today, but it has no future. In any event, we are going ahead with our consumer program because it is right. Bloody - but unbowed!

I think we can perceive some parallels between the consumer movement today, and the labor movement of a half-century ago, and the civil rights movement of just a few years ago. In each of these great movements, the time was ripe for an underrepresented group of our citizens to achieve rights they had been denied. The first and hardest steps were taken by great men and women with vision and maturity with a grasp of the great sweep of historical currents. In labor, there were people like Samuel Gompers, in the civil rights movement there was Rev. Martin Luther King, and in the consumer movement, there were and are Esther Peterson and Ralph Nader. In each of these movements, once the early struggles are won and a degree of success is achieved, the "phonies" rush to enter the field. For a while, they may seize the spotlight with their flamboyant rhetoric and often violent programs, and they may win large followings. Then, almost as rapidly as they burst on the scene, they disappear as their followers discover the inadequacy of their easy answers to complex programs. Then the movement settles down to quiet and almost dull pragmatism. Labor

gets on with the one-on-one job of organizing and negotiating. The black liberation movement forsakes violence for economic development. And, I am confident, so will the consumer movement shake off its amateurism and occasional demagoguery in favor of the hard and unspectacular job of working with and within business to fulfill the promise of marketing as espoused by Peter Drucker.

As for the businessman, he is in for some hard days ahead. Except for a few brief periods in history, the businessman -- or trader -- or merchant has not received a good press. Perhaps the public view of our profession can best be demonstrated by the fact that the ancient Roman god Mercury was the patron of merchants and thieves. This attitude is to be expected. No one enjoys forking over his hard-earned cash to anyone, and the merchant is usually the recipient. The customer doesn't know or care that the merchant isn't going to be able to keep most of that money. All he knows is that is where the money goes.

This is the reason why food retailers are so frequently and so bitterly attacked in times of economic distress. The average person is convinced that we are getting rich on escalating food prices. The truth is that we are really profitable only in times of price stability. In time of inflation, we tend to absorb many increases from our suppliers, for fear of upsettingthe public. So while prices soar, our margins plummet. A good example of this is beef. The cattlemen complain loudly that the retailer is charging more while they are getting less. The unfortunate truth is that we lose 9¢ a pound on beef at Giant, in 1974 and since 1970, we have never been

able to achieve the profits that were permitted to us under the Cost of Living Council's historic guidelines.

The problems posed by the economic situation have been greatly compounded by Watergate. Despite all our corporate good deeds, from feeding riot victims and participants in the Poor People's Campaign to helping minorities to raising 27 million dollars for the United Fund, our integrity today is being called into question constantly -- and often by people who know better.

This has been very unsettling for us. We have been totally committed to corporate good citizenship since our founding in 1936, and it took a while to grasp what was happening to us.

I am afraid that for the foreseeable future, the burden is going to be on us to prove again and again that we are not beating our wives.

As John Garner has observed, "We Americans are great blamers and villain-hunters, indeed, villain-inventors. We have often found it more convenient to blame the problems of our time on the actions of others rather than accept any of the responsibility ourselves."

We in a democracy get the leaders and the government we deserve. In the final analysis, we have to start in our own hearts, whether we are businessmen, lawyers, any other professionals

or just plain folks. We have to recognize the pettiness, selfishness and cruelty that we find in some degree in each of us, and root it out. We will get a better country when we deserve it, and when each of us is the kind of person we expect our leaders to be.

This, then, is the reappraisal of our role in the American scheme of things that we are going through. It is agonizing at times; satisfying, when it appears to work; but always necessary in today's climate. No more "Daddy knows best," but we also have the right to request a two-way street. Here the professional consumers must reappraise their role. Are they to adopt as their principle Samuel Gompers "More," or is it to be Isaiah's "Let us Reason Together"?

We have passed through a period of terrible trials, and more are still ahead. But I have no doubt whatsoever that we are emerging from a period of national catharsis, and that our 200th birthday is really going to be the beginning of a rebirth of American values. If we truly believe that, we will be halfway there in our efforts to make it come true. If we are to overcome our obstacles, we must retain a certain buoyancy and optimism, the sense of confidence that Kenneth Clark has defined as the hallmark of civilization. Perhaps Dr. Martin Luther King summed it up best when he said, quoting an old country preacher, "Lord, we ain't what we want to be. We ain't what we're gonna be, but thank God, we ain't what we was."

The Testimony of Mrs. Ann Brown

Chairman of the Consumer Affairs Committee of the

D. C. Democratic Central Committee and Americans for

Democratic Action

before the Employment and Economic Development Committee

of the Council of the District of Columbia

July 23, 1975

I cannot believe that I am here today to defend what should be an inalienable right of consumers: the price-marking of individual items in District supermarkets. Our Consumer Affairs Committee has no objection to the coming of the Universal Product Code. Coming it is! It is the wave of the future and we have no intention of putting a finger in the dike to try to stop the onslaught. But, in a period of high inflation, of high unemployment and of economic distress, I cannot believe that the supermarkets wish to take away one of the consumers' remaining weapons, that is, price consciousness.

If having prices marked in a comprehensible manner on individual items is important in most areas of the country, it is an absolute necessity in such large city areas as Washington, D. C. The supermarkets have told us that instead of individual price-marking we could look at the unit price shelf tags to find out the

prices of items, or we could mark our individual items with a grease pencil. The absurdity of such suggestions for people in the District of Columbia absolutely boggles the mind.

Picture the busy family shopping on Friday night for the coming week. Perhaps the children are in tow or perhaps the children are doing the shopping. Or perhaps it is after a long day's work and the husband or the wife is at home waiting for dinner. The supermarkets are asking that the District shoppers march around the supermarket with a little grease pencil doing the work of the supermarket by marking the prices themselves on the cans and packages--jostling to the shelves to see what the prices are and marking them down. I think you get the picture.

The other aspect is that unit pricing is an excellent tool, a concomitant to individually marked prices, but it cannot stand alone. It is complex and difficult for any consumer to understand and use well, especially in the District of Columbia where many shoppers do not have a Ph.D.

In my jaundiced view it appears as if the supermarkets purposely are plotting to dull the pain of constantly rising prices for the consumer...to mitigate the criticism and activity about rising prices. If the consumer can be lulled into not knowing what the individual prices are and into not being aware of how much the prices are going up, certainly some of the pressure will be off the supermarkets to keep control of their prices as best as they can.

It is not just the individual shopper for whom supermarket personnel want price information to be a well-kept secret; it is for the federal government as well.

The Federal Trade Commission is conducting an investigation of pricing practices of retail food stores in six cities in the United States where the market

is monopolized to see if the system is unfair to consumers. Washington, D. C., is one of these cities. But Supermarket News reported on July 14, 1975, that six food chains refused to cooperate with the Federal Trade Commission's probe of retail competition. Two of the six are our own local chains: Giant Food and Safeway Stores, Inc. These chains are so fearful of divulging price information that the Federal Trade Commission has had to resort to issuing subpoenas to get the necessary information. And now the chains in desperation have filed motions in Federal Court to quash the subpoenas. Such legal maneuverings have brought the Federal Trade Commission investigation to a standstill and a period of "protracted litigation" is expected. These are public companies, yet they fear the light of public scrutiny of their pricing practices. What have they to hide?

Such suspicious corporate behavior is right in line with the policy of removing individual price-markings, effectively leaving the D. C. shopper in the dark about chain store pricing practices.

When supermarket personnel claims that elimination of item price-marking would save the consumer money, they are double talking. Terry Hocin, Deputy and Assistant Director of the Chicago, Illinois, Department of Consumer Sales, said on July 11, 1975, that "his inspectors had found items that were not price marked were selling for more than items that were." What the public doesn't know (about prices) will hurt them!

Do not believe that we are talking about a problem that will not be relevant to the District in the year 2000. The industry is going to convert as fast as possible to this new system because of the infinite benefits it will reap--benefits that are great even with the inclusion of item price-marking.

The Universal Product Code system is currently in use in a Safeway Store in Texas. Rumor has it that within a year's time the system will be coming to Washington, D. C. We therefore must pass this proposed legislation before installation of the new systems so that the industry cannot claim that it has too big an investment to try and change one aspect such as marking prices.

This City Council has shown itself to be responsive to the needs of the people, not to the vested interests. Here is another example of a time when the people have had acute interest. We consumer advocates have been fighting for so many things for such a long time--for open dating, unit pricing, nutritional labeling. But here is an issue that hits at the guts of every consumer's right: the right to know what he or she pays for the item he or she buys.

Imagine going into a restaurant and seeing the prices after a fleeting look at the menu, ordering what you want and when the bill is presented it comes in one lump sum. Imagine that there would be no itemization of individual prices at The Hecht Co. when you buy several things. This would be an intolerable situation, especially for buying that necessity of life, food, at a time when D. C. citizens can hardly afford to eat.

I will now go into some of the details of the Universal Product Code and why individual price-marking is essential.

As I have touched on, these are the immediate problems of not having individual price marking on items in the supermarket. First of all, this is an invidious method of reducing price consciousness, of reducing awareness of ever-rising prices and, perhaps, a way to stop consumer complaints. There would be no way for the shopper to measure the upward climb of food prices.

Second, the loss of price marking on individual items would eliminate the consumer's ability to compare the price-mark on a newly purchased item with the price-mark on an earlier purchased item in the home pantry.

Further, consumers would not be able to compare the price-mark on an item in the cart with another item on the shelf. You'd have to run all over the supermarket clutching your can of peas to go to the frozen food counter to see whether the frozen peas or the fresh peas were the better buy.

Another objection is that the price and product name are flashed on the screen as the item is scanned. But the idea of speeding up the system is that the checker is able to use a two-handed motion to slide the product over the scanner and into the bag simultaneously. The hand is quicker than the eye, you know, and the consumer will probably miss seeing a lot of the prices.

Now I ask you to imagine how easy it would be to raise prices. By merely a snap of the computer instantaneous price changes could be effected. What could prevent an individual store manager, who might be immoral, from raising prices the day that welfare checks come in? Or to try and cover up some hanky panky by raising prices in his store? The consumer would be at a loss to check this out. There might even be an instantaneous price change between the time you pick up the item on the supermarket shelf and the time you get to the checkout counter.

Supermarket personnel have given us several responses to consumer objections. First of all, they suggest that consumers retain the long receipt tape which would come out. Then, they say, it would be possible to track price changes on all items routinely purchased. I ask you to picture trying to find your receipt slips to begin with. In my house we can't even keep a supply of string,

but here we are asked to keep a good record of all those long receipt slips. If you do keep your receipt slips, then you have to find the right receipt slip for the item you want to look up. The brand name, the size and the quantity of the item are not included on the receipt slip. What would be included would be "baby food 29¢." Since the item description must of necessity be limited to twelve letters, I think you can see the impossibility of using the receipt tape as a way to track price changes.

I have already talked about the ludicrous solution of grease pencils in the stores to mark individual items yourself. First of all, the stores are asking us, who pay these impossible bills anyway, to do the work of their staff, but we are not to be paid for it. This we refuse to do. The stores have said the reason they do not wish to mark prices is because they won't save as much money. But certainly grease pencils must cost something, too, and you can imagine their rapid disappearance from the stores.

The stores say that one advantage of this new system to consumers is that they would save time because the checkout system would be so much faster. However, if consumers have to line up to get near a shelf and jostle all the other shoppers in order to mark the price on the individual item themselves--and multiply this by each item purchased--you can see that more time would be lost.

Supermarkets have claimed that, in the absence of prices on the individual items, consumers will be able to depend on the shelf prices, that is the price marked near an item on the shelf. It has been a truism that shelf-price marking has been notoriously bad, both because of human error of supermarket personnel and because consumers do tend to pick up an item and then put it down someplace else. In a 1969 survey the Federal Trade Commission said that the survey showed serious

problems with mismarked, misplaced, unmarked and illegible shelf prices. A Federal Trade Commission staffer told me that at the opening of the Giant Food store in Severna Park, Maryland, the staffer found several mistakes in shelf marking at this opening when one would expect everything to be letter perfect in order to make a good first impression.

Giant Food Stores have an excellent reputation in the area of consumer concerns throughout Metropolitan Washington. One wonders why Giant is endangering this good reputation by making such an issue of this problem when, in effect, they could continue to give the consumer what he wants and at the same time make a good profit. It is my opinion that Giant, in the long run after this awful experiment in Severna Park, Maryland, will come around to the consumer point of view: will use the Universal Product Code but will include the prices on idividual items. I have confidence that this corporation will do this public-spirited thing.

Certainly the Consumer Advisor to Giant Food, Esther Peterson, has publicly maintained a "discreet silence" about removal of price-marking. At one demonstration session in Severna Park, Maryland, of the new system I asked Mrs. Peterson if "in her heart of hearts she could truly advocate the removal of individual prices in supermarkets in this area?" Mrs. Peterson stated directly and publicly that she wished the experiment had been run the other way around; that she wished that the prices had been left on in the first experimental store. She then added, "We must wait and see." This must be a very difficult position for Mrs. Peterson--to be trapped in the middle by a corporate interest that is certainly not in the best interest of consumers.

If Giant decides, as I think they will, to maintain individual price-markings on items, how do we know that other chains in the City will maintain price-markings? The supermarkets are all going into this because of the almost endless benefits they will reap. As soon as the equipment becomes available the supermarkets will begin to convert, both in D. C. and in the rest of the country. The Washington Post quoted a Safeway executive as saying, "There's an electronic checker in the future of every chain." Mr. Robert Sloat, Vice President, Retail Operations, Foodarama, told the New York Grocery Manufacturers representatives last February that, "Unless something drastic happens, nothing is going to stop the implementation of scanning." So it is necessary that we do not allow Giant to set an example for the rest of the supermarket chains in the country of implementing the scanning system without price-marking individual items. Furthermore, it is necessary to protect the District residents from other chain implementation of scanning without item price-marking.

Let us consider some of the economic aspects of this new system to explain why supermarket chains are so anxious to convert to it.

The main reason for converting is profits. It has been explained that there are savings, both "hard" and "soft", for supermarkets on this investment. The hard savings are estimated as bringing a 30 per cent return on investment to the supermarket. The soft savings will bring another 30 per cent return on investment. Together they should bring a 60 per cent return on investment to supermarkets. Supermarkets annual savings due to installing this new system have been estimated at $149 million.

Now who do you think is paying the $150 thousand installation costs per store? Naturally the consumer is paying and you can be sure that this will be in the form of higher prices. The supermarkets have been poor-mouthing it for years, saying they make less than one per cent of sales. If they are so anxious to jump in to this very expensive new kind of equipment, one wonders where they are getting this enormous amount of capital for investment.

Despite the anticipation of fabulous savings by this new system, there has been no solid talk about passing any of these savings on to consumers--no real conversation about reducing prices. The supermarkets may in fact charge higher prices while the consumers are paying for the initial start up costs. When the equipment is paid for the supermarkets may in fact gobble up returns on the investment. When is the last time that you can remember that prices, because of some special buy, went down for any period of time? Business Week of March 31, 1975, said, "Chains have avoided saying profits will be passed on to consumers."

Now let us look at the cost of price-marking individual items in the supermarket. Grocery manufacturers said at a hearing on the Universal Product Code in Denver that only 10 per cent of a clerk's time was spent putting labels on products. The cost of price-marking should equal less than 19 per cent of the expected savings of supermarkets. The cost to price-mark per store has been estimated as follows:

> The savings without individual price-marking per store would be $34,000 per week.
>
> The savings with the individual price-marking included on the items would be $23,000 per store per week.
>
> The cost to price-mark per store per week would be only $225.

In the whole scheme of things, this cost is relatively minor. Supermarkts can save oodles of money by this new system and, in fact, have promised greater efficiency for consumers. Why must they be so greedy as to have every last dime at the expense of a major tool for consumer's price information?

A valuable article which I am including with my testimony is called, "Packages without prices is like shopping with a blindfold." It was written by Bill Nigut who was Assistant Director of the Supermarket Institute from 1948 to 1956. So you see, he is from the supermarket industry. Nigut says, "...the industry, according to its own data, can switch to the new equipment, continue marking prices, and still profit handsomely from the major benefits inherent in it."

Nigut paraphrases Mr. Sloat's comment that if a chain can stop price-marking each item, it can get about a 35 percent return on its investment in the new checkstands; with price-marking, the return on investment is about 25 percent, "still within the realm of possibility," and that return is hard savings only. The real payoff to the industry will be in terms of "soft savings," went on Nigut. Members of the supermarket industry were reminded at their 1972 annual convention that "You have heard McKinsey and Co. say repeatedly that they believe the soft savings will be greater than the hard savings." When McKinsey and Co. talk, people listen.

The reaction of consumers to the fact that prices may be removed from individual items in the supermarket has been violent and aggressive. Naturally, consumer advocates were the first to talk about this kind of thing because they were aware of the plans of the supermarket before their implementation. As

people became aware, in different test cases, of the loss of item price-markings they reacted, too, with some distress.

When Giant Food says that they are testing one store with prices on and one store with prices off to see consumer reaction, it is absolutely incredible. It reminds me of an incident that took place recently among my mother and my children. My mother, who is above uncleanliness, asked them, in all seriousness, whether they would rather stay home and wash their hair or whether they would rather go to the circus. My ten-year-old looked up at her grandmother and said, "Are you kindding?"

That is exactly the question we must ask Giant and all the other supermarket personnel. Are you kidding? Can you possibly believe that consumers would choose to have the prices removed from the items they are buying? Perhaps in a survey managed by Giant Food (or a firm that they pay) the answers might come out looking doubtful. But certainly consumers, really given the choice in an unbiased way, would have to prefer price-marking over no price-marking.

In a recent survey compiled by the Maryland Citizens Consumer Council in nine Maryland counties and Baltimore city, 93 per cent of those questioned said they compare price changes when they put their groceries away.

In a 1974 national study of the 37 most important characteristics of the supermarket, "all prices clearly marked" ranks second only to "cleanliness" as a major concern of supermarket shoppers.

The New York Times, on October 3, 1974, conducted a spot check at a Pathmark Supermarket in South Plainfield, N. J., which was experimenting with

the new Universal Product Code. The New York Times found that all shoppers surveyed felt the waiting time with the new system was shorter, but, "all objected to the possibility of not having prices on individual items."

For the supermarkets to say "Give us time to see what the consumer favors" is simply a stalling tactic designed to stonewall the opposition and eventually lull them into complacency. Giant executives have said that a majority of consumers are endorsing the new system without item-pricing and gave the newspapers estimates of a number of cards pro and con. This reminds me of the old Nixon estimates of telegrams pro and con on the Vietnam war.

Never has an issue so united all consumer advocates. The consumer movement is certainly no monolith and has much disagreement among advocates on the validity of this reform or that reform. On the question of item price-marking, there has been no divergency of opinion. I am including for the record a pamphlet put out by the Consumer Federation of America, which represents many consumer organizations in America, a pamphlet entitled "A New Supermarket Ripoff: Packages Without Prices."

Not only have consumer advocates outside of government been absolutely adamant on the fact that individual items must be price-marked, but local, state and federal agency consumer advocates have also been absolute on this topic. Even Virginia Knauer, who has not been the world's most adventuresome consumer advocate, has come out publicly as being in favor of item price-marking in the supermarkets.

When I say that the consumer personnel on local, state and federal consumer agencies have been universally in favor of retaining price-markings, I am mistaken.

There is one head of a consumer agency who has been favoring a wait-and-see attitude, who has been suggesting that we let the supermarkets try their tests without price-markings, who has not seen the urgency of retaining price-markings for the citizens he attempts to represent. And that, of course, is the head of our own D. C. Consumer Affairs Department, Mr. William Robertson.

Mr. Robertson, in the past, has seen his job as the man in the middle--one who brings together the divergent interests of business and the consumer. However, on this issue his position characterizes him as an anticonsumer advocate actively working against the consumer interest.

Here are some statements from the heads of other consumer agencies.

In California, the head of the State Department of Consumer Affairs urgently supported item-pricing legislation both in a personal appearance at a hearing and by means of a special press release.

In New Jersey, the Consumer Affairs Director of the State, Virginia L. Annich, came out strongly for item-pricing, saying, "People will never give on no item-pricing because when you get home with your register tape you'll have nothing to check it against but your memory."

In Suffolk County, New York, the Commissioner of Consumer Affairs, James J. Lack, expressed his interest this way: "The question of pricing has raised the greatest amount of consumer concern as indeed it should. Removal of prices will not only prohibit comparison price shopping by consumers but necessitates that there should be a completely accurate point-of-sale price shelf-system."

Ms Lori Velco of Skokie, Illinois, guided an ordinance through the Village Trustees that requires prices remain on individual items in the supermarket. Ms Velco said she had no objection to scanning, just to elimination of prices on products.

Terry Hocin, who I identified before as Deputy and Assistant Commissioner of the Chicago, Illinois, Department of Consumer Sales, proposed an ordinance requiring not only item price-marking, but also going much further. His Department's proposed ordinance also would make mandatory unit pricing and would require advertising specific information about all supermarket's special sales and special signs within supermarkets to direct customers to such sale items.

These were examples of the consumer advocate within government advocating what is the best interest for the consumers each represents.

Now Mr. Robertson, when pushed by the business-oriented Advisory Committee of the D. C. Office of Consumer Affairs, finally agreed to conduct a survey in Giant Food store in Severna Park, Maryland, to see whether consumers really want prices marked on individual items. One guesses that this will be done under the close supervision of Giant Food personnel. Further, we would like to question just what the opinions of the citizens of Severna Park, Maryland, have at all to do with the opinions of the citizens in the City of Washington, D. C.. These two communities are quite different. Don't you agree that this is another stalling method, another way of trying to pacify consumers rather than advocate for their interests?

I fervently urge the passage of this Regulation, but I do think it should exempt stores under 3000 feet. This is only for the big supermarket chains.

We are not seeking to penalize the Mom-and-Pop stores.

Obviously, such legislation is the wave of the future. The State of Connecticut has passed such a law. Rockland County, New York, now has such a law. There are bills pending on this in 19 other states and in the Congress of the United States. Surely if the constituents of these states and of these Congressmen were not anxious to retain price-marking, the Congressmen would not be proposing such a law.

Let me emphasize that supermarket personnel do not present a united front on this topic. There have been some chains that have tried a checkout scanner system in their stores, while continuing to price-mark each item. An item in Supermarket News (November 11, 1974) said Wegmans Supermarket of Rochester, New York, was testing the IBM system, but included the price-mark on each item. "The decision was made," said Wegman personnel, "last summer after an evaluation company conducted studies analyzing the dollar-cost of price-marking. This was combined with customer concern about inflationary price increases and led to the policy to continue price-marking all merchandise."

Again in Supermarket News (October 7, 1974), Ralph's Supermarket of Los Angeles was reported as testing the scanner system with the prices on individual items.

The Brockton Public Market in Boston is testing the system but said that all products will remain price-marked.

Surely our conscientious consumer-oriented stores in the Washington, D. C., area should do no different than any of these aforementioned markets.

It is beholden upon this first elected Council of the District of Columbia to insure the minimum protection of individual item price-marking to the city's consumers.

Attachments to submitted copy of testimony:

1. "Packages without prices is like shopping with a blindfold,"
   May 1975, pp 11 and 12 - Retail Clerks Advocate

2. A New Supermarket Ripoff: Packages Without Prices
   Consumer Federation of America
   1975, 10 pps with cover

3. Selected items including "The Automated Checkout Counter is Coming: Some Things You'd Better Know About It Now"
   Media & Consumer
   1975, 3 pps

REMARKS BY JOSEPH B. DANZANSKY, PRESIDENT, GIANT FOOD INC., BEFORE THE U.S. SENATE COMMITTEE ON COMMERCE, SUBCOMMITTEE ON THE CONSUMER, NOVEMBER 3, 1975.

Dostoyevsky once wrote, "taking a new step, uttering a new word, is what people fear most."

No one really likes that which is new. It forces us to change, to question the way we have been doing things, to substitute the comfortable and the familiar for the unknown and perhaps the unpleasant. And, the more unhappy and insecure people are, the greater the resistance to change and to the possible multiplication of unhappiness.

The advent of the computer-assisted checkout is something new, different from the other changes that have been taking place in the marketplace over the years. Most of the other changes -- larger stores, greater selection, new methods of merchandise presentation, have been advances along a familiar line and were accepted if not welcomed. The computer-assisted checkout, however, has caused a wrench in our perceptions. People fear that which they do not know.

This was vividly demonstrated for us last week when we tabulated 1105 customer comment cards that had been filled out by our customers and sent to our office. These cards came from the two stores with the computer-assisted checkout system, as well as from the other Giant stores which do not have the system.

In those stores where customers had not been exposed to the computer-assisted checkout, only 29% were favorable toward the system, while 62% wanted individual item pricing.

In the Glen Burnie store, where the system is in operation with prices on, 93% liked the system and 32% wanted to keep individual item pricing.

In the Severna Park store, where the system is operating with prices off, 85% liked the system and only 25% wanted item pricing.

The potential removal of prices has only become a rallying cry because most people have never shopped in a computer-assisted checkout store. If the Congress were to act now on the basis of this widespread misinformation, I respectfully submit that you might very well be acting to burden the American consumer with unnecessarily high prices, less efficient service, and a less productive food distribution system. No one would really benefit from such a development.

I am not here today to tell you that price removal is the way our company will ultimately go. We do not know yet. At present, we have one new store with computer-assisted checkout with prices off, and an identical store with prices on. One store has been open only since February, and the other only since July. Last month, we converted an existing store, and left prices on. Next week, we will open a new store in Richmond, Virginia, with the new system, and prices will also be on.

We do not come today to ask you to decide whether prices should be on or off. We are here to ask that you refrain from aborting a testing process that may ultimately provide great benefits for the American people.

At Giant, we are carefully testing and monitoring the new system from every angle, including the price marking issue, with ongoing input from consumers.

The industry as a whole has commissioned a major study by Michigan State University to find the answers to many of the legitimate questions posed by consumers, and consumer leaders are having a continuing input into that study.

Many proponents of legislation have quoted industry figures to prove that benefits to consumers will be only about a quarter of the projected savings, and that these savings can therefore be sacrificed in favor of mandatory price marking. Please remember that the figures quoted are only guesses. The purpose of the testing that is now going on is to demonstrate whether in fact those estimates are accurate.

Before we opened our Severna Park store we brainstormed the potential with our suppliers, the IBM company. We arrived at some projections of potential savings by studying methods and productivity at an existing Giant store back in the fall of 1973 and making some assumptions and extrapolations.

Given these caveats, we originally estimated our potential savings at about $10,000 per month per Giant store. Of this, we estimated elimination of price marking could amount to perhaps 18 1/2% of total projected savings.

But as we told all of the people who were looking over our shoulder (consumers, media, legislators, labor and our colleagues) we were testing.

While it is much too soon to release any test results at this time, I do feel confident in telling you that so far, our projections have proved to be considerably off the mark. We will know a lot more in about 6 months. And, we are pledged to share the results of our tests with government, with consumers, with labor, and with the general public.

There is, of course, legitimat concern over the impact of such a new system on the jobs of our people. We know there will be changes. The test is whether we, as a society, can test new and better methods and still maintain employment. There are no easy answers to this challenge. We do believe that our checkers and our stock clerks have a right to job security. That is why we gladly negotiated a contract with the Retail Clerks Union guaranteering that none of the members of our staff would lose their jobs because of the computer-assisted checkout. So jobs for people who now have jobs are really not an issue here. The issues are twofold:

First, should we be allowed to test a system that knowledgeable people believe can increase productivity, improve service and help to moderate the rise in food prices?

The second issue is whether, under the system now being tested, the consumer will have adequate price information.

Let me assure you that we are absolutely committed to the consumer's right to know the price of each item at the point of purchase. The consumer also has the right to be able to compare prices while shopping. The consumer has the right to

know the prices as they are being rung up at the cash register. And, the consumer has the right to know the price of each item at home. We would never even consider price removal from the individual items unless we were confident that these rights were being protected and safeguarded. To ensure these rights, we have built several features into our new system.

The most significant, tangible improvement is the new register tape, a copy of which is attached to this testimony. The new tape includes an understandable description of each item; the price of each item; whether the item is taxable; a record of credits and store coupons; a record of the total tax; the amount tendered; food stamps due and paid; and the change due the customer. The tape also shows the date, time, store number and checkout lane for that customer's transaction. Customers thus have a receipt tape they can use in budgeting and in keeping household records. Now, if they so choose, they can keep track of how prices vary from week to week, and they can circle an item on the tape and check back weeks -- or even months -- to see the price history of the products they buy. Parenthetically, they can now go next door to our competitor and see how our prices compare.

Another improvement is the new unit price label, a copy of which is also attached to my testimony. We learned from our consumer advisory group that the unit price labels we were using could stand improvement in terms of readability and reliability. Our new label program is now in effect and I

think it's the best one anywhere. In stores with the new computer checkout system, we are building in fail-safe procedures which eliminate errors as far as it is humanly possible to do so. The system is far more error-proof than price marking. There is no shelf drift. No price changes are allowed unless the unit price label has been changed first. All prices are changed from our headquarters' computer overnight. Store personnel do not have the capability of raising prices at store level.

As for other trade-offs, we hope that the system will prove to be quicker, more accurate and will help to provide better service through personnel scheduling and inventory control -- we're testing to find out. These are improvements which would benefit both Giant and the consumer.

If the system does result in meaningful dollar savings, those savings will be shared. Perhaps the consumer will receive the benefit and convenience of more service departments, which will also create more job opportunities. Perhaps the savings will come in the form of lower prices. Undoubtedly the system will result in faster service at the checkout. In all probability, if the tests are successful, the result will be a combination of these benefits.

An important observation should be made about the proposed bill. It is drafted on the erroneous assumption that all items in food stores today are price stamped.

An important observation should be made about the proposed bill. It is drafted on the erroneous assumption that all items in food stores today are price stamped.

Traditionally, supermarkets have had a list of items that were unmarked, such as baby food, Jello, milk, eggs, gum and mints, etc., because several flavors of one type of item sell for the same price. The list differs from company to company. Individual bulk produce items are not price marked today and most consumers prefer bulk rather than pre-packaged produce. This legislation would compel us to either stamp every orange or convert to pre-packaged produce. To require price marking of all these items would immediately add substantially to the labor cost of all supermarkets, again, fueling the rise in food prices.

After weighing the cost of duplicate marking (conventional price marking and UPC coding), a retailer may or may not decide to maintain price marking. A good analogy is the old-fashioned, cut-to-order meat department. All food chains once used this system. Then, about 25 years ago, self-service meat came along, offering better service at a lower cost. While most of the industry adopted this system, the old service system is still used in some areas where consumers still prefer it and are willing to pay the higher costs. The same thing will happen if some shoppers still prefer the more costly system of price marking.

I think we have an obligation to test both ways. To do otherwise seems to me an abdication of our responsibilities to the public.

The need for duplicate marking (conventional price marking and UPC coding) has yet to be demonstrated by field testing, and more time is needed to evaluate consumer reaction and acceptance. Mandating price marking could possibly slow down the adoption of these systems by food companies, thereby delaying the substantial benefits of productivity improvement, increased accuracy and improved customer service. Furthermore, if price marking is, in fact, not considered essential by consumers, requiring it would add significantly and unnecessarily to the cost of food distribution.

The ultimate decision is in the hands of the shopper, not the food retailer, and the government should not deprive the consumer of the right to make that decision.

We are a great nation. Much of our greatness has resulted from God-given abundance, but much of the credit must go to those few bold spirits who were willing to take a risk, to try something new, to stride fearlessly into the unknown. The enormous agricultural abundance we enjoy results in great measure from the judicious application of new technology. Where would we be today if Congress had legislated hobbling restrictions on the reaper and the combine, the tractor and the gang plow? How much would Americans be paying for food today if supermarkets had been outlawed during the anti-chain movement in the 1930's?

I think it is well to remember that when Giant opened its first store, which was here in Washington in 1936, the percentage of disposable income spent on food was 23.1, according to USDA figures. For the second quarter of 1975, the figure was 16.6%. In 1973, before inflation took its toll of the food industry, the figure had been down to 15.7%.

Had opposition to the advent of the supermarket prevailed in the 1930's, Americans today would in all likelihood be paying nearly a quarter of their income for food instead of 16%.

I don't think we want to look back a generation from now to missed opportunities that could have kept the percentage of income spent for food from rising back toward 1936 levels.

The computer-assisted checkout is the first great advance in productivity to come along in at least a generation, and to shackle it before it has been tested thoroughly would be a great injustice to the American people.

Today, the single greatest expense in the supermarket industry is the cost of marking and handling product. The most important contribution food retailers can make to the stabilization of food prices is to upgrade those systems and reduce those costs. That's the reason we are experimenting with the computer-assisted checkout, and we ask your indulgence, if not your active encouragement and support.

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TESTIMONY BY ESTHER PETERSON BEFORE THE U. S. SENATE COMMITTEE ON COMMERCE, SUBCOMMITTEE ON THE CONSUMER
NOVEMBER 17, 1975

I am Esther Peterson. I am appearing today, not as a Consumer Advisor to Giant Food and not as President of the National Consumers League. I am here on my own behalf, as a consumer advocate. I have long believed that many of our problems do not lend themselves to legislative solutions. I believe just as strongly that legislative solutions should be pursued when they are required to meet a problem. The issue that we are addressing today, S.997, amending the Fair Packaging and Labeling Act, is, I think, a marketplace issue and not a legislative issue. Frankly, in the whole list of consumer issues before Congress, I consider this one to be trivial. The issue is not trivial... There is no room for debate on whether or not consumers have the right to be informed at the point of purchase about the prices they are paying for items. This is a basic right, and I work hard to defend it. I do not believe, however, that we have legislated nor can we effectively legislate the specific manner in which this is done.

At Giant, my terms of employment were that I could be independent. We knew we would differ on some issues. On this issue, we have differed.

When Giant planned to install its first computer-assisted checkout, the first in our section of the country, we had no experience to go on, no pattern to follow. I early organized

a consumer advisory committee. We had many long discussions together and with Giant about the workings of the system. We all recognized that its success or failure would depend on the degree of public acceptance.

The consumer advisory committee had many concerns. They made numerous recommendations to Giant about aspects of the new system. Those concerns were addressed and some of them resolved. For example, after getting sufficient information, the laser safety issue was put to rest. Giant's shelf and unit price label was greatly improved. The receipt tape was improved. The Committee addressed and is continuing to address the privacy issue, the level of service, technical changes to reduce the margin of error, controls for price changes, and much more. The company was receptive to many suggestions. In fact, our committee named the system the computer-assisted checkout.

Giant gave extended consideration to the committee's view that there should be minimal change from current operations of the supermarket in measuring consumer response and in getting started with this system. The committee and I pointed out that people in this marketing area are used to seeing prices marked on the articles in a supermarket. The committee and I urged that prices be retained during the first store test. Some committee members objected to any test with prices removed, others suggested testing with prices off later as consumers

became familiar with the system. The committee was divided on this issue. In general, the committee felt the public needed to know more before Giant experimented with price removal. Giant's management disagreed with the committee on this one. But I must stress here that my differences with Giant were over timing, not over whether a test of price removal should not ultimately take place. This isn't the first time Giant's management and I have disagreed. I'm grateful for my independence.

The implementation of this new technological breakthrough is extremely important. It must be studied. There is a long list of consumer issues which must be addressed.

The industry's shelf marking has been generally sloppy. In many cases, there is a disturbing lack of control over store operations. Consumers have a right to question whether the industry will supply the discipline that is necessary. I have visited many stores in many states, and I must say that I am appalled at the state of unit pricing and shelf labeling. And in those cases I can certainly see where you would have to have the prices marked on the product, because I don't see how the consumer can know the price otherwise. However, I am not saying that price removal cannot work, if discipline is maintained.

Which way do we have the best discipline? Which is the least costly? Is it more costly to have discipline for shelf

marking so that one does not have to have the individual item price marked? What are the alternatives, the trade-offs? We don't know yet. Maybe we have to develop a monitoring group. We haven't begun to look at the kind of things that can be done. And there are other valid issues being raised: competition, privacy, control of computers, price consciousness, diminution of service, price changes, price comparison, the tape. Can we learn to use the tape for budgeting, for price comparison, between stores? We don't know.

It was said during these hearings that we shouldn't have to become a nation of file clerks, rummaging through a drawer full of old register tapes. Really!! How do people organize their income tax receipts? How do people organize their medical bills? Don't underestimate the ability of the people. Think of the benefits for family budgeting. Think what could be done in determining family consumption patterns. Then think of what we spend today in government trying to trace consumption patterns - with far less reliable results than may be possible with this technology.

Until recent years, the major food problem of America was managing what appeared to be unlimited agricultural surpluses. Supermarkets, to a great extent, served as the marketing appendage of the growing and processing elements.

Now this has changed. Surplus has given way to shortages, the domestic market has expanded to a world market, and natural disasters have compounded the economic ones. The sprawling decentralized retail food system, the consumer's only point of contact with the huge food industry, began to bear the brunt of consumer suspicion, distrust, and frustration with the enormous changes taking place throughout that system. In almost a reversal of roles, I see the retailer serving as the point of stimulation for industry change, rather than as the passive recipient. I believe that consumers are partly responsible for this and are taking advantage of this development to implement desirable change in the fields of food manufacturing and processing. Now, food retailers are using the new technology of the computer-assisted checkout to stimulate greater efficiencies and cost savings all the way back along the food production and distribution chain. Those who maintain that mandating price removal won't have an effect on this process are kidding themselves. It certainly will.

The distribution system has to be looked at. A major problem has been a smooth and equitable distribution of food to those of our citizens who need it. How do we serve those who are not getting it? The UPC has the potential benefit of helping to analyze the way people buy food, so that we can

help them to improve their family's diet. We haven't begun to address what consumer advantages can be put into this system. We've concentrated so much energy on the problems that we haven't begun to look at the benefits.

This issue is very high in tone and emotion, not just because of the consumer's right to know, but because it portends massive change in our food distribution system, our knowledge of food consumption, our capacity to meet the challenge of world needs, and without question, a redistribution of the labor force.

I have travelled widely in Europe and find that they are ahead of us in many supermarket areas. There you can see an entire display section, pre-stocked, being rolled in with, in some instances, a single price posted on the gondola. It's a whole new stocking concept that reduces the cost of bringing food to the consumer. Some similar stores are starting in this country where they are selling by larger lots. What would be the effect of this legislation if the new European system were widely introduced here? Would we repeal this legislation? Let's face it - the advent of this kind of technology is worrying labor and with good reason. It is probably at least partly responsible for their interest in item pricing legislation.

We have an obligation as a people to address the problem of jobs. Over 8% of our population is presently unemployed.

Stopping progress is no substitute for genuine full employment planning and implementation. The job needs of this country are not going to be met by stamping the price on a can. Holding back progress just delays addressing the issues. The job problem is not a function of this issue. It is merely illustrated by it. We are a technological society and must be prepared to meet its challenge.

Some of the most exciting developments in the consumer movement today are taking place at the local level, in negotiations with local supermarkets. We're working it out somewhat the same as we did in the early days of the labor movement. This is the shape of the new era that is coming, and this is a technique that eventually can be used to solve a lot of problems. I have already mentioned the impact on Giant's computer checkout system. Consumers have also had a very important influence in the areas of nutrition labeling, unit pricing, cosmetic and over-the-counter drug labeling, and toy safety programs to name just a few. At Giant there were committees of outstanding citizens, regular consumers - experts - who served without pay for the sake of improving consumer services, and in the larger orbit, of having a significant impact on the entire marketplace. I am proud of this system; it works.

The very fact that price marking is receiving so much

attention demonstrates that the consumer now is being heard far more than was thought possible a few years ago. We are stumbling, we are crawling; it's new, it's untried, but the point is that the new relationship between consumers and business is developing, and that's the exciting thing. If we use this new relationship, I think we can work out many of the problems of the marketplace.

I have read that 25% of our people are functionally illiterate, and cannot figure the change of a $20 bill. They don't know how to read unit pricing, or nutritional labeling. They can't even use the price information stamped on the can. Helping these people is the kind of challenge to which we should be addressing ourselves with all our energies.

How do we teach people to use the tools that are already at their disposal?

How do we teach unit pricing, how do we teach ingredient and nutrition labeling?

And how can we learn more through this new system to address basic needs? Price marking is miniscule compared with other issues. Furthermore, I believe that price marking is an issue that can be settled and will be settled in the interest of the consumer outside the legislative process. To go for legislation now, I believe, would be to ignore a new method

of influencing the marketplace that consumers have struggled to perfect for years and is finally beginning to work. This legislation cuts the ground from under that new process.

There can be no doubt that the food industry has been slow to respond, and consumers are protective of their flank. But it has responded and is the first to do so. Already there are real wins.

Consumers have expanded the view of the system into the broad areas mentioned previously in this testimony.

Consumers have almost achieved a plain language description of product and code.

Consumers have brought awareness to the weights and measures issues;

Have directed attention to the EFTS and privacy control issues;

Are participating in the design of a more informative checkout tape, and are beginning to develop a dialog on how to handle information.

Even on the item pricing issue, consumers have had great influence in keeping prices on.

We're getting commitments for improved services for the sharing of benefits and this is but the beginning.

Let's "cool it" and wait until we know more. Time is needed to work step by step with consumers, not only on the

price marking issue but on all the other issues related to the system. Out of this dialog will come, I'm sure, the best solution for both consumer and the marketplace which serve each other. This is the core of my belief.

Let's address ourselves to the real issues. How do we guarantee accurate price information - how do we take care of the labels that drift, and the double rings? What do we do about the EFTS system and what do we do about the invasion of privacy? What do we do about check cashing? About the storage of purchasing information? How do we see that nutrition information is brought in? How do we see that the receipt tape gets enough digits so we can get sizes? How do we teach people a new way of shopping so they learn how to benefit from the system? We're learning all kinds of ways already and they are very promising.

The consumer movement is getting more sophisticated. Consumers are concerned about food prices and pricing systems. They are willing to learn new ways if the new ways are to their advantage.

We have a great body, the Office of Technology Assessment, studying the effects of technology on the food system. Yet it has hardly considered the UPC system. It's as though technology stops at the farm gate. What I am trying to say is that we have to

broaden the issue. Consumers need to talk about how to use this technology to really benefit the consumer. Can this technology help to insure that there is equitable food distribution for everyone?

One of the big controversies about the food stamp program is the charge that food stamp recipients are buying the wrong things. Think what this system could do, under proper safeguards, for personal privacy and other rights, to obtain information on shopping patterns. Experts tell me the sky is almost the limit for the kind of information that is possible. We have to think about what those are. What safeguards are needed in this tremendously big and innovative area? So many could benefit.

The Department of Agriculture could benefit from the information developed in this system. So could H.E.W.

Nutritionists could benefit from the information.

Family budget counselors could benefit.

Home economists could benefit.

Social workers could benefit,

And especially individual families could benefit.

All could benefit, especially if greater efficiency could lower or at least help to stabilize prices. The possibilities are great. Let's get on with them.

資　　料　　2

固定スキャナ用レーザーに対する米国での規制案

アメリカにおいて，固定スキャナ（定置スキャナ）に使われるレーザーに関する規制案が準備されている。本資料は連邦政府の案であり，この案に基づいて各州ごとの規制案が提出されている。

federal register

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PART II

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Food and Drug Administration

■

LASER PRODUCTS

Proposed Performance Standard

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Food and Drug Administration

[21 CFR Parts 1010 and 1040]

LASER PRODUCTS

Proposed Performance Standard

In the FEDERAL REGISTER of December 10, 1973 (38 FR 34084), the Commissioner of Food and Drugs proposed to amend Chapter I of Title 21 of the Code of Federal Regulations by adding to Subchapter J a new Part 1040, prescribing a performance standard for laser products in new §§ 1040.10 and 1040.11 (21 CFR 1040.10 and 1040.11). Sixty days were provided for public comment. Comments were received from two trade associations representing manufacturers of laser products; two industrial associations and one physics education association representing users of laser products; two voluntary safety standards organizations; a university medical research laboratory; an independent research institute; the Department of Labor; the Department of the Army; four State radiation control agencies; and numerous individual laser product manufacturers and users.

In response to these comments and to provide further clarification, the Commissioner has determined that a number of changes are necessary in the proposed performance standard which are sufficiently substantive to warrant republication as a proposed rule to provide an opportunity for public comment on these changes. In order to show how the proposed changes relate to the unchanged portions of the previous proposal, the entire text of the new proposal is published in this second notice of proposed rule making.

The comments received regarding the December 10, 1973, proposal and the Commissioner's analysis and proposed action are summarized as follows:

1. In reference to proposed § 1040.10 (b), several comments stated that clarification of the interconnected definitions of "laser," "laser energy source," and "laser product" is needed. Comments on the definition of "laser" stated that it failed to include both lasers emitting in the shorter ultraviolet wavelengths and lasers which do not require a separate laser energy source. Comments on the definition of "laser product" stated that the proposed rule did not make clear whether lasers sold to other manufacturers as replacement components were subject to the standard, nor did it clarify how "portions of the architectural structure" of an installation could be considered as part of a laser product.

The Commissioner concludes that the proposed definition of "laser" includes all lasers emitting at wavelengths which present a significant risk of human exposure and for which adequate measurement instrumentation is available. The definition of "laser" has been revised to clarify the relationship between a laser and a laser energy source.

The Commissioner also concludes that revision of the proposed definition of "laser product" is necessary to make clear that lasers sold to other manufacturers as original or replacement components would not be separately subject to the standard unless supplied directly to a product user. A laser product consisting of an assemblage of components installed by a person engaged in the business of such assembly still would be subject to the standard, with the assembler having the option of using portions of the installation's architectural structure to meet such requirements as that for a protective housing. However, the Commissioner concludes that the definition of "laser product" should be revised to eliminate the specific reference to architectural structures in order to avoid possible confusion.

The definition of "laser product" is further revised to make it more concise and to clarify that a product which is intended to incorporate a laser or laser system is subject to the standard even if it does not incorporate such laser or laser system at the time of manufacture or sale. The Commissioner believes that the definition must include such products in order to assure the effective implementation of the provisions of the standard, and to protect the public health and safety.

2. Several comments suggested adding to § 1040.10(b) definitions of certain terms whose meaning in the text was not clear or whose definition and usage would clarify general concepts in the standard. Other comments suggested deleting the definitions of terms which did not serve to convey an important specific meaning.

Accordingly, the Commissioner concludes that explicit definitions of the terms "operaton," "maintenance," "service," and "sampling interval" should be added and that the definitions of "pulse interval" and "maximum emission duration" should be deleted along with deleting all references to maximum emission duration, thus providing the clarification suggested by the comments.

3. The classification provisions of § 1040.10(c) establish laser product classification upon a graded risk to public health and safety from accessible laser radiation. Comments were received expressing satisfaction with the consistency of the classifications with those promulgated by the American National Standards Institute (ANSI). This consistency is a result of substantial cooperation and exchange of concepts between the ANSI Z-136 Committee on the Safe Use of Lasers and the Food and Drug Administration during the development of the ANSI Standard for the Safe Use of Lasers. Other comments were received that indicated a desire for inclusion of the method and results of the risk analysis conducted by the ANSI Z-136 Committee as the biological basis for the graded risk system presented in the first proposed rule.

The Commissioner concludes that in arriving at the upper limit for any given class, the minimal values for injury production reported in the scientific and technical literature were considered by the Food and Drug Administration in the belief that such values provide a more suitable representation of probabilities of damage. Although ANSI used a different method of analysis in deriving exposure limits, the ANSI exposure limits are consistent with the accessible emission limits for products prescribed in the FDA proposed standard.

4. Several of the comments objected to the use of data obtained from experiments with animals instead of human experimental data. One of the comments considered the use of such data invalid because of the lack of results which indicate that levels that produce minimal lesions in monkeys will produce injuries in humans. Another comment stated that the anesthetized and dilated monkey eye is not valid as a surrogate human eye.

The Commissioner believes that, in the absence of data which directly relate animal data to possible human effects, it is appropriate in the interest of public health to utilize the probabilities of damage obtained from animal research in estimating the risks to man. In the immobilized, anesthetized state there is motion of the eye of the monkey of a magnitude equivalent to the motion of the human eye when fixated upon an object. Dilation of the monkey pupil does correspond to the expected worst case in humans. The monkey eye thus appears to be a valid surrogate for the human eye. From a public health and safety viewpoint, the Commissioner reiterates that the data obtained from experiments performed on monkeys must be utilized in estimating human risks.

5. Several comments addressed the need for a biological basis that is supported by instances of human injury. According to the comments, no restrictions should be imposed on laser products in the absence of such support. The comments referred to situations in which human exposure occurred, but no injury was reported.

The Commissioner believes that the cited lack of damage in humans does not constitute documentation that damage could not have occurred, as concluded by the comments, but only that evidence of acute damage was not observed. Consideration of animal data presently available indicates that there are significant risks of injury to justify the classification scheme in the proposed performance standard for laser products. A significant potential for human injury is a sufficient basis for action to protect the public health and safety.

6. One comment stated that a new Class V for enclosed laser products should be added to the proposed standard to correspond to the Class V in the American National Standards Institute

(ANSI) Z-136.1-1973 Standard for the Safe Use of Lasers.

The Commissioner believes that an enclosed product is "enclosed" only to the extent that human access to laser radiation is prevented. A high-power laser in an enclosure could allow access to levels consistent with Class I, II or III as required by the function of the product. Thus, a separate Class V for "enclosed" products is unnecessary.

7. One comment stated that the term "spatially resolved" used in § 1040.10(c)(1) of the original proposed rule to distinguish between separate beams of laser radiation has a specialized meaning in the field of optics and that the term as used in the proposed standard should be clarified.

Because the specialized meaning which the comment attributed to the term "spatially resolved" is not consistent with the intended meaning in the original proposed rule, the Commissioner has decided to delete the original § 1040.10(c)(1) from the revised proposal and to distinguish operationally between those beams of laser radiation which can be treated separately in determining their hazard by means of the revised definition of "laser radiation" in § 1040.10(b) and the measurement provisions in § 1040.10(e)(3).

8. Several comments stated that Table I in § 1040.10(d) needs to be reorganized and clarified. Several additional comments indicated confusion over the meaning of the term "emission duration" in the text of the proposed standard and the use of the variable (t) in Table I. Throughout many of the comments, there was a common question concerning the mechanism for evaluating emissions from laser products which emit repetitively pulsed radiations.

The Commissioner accepts these comments. Table I has been divided into Tables I-A, I-B and I-C. They are more easily understood in this format. The revised format has allowed deletion of inapplicable and redundant portions. To remove an ambiguity between peak and average values, the accessible emission limits expressed in terms of radiant power, irradiance and source radiance have been expressed as the equivalent time-dependent functions of radiant energy, radiant exposure and integrated radiance. "Emission duration" has been redefined as a general term used to describe the accessible emission from a laser product. The emission duration of radiation is divided, as indicated in Tables I-A, I-B, and I-C, into several emission duration intervals. Each emission duration interval can be subdivided into a number of sampling intervals represented by the variable (t). A "sampling interval" is defined as the magnitude of the time during which the level of accessible laser or collateral radiation is determined by a measurement process. The determination of the level of accessible radiation need not necessarily be made over the entire sampling interval, if the measurement and an appropriate extrapolation procedure would yield an equivalent result.

The question concerning repetitively pulsed radiation has been clarified by redefining "emission duration" and distinguishing it from "sampling interval" and by the reorganization of units in Tables I-A, I-B, and I-C. Furthermore, the Class III accessible emission limits and emission duration intervals in Table I for laser radiation in the ultraviolet wavelengths have been revised in the new Table I-C to eliminate an unintended discontinuity in the emission limits for a sampling interval at the boundary between the originally proposed emission duration intervals.

9. Two comments requested deletion of the accessible emission limits for collateral radiation specified in Table III, Part A. These comments were predicated upon the belief that inclusion of such limits in the standard may be construed by some to imply that certain conventional light sources are unsuitable in general lighting applications.

The Commissioner intends that the purpose of setting limits for collateral radiation is to reduce unnecessary hazardous radiations arising from the operation of laser products. The Commissioner therefore concludes that Table III, Part A (referred to in this proposal as Table III, item 1), appropriately applies to laser products and should remain in the proposed standard.

10. Many comments concerning measurement requirements in § 1040.10(e)(2) were received. Several of these objected to requiring that the accessible emission level be the sum of the measured quantity of radiation and the cumulative measurement error, while some also objected to including the maximum expected increase in the measured quantity of radiation at any time after manufacture. One comment suggested use of the manufacturer's mean measured value as the accessible emission level for Class II laser products rather than the value for each laser product. Another comment suggested that measurement instruments should be required to be manufactured and certified in conformity with standards of the National Bureau of Standards (NBS) or other Federal agencies or with national consensus standards.

The Commissioner agrees that it may be confusing to express the accessible emission level as the sum of the measured emission, the cumulative measurement error and the maximum expected increase in the measured quantity of radiation at any time after manufacture. However, since the manufacturer must assure that each product which he certifies does not exceed the accessible emission limits applicable to that product at any time after manufacture, his tests and testing program for certification must take into account the measurement uncertainty as well as increases in emission and degradation of the product with age. Failure to do so could result in some products emitting above the limits upon which certification was based or otherwise failing to comply with the standard. The proposed standard has been revised to include these considerations and to clarify the intent of the Food and Drug Administration. The suggestion concerning use of the mean value of emissions for Class II laser products is rejected since the emission limits are intended to assure that no product exceeds them regardless of whether the mean emission of all such products is within those limits.

While the Commissioner agrees that it would be desirable for measurement instruments to be manufactured and certified to meet an appropriate NBS, other Federal, or national concensus standard, no adequate certification mechanism exists at this time. However, the comment has prompted a review of the need for specification of maximum allowable measurement error. The Commissioner concludes that a maximum measurement uncertainty of ± 20 percent for measurement systems may not always be obtainable and, in certain cases, may not be necessary to assure full compliance with the standard. Therefore, in order to provide a greater degree of flexibility in making measurements for compliance, the requirement for a maximum measurement uncertainty of ± 20 percent is deleted from the proposed standard, and appropriate guidelines will be issued by FDA to assist manufacturers in making compliance measurements.

11. In reference to the original § 1040.10(e)(1) concerning measurement conditions, one comment suggested that only controls and adjustments specified in user manuals should be required to be maximized during testing.

Since a laser product could be improperly adjusted by both the user and service personnel, the Commissioner concludes that the product must comply with the standard even when service controls are improperly adjusted. However, to clarify the original intent, the proposal has been revised to require maximizing the accessible emission levels by adjustment of maintenance controls as well as operation and service controls, whenever measurements are made to determine compliance.

12. For purposes of standardizing terminology, one comment requested that measurement of certain beam parameters, such as beam diameter, convergence and divergence, be included in the regulation.

While the Commissioner realizes that these parameters are of academic and engineering interest, he concludes that standardization of these terms is not necessary to protect the public health and safety.

13. Another comment suggested that all radiation measurements be made at a single fixed distance from the laser product which would then be defined as the point of closest human access.

The Commissioner believes that such an approach is not feasible for the wide variety of laser products to be regulated by the standard. However, to clarify further the method of determining human access, the Commissioner has revised the definition of "human access" to specify test objects more appropriate for determining the potential for access to radiation from the wide variety of laser products.

14. Two comments were directed toward the measurement provision in § 1040.10(e)(3)(i) requiring use of an 80-millimeter aperture stop to measure radiant power or energy. One comment requested guidance for preferred procedures of collecting radiation within the 80-millimeter diameter field. The other comment argued that the use of an 80-millimeter aperture stop in the measurement should be required only for those laser products intended to be used in conjunction with optical viewing aids.

The Commissioner concludes that it is more appropriate to supply detailed measurement guidelines after publication of the final rule. The Commissioner also concludes that a manufacturer does not know, and cannot be expected to know, the actual conditions under which a product is used. It is thus reasonable to assume that viewing of the beam with optical aids will occasionally occur either accidentally or intentionally. Thus, the requirement of an 80-millimeter aperture stop pursuant to § 1040.10(e)(3)(i) is both warranted and necessary in the interest of protecting the public health and safety.

15. One comment stated that the requirement for a protective housing in § 1040.10(f)(1) should apply only to laser systems rather than to all laser products because a laser by itself cannot radiate without a laser energy source and, therefore, does not need a protective housing to prevent unnecessary human access to radiation.

Because many lasers are designed to be operated simply by connection to a compatible laser energy source without further incorporation into a product housing, the Commissioner concludes that each laser and laser system which is not sold to another manufacturer as a product component should itself meet the requirement for a protective housing, which in many instances could be satisfied by the external surfaces of existing laser products.

16. Several comments contended that the safety interlock requirements in § 1040.10(f)(2) of the proposed standard are unduly burdensome and that greater flexibility should be provided by permitting alternate types of interlock systems such as the dual interlock system required by the performance standard for microwave ovens in § 1030.10(c)(2) (21 CFR 1030.10(c)(2)), but without interlock concealment and monitoring.

The Commissioner concludes that the proposed safety interlock requirements, while conceptually different from those in the microwave oven standard, would provide sufficient flexibility by requiring only one monitored safety interlock for each removable portion of the protective housing. Each such interlock can consist of either a simple interlock with an independent monitor or a single fail-safe mechanism combining both the interlock and monitor. Furthermore, such interlocks do not have to be electrical but can be mechanical. The safety interlock requirement also has been revised to prevent, upon housing displacement, access to those levels of radiation to which access must be prevented by the protective housing during operation.

17. Several comments stated that the requirements for remote control connectors, key-actuated master controls, emission indicators, and beam attenuators in § 1040.10(f)(3), (4), (5), and (6) should be imposed only on Class IV laser systems, or, at most, include in addition only those Class III laser products which emit invisible radiation or exceed a visible emission of 5 milliwatts.

The Commissioner concludes that a remote control connector and a key-actuated master control are needed on all Class III and IV laser systems to permit remote control of an acute radiation hazard and to prevent unauthorized operation, particularly in the more open areas, such as construction sites, in which products emitting visible radiation up to 5 milliwatts are used. The Commissioner also concludes that an emission indicator and beam attenuator are needed on all Class II, III, and IV laser systems to alert the user to the hazardous radiation before accidental exposure and to permit reliable reduction of the radiation hazard during routine alignment and adjustment procedures when it is not feasible to stop the generation of radiation. In particular, a visible beam would not adequately meet the requirements for an emission indicator because it would not always be visible through protective eyewear and would not warn of the hazard prior to possible exposure. The requirement that the remote control connector be only a two-terminal connector has been revised to permit the use of any electrical connector. The requirement for a beam attenuator also has been revised for clarification and flexibility. The requirement in § 1040.10(f)(6) for only a mechanical means of attenuation has been deleted, thus allowing alternative means of attenuation.

18. Some comments stated that the requirements pertaining to viewing optics should be revised to allow transmission of laser radiation at levels equal to the ambient light intensity and should not apply during servicing of the laser product.

The Commissioner concludes that unknown ambient light levels in the user environment cannot be considered in prescribing product performance requirements and that viewing optics should not, under any circumstances, transmit levels of radiation which present a hazard from chronic viewing, whether during operation, maintenance, or servicing.

19. There were several general comments on the labeling requirements in § 1040.10(g), including statements that label proportions and minimum label and lettering sizes should be specified, that the laser hazard symbol should be required on all labels, and that manufacturers could not position all labels on laser products to "preclude" human access to hazardous radiation during reading of such labels.

The Commissioner concludes that it is not feasible to specify label proportions and minimum dimensions which would be appropriate for all of the great variety of laser products subject to the standard and, accordingly, has revised the label specifications pertaining to the minimum size product to which required labels must be affixed by deleting the fixed area specification of 25 square centimeters and providing for a product-by-product determination of feasibility. It is also concluded that the use of the laser hazard symbol on all labels could cause confusion with the primary hazard warning which the warning logotypes are intended to convey. However, to permit additional flexibility, the warning logotype requirements of § 1040.10(g) have been revised to permit separation of the certification statement required by § 1010.2 (21 CFR 1010.2) from the warning logotype; and the label positioning requirement has been revised to require that labels be positioned to make access to radiation unnecessary during reading and that they be visible during operation, maintenance, and service.

20. Several comments stated that the specialized warning, "LASER RADIATION—DO NOT STARE INTO BEAM OR VIEW WITH OPTICAL INSTRUMENTS", in § 1040.10(g)(3)(i) of the original proposal, could be misconstrued as warning against methods of viewing which would not be hazardous, such as off-axis viewing. Another comment stated that an aperture warning label should be required only for those apertures through which laser or collateral radiation in excess of the emission limits of Class I and Table III is emitted.

The Commissioner agrees that off-axis viewing would not be hazardous and concludes that the cited warning should be revised to warn only against viewing a beam directly with optical instruments, and that the aperture label requirement should be revised to warn against the emission of both laser and collateral radiation which is in excess of the emission limits of Class I or Table III.

21. One comment stated that protective housing labels should not be required for defeatably interlocked portions of the protective housing since an indicator is required by § 1040.10(f)(2)-(ii) to show when the interlock is defeated and access to radiation is permitted. The comment further stated that

such labels, if required, should warn only of a hazard upon interlock defeat and that manufacturers should be permitted to place all protective housing warning labels inside the protective housing unless radiation would exit from the product upon removal of such housing. It was also suggested that a further distinction be made on the required protective housing labels between levels of accessible visible laser radiation above 5 milliwatts and 2.5 milliwatts per square centimeter and levels below these values, and that the collateral radiation warnings be clarified to indicate that a hazard exists only when the housing is opened.

The Commissioner concludes that warning labels are needed on defeatably interlocked portions of the protective housing because the required defeat indicator merely alerts the user that the interlock is defeated but does not warn of the nature or degree of the radiation hazard. The Commissioner agrees that all protective housing labels should clearly indicate that a hazard exists when the housing is opened with any associated interlock defeated, but believes that protective housing warning labels should always be visible before removal of the housing. Additionally, as stated in the comments, since radiation might not be emitted from an opening created by removal of the housing but human access to radiation would still be possible, the Commissioner concludes that the protective housing labels should also be visible after removal of the protective housing. The Commissioner also agrees that the specific warnings should be revised to make the suggested additional distinction between accessible levels of visible laser radiation.

22. Several comments stated that manufacturers should not be required, as proposed in § 1040.10(h), to provide service instructions at cost to anyone without "legitimate need" because it was contended that FDA does not have authority to regulate the price charged for such instructions and that such a requirement might compel the release of proprietary information.

The Commissioner concludes that FDA has the authority to assure that radiation safety information is readily available and that this availability is not frustrated by a prohibitive cost. The Commissioner also concludes that radiation safety information relating to a product can and should be provided without necessitating the release of proprietary information. The radiation safety information that is required to be distributed to users has also been clarified by deleting the requirement that the method of measuring maximum output be specified and by adding the requirement that the maximum value shall include the measurement uncertainties and expected increases in the measured quantities at any time after manufacture.

23. A general comment on § 1040.11 concerning special use-group requirements suggested that any laser system used in an environment controlled by or subject to the authority of other Federal or State agencies which have established safe use programs for laser products should be exempted from the special use-group (specific purpose laser products) requirements.

The Commissioner believes that use of such products in a controlled environment does not negate the need for performance standards. The intent of the specific purpose laser product requirements, which incorporate unique product safety features, is to complement rather than supplant other safety requirements controlling the use of the laser product.

24. With respect to § 1040.11(a)(1) concerning medical laser products, one letter noted that the measurement accuracy requirement should not be more restrictive than that established for other laser products, and further stressed the need for reliability or repeatability of output rather than accuracy.

The Commissioner concludes that the intent of the measurement requirement is to insure accurate knowledge of the radiant power or energy which is intended for irradiation of patients. Without such knowledge, day-to-day reproducibility in patient irradiations would not be possible. However, based upon evaluations conducted by the Food and Drug Administration, the Commissioner agrees that the requirement for a ±10 percent measurement accuracy could present technological difficulty and is overly restrictive. The Commissioner concludes that a measurement accuracy of ±20 percent is sufficient to protect the public health and assess adequately the radiation levels intentionally applied to humans.

25. One comment questioned the necessity and practicality of a preset emission level for medical laser products. The comment noted that such a system could not compensate for unpredictable factors such as dust on optical components, mirror degradation, etc., and that extra adjustments would have to be made to regain the preset value after such perturbations have occurred.

The Commissioner concludes that the usefulness of a preset level could be offset by difficulties encountered in operation such as the perturbations mentioned. In addition, and more importantly, many new types of medical laser products are now being developed for which this requirement may not be appropriate. Therefore, the originally proposed § 1040.11(a)(2) has been deleted. The FDA will continue to explore the need for additional special requirements on medical laser products. Present needs which were identified and addressed in the revised proposal include the addition of products intended for surgical procedures to the definition of medical laser products and the requirement of an aperture label for laser and collateral radiation on medical laser products.

26. Concerning other special use-group requirements in § 1040.11(b) and (c), one comment suggested that maximum emission limits might be more effectively included in "use controls" or in "user standards" now being developed by various State and Federal agencies working with the assistance of the FDA.

The FDA is in active communication with other Federal agencies in an effort to ascertain the nature and extent of regulatory programs which are or will be implemented by those agencies. When a laser product is clearly intended only for uses controlled by another Federal or State agency, and when protection of the public health and safety is assured, FDA will reconsider the need for special performance requirements on the product. The Commissioner believes that any such user standards must provide equivalent protection for the health and safety of the public.

27. In reference to the maximum emission limits imposed on surveying, leveling, and alignment laser products by § 1040.11(b), several comments, to which extensive documentation and testimonials were attached, strongly stressed that an irradiance limit of 2.5 milliwatts per square centimeter is too low to allow sufficient power density for adequate performance of these laser products under conditions of high ambient illumination.

The Commissioner does not intend to preclude useful applications of laser products, but, instead, acknowledges that the use of potentially hazardous products is necessary to perform certain functions. The Commissioner agrees that adequate performance of surveying, leveling, and alignment laser products in high ambient light environments could be inhibited by the irradiance limit of 2.5 milliwatts per square centimeter. Above this level, however, there does exist a risk of acute injury to the eye should exposure occur. While the use of such products with known risks may be necessary, the use of hazardous radiation levels in excess of the ranges appropriate for the intended function cannot, under any rationale, be supported or condoned.

The Commissioner believes that, within the constraints of placing a limit on the total useful power, the other beam parameters for these special purposes are and will continue to be determined by the requirements for a particular application. The constraint of total useful power, together with lifetime variations in product output and quality control acceptance limits in the manufacturing process, define the upper limit of necessary hazardous radiation from such products. The data submitted on surveying, leveling, and alignment laser products indicate a need under high ambient illumination for 2 or 3 milliwatts of radiated power, but are not entirely clear concerning the utility of various levels of irradiance (power density). Many comments support the need for an emergent beam diameter of 8 to 10 millimeters, which would exceed the proposed irradiance limit with the cited optimum radiant

power because of the relatively small beam diameter. Furthermore, FDA is aware that many of these products are not presently equipped to provide even this large a beam diameter nor, from the data submitted, would any useful purpose be served by requiring all products to have expanded beams.

For all of the reasons listed above, the irradiance limitation, but not the power limitation for surveying, leveling, and alignment laser products has been deleted from § 1040.11(b). In so doing, the FDA recognizes the necessity for useful but not excessive beam powers. However, any Class III laser product which exceeds an irradiance of 2.5×10^{-3} watts per square centimeter must be clearly labeled as dangerous pursuant to § 1040.10(g)(2).

28. Additional comments on § 1040.11(b) suggested either increasing the accessible power limit for Class II laser products from 1.0×10^{-6} watts to 2.5×10^{-4} watts, or deleting the irradiance limit for surveying products entirely. It was also suggested that laser products for distance measurement also should be made subject to the requirements of § 1040.11(b).

The increase in Class II accessible emission limits is not supported by the available biological data. An increase in the limit is therefore not acceptable to the FDA. As noted above, the irradiance limit has been deleted. Imposition of the requirements of § 1040.11(b) on distance measurement laser products is not appropriate since substantially higher powers and different beam configurations are required for ranging purposes. The FDA will continue to explore the need for imposing special requirements on such products beyond the general requirements of the proposed standard.

29. An additional comment on the same provisions expressed the opinion that, a limitation on power or irradiance will only encourage a potential user to violate the law by purchasing a more powerful laser and adapting it for surveying, leveling, or alignment purposes.

The Commissioner believes that the revised requirements permit the manufacture of specific purpose laser products capable of performing any surveying, leveling or alignment function, and that it should not be necessary for a user to adapt a laser product not intended for such purpose. Furthermore, the use of any type of laser product in construction work is subject to radiation safety regulations promulgated by the Occupational Safety and Health Administration in 29 CFR 1926.54, as well as to some State regulations.

30. Section 1040.11(c) was commented upon at length by an organization representing physics teachers as well as by manufacturers of demonstration laser products. A question was raised concerning the meaning of the term "demonstration laser product" and what circumstances justify special requirements for these products. The human blink reflex, it was stated, would largely eliminate the acute risk of exposure to lasers emitting visible radiation up to 5 milliwatts. It was further stated that, with the risk eliminated by this reaction mechanism, such risk need not be included in the graded risk concept of classification.

The Commissioner concludes that the definition of "demonstration laser product" is sufficiently clear. The intent of the language is to cover only those products manufactured, designed, intended, or promoted for purposes of demonstration, entertainment, advertising display, or artistic composition. It does not include laser products intended for research or for other non-demonstration purposes, provided the product is not also intended to be a "demonstration laser product." The intent of the manufacturer can be determined by a variety of manifestations and is not limited to the content of the manufacturer's advertisements. Furthermore, the proposed performance standard in no way prohibits the purchase and use of any laser product for any purpose.

Concerning the justification for the proposed special requirements for demonstration laser products, the Commissioner concludes that there are sufficient animal data to indicate a definite hazard at the radiation levels in question. In addition, a field study conducted by FDA revealed that lasers are being used in demonstrations in ways which could cause unintended exposure of students. The Commissioner recognizes the educational value of demonstration laser products and does not intend to prohibit their continued use in a classroom environment. However, it has been concluded that a definite hazard to both students and instructors can exist in the classroom situation and appropriate safety features must be incorporated in the product. The Commissioner does not agree that the blink reflex constitutes a reliable safety factor since the literature shows that a blink did not occur in a majority of human subjects tested for response to a light stimulus. Even under those circumstances where a blink can be elicited, an individual can override the reflex so that its potential utility would be negated.

31. Three letters suggested that a new § 1040.11(d) be established to encompass visible output helium neon lasers which are contained in products designed for nonchronic viewing. It was suggested that such a product should be Class I if its radiation emission did not exceed a radiant power of 39 microwatts or a radiance of 2×10^{-3} watts per square centimeter per steradian because viewing for more than 100 seconds is unlikely.

The Commissioner has concluded that the manufacturer cannot know the specific purposes for which a laser product will be employed by each user. Thus, the manufacturer cannot know that a laser not intended for chronic viewing would not be so viewed. It is, therefore, necessary to provide a warning on any product not suitable for chronic viewing that it should not be so viewed. Such a warning against the chronic exposure hazard from low-powered visible lasers is required for Class II laser products.

In addition to the changes discussed above, a number of editorial changes have been made in the proposed §§ 1040.10 and 1040.11 for internal consistency and clarity. Changes are also proposed in the general provisions of Part 1010 on performance standards to extend their applicability to the New Part 1040. As presently worded, Part 1010 does not refer to the new Part 1040.

Pertinent background data and information supporting the Commissioner's conclusions with respect to this proposal are available for public review in the office of the Hearing Clerk, Rm. 4–65, 5600 Fishers Lane, Rockville, MD 20852.

Therefore, pursuant to provisions of the Public Health Service Act as amended by the Radiation Control for Health and Safety Act of 1968 (sec. 358, 82 Stat. 1177–1179; 42 U.S.C. 263f) and under authority delegated (21 CFR 2.120), the Commissioner proposes to amend Chapter I of Title 21 of the Code of Federal Regulations as follows:

PART 1010—PERFORMANCE STANDARDS FOR ELECTRONIC PRODUCTS: GENERAL

1. By revising § 1010.1 to read as follows:

§ 1010.1 Scope.

The standards listed in this subchapter are prescribed pursuant to section 358 of the Radiation Control for Health and Safety Act of 1968 (42 U.S.C. 263f) and are applicable to electronic products as specified herein, to control electronic product radiation from such products. Standards so prescribed are subject to amendment or revocation and additional standards may be prescribed as are determined necessary for the protection of the public health and safety.

2. By revising paragraphs (a) and (c) of § 1010.2 to read as follows:

§ 1010.2 Certification.

(a) Every manufacturer of an electronic product for which an applicable standard is in effect under this subchapter shall furnish to the dealer or distributor, at the time of delivery of such product, the certification that such product conforms to all applicable standards under this subchapter.

* * * * *

(c) Such certification shall be based upon a test, in accordance with the standard, of the individual article to which it is attached or upon a testing program which is in accordance with good manufacturing practices. The Secretary may disapprove such a testing program on the grounds that it does not assure the adequacy of safeguards against hazardous electronic product ra-

diation or that it does not assure that electronic products comply with the standards prescribed under this subchapter.

* * * * *

3. By revising introductory portion of paragraph (a) and paragraph (c) of § 1010.3 to read as follows:

§ 1010.3 Identification.

(a) Every manufacturer of an electronic product to which a standard under this subchapter is applicable shall set forth the information specified in paragraphs (a)(1) and (2) of this section. This information shall be provided in the form of a tag or label permanently affixed or inscribed on such product so as to be legible and readily accessible to view when the product is fully assembled for use or in such other manner as may be prescribed in the applicable standard.

* * * * *

(c) Every manufacturer of an electronic product to which is applicable a standard under this subchapter shall provide the Secretary with a list identifying each brand name which is applied to the product together with the full name and address of the individual or company for whom each product so branded is manufactured.

4. By revising § 1010.13 to read as follows:

§ 1010.13 Special test procedures.

The Secretary may, on the basis of a written application by a manufacturer, authorize test programs other than those set forth in the standards under this subchapter for an electronic product if he determines that such products are not susceptible to satisfactory testing by the procedures set forth in the standard and that the alternative test procedures assure compliance with the standard.

5. By revising § 1010.20 to read as follows:

§ 1010.20 Electronic products intended for export.

The performance standards prescribed in this subchapter shall not apply to any electronic product which is intended solely for export if:

(a) Such product and the outside of any shipping container used in the export of such product are labeled or tagged to show that such product is intended for export, and

(b) Such product meets all the applicable requirements of the country to which such product is intended for export.

6. By adding a new Part 1040 to read as follows:

PART 1040—PERFORMANCE STANDARDS FOR LIGHT EMITTING PRODUCTS

Sec.
1040.10 Laser products.
1040.11 Specific purpose laser products.

AUTHORITY: Sec. 358, 82 Stat. 1177–1179 (42 U.S.C. 263f).

§ 1040.10 Laser products.

(a) *Applicability.* The provisions of this section and § 1040.11 are applicable as specified herein to all laser products manufactured or assembled on or after (one year after the date the final order is published in the FEDERAL REGISTER).

(b) *Definitions.* As used in this section and § 1040.11, the following definitions apply:

(1) "Accessible emission level" means the magnitude of emission from a laser product of laser or collateral radiation of a wavelength and emission duration to which human access is possible as measured pursuant to paragraph (e) of this section.

(2) "Accessible emission limit" means the maximum accessible emission level permitted within a particular class as set forth in paragraphs (c), (d), and (e) of this section.

(3) "Aperture" means any opening in the protective housing or other enclosure of a laser product through which laser or collateral radiation is emitted, thereby allowing human access to such radiation.

(4) "Aperture stop" means an opening serving to limit the size and to define the shape of the area over which radiation is measured.

(5) "Class I laser product" means any laser product which does not permit human access to laser radiation in excess of the accessible emission limits of Class I for any emission duration.

(6) "Class II laser product" means any laser product which:

(i) Permits human access to laser radiation in excess of the accessible emission limits of Class I but not in excess of the accessible emission limits of Class II in the wavelength range of greater than 400 nanometers (nm) but less than or equal to 700 nm for emission durations greater than 0.25 second; and,

(ii) Does not permit human access to laser radiation in excess of the accessible emission limits of Class I for any other combination of emission duration and wavelength range.

(7) "Class III laser product" means any laser product which permits human access to laser radiation in excess of the accessible emission limits of Class I and Class II as applicable, but which does not permit human access to laser radiation in excess of the accessible emission limits of Class III for any emission duration.

(8) "Class IV laser product" means any laser product which permits human access to laser radiation in excess of the accessible emission limits of Class III.

(9) "Collateral radiation" means any electronic product radiation, except laser radiation, emitted by a laser product as a result of or necessary for the operation of a laser incorporated into that product.

(10) "Demonstration laser product" means any laser product manufactured, designed, intended, or promoted for purposes of demonstration, entertainment, advertising display or artistic composition. The term "demonstration laser product" does not apply to laser products which are designed and intended exclusively for other applications though they may be used for demonstration of those applications.

(11) "Emission duration" means the temporal duration of a pulse, of a series of pulses, or of continuous operation, expressed in seconds, during which human access to laser or collateral radiation could be permitted as a result of operation, maintenance or servicing of a laser product.

(12) "Human access" means access at a particular point to laser or collateral radiation by any part of the human body, by a straight object having a useful length of 100 centimeters, or by any other object having a useful length of 10 centimeters, when laser or collateral radiation is incident at that point.

(13) "Integrated radiance" means radiant energy per unit area of a radiating surface per unit solid angle of emission, expressed in joules per square centimeter per steradian ($J\ cm^{-2}\ sr^{-1}$).

(14) "Irradiance" means the radiant power incident on an element of a surface divided by the area of that element, expressed in watts per square centimeter centimeter ($W\ cm^{-2}$).

(15) "Laser" means any device which can be made to produce or amplify electromagnetic radiation in the wavelength range of greater than 250 nm but less than or equal to 13,000 nm primarily by the process of controlled stimulated emission.

(16) "Laser energy source" means any device intended for use in conjunction with a laser to supply energy for the operation of the laser. General energy sources such as electrical supply mains or batteries shall not be considered to constitute laser energy sources.

(17) "Laser product" means any product or assemblage of components which constitutes, incorporates or is intended to incorporate a laser or laser system, and which is not sold to another manufacturer for use as a component (or replacement for such component) of an electronic product.

(18) "Laser radiation" means all electromagnetic radiation emitted by a laser product within the spectral range specified in paragraph (b)(15) of this section which is produced as a result of controlled stimulated emission, or which is detectable with radiation so produced within the appropriate aperture stop specified in paragraph (e) of this section.

(19) "Laser system" means a laser in combination with an appropriate laser energy source with or without additional incorporated components.

(20) "Maintenance" means performance of those adjustments or procedures specified in user information provided by the manufacturer with the laser product which are to be performed by the user for the purpose of assuring the intended performance of the product. It does not include operation or service as defined in paragraph (b) (23) and (34) of this section.

(21) "Maximum output" means the maximum radiant power and, where applicable, the maximum radiant energy per pulse of the total accessible laser radiation emitted in all directions by a laser product over the full range of operational capability at any time after manufacture.

(22) "Medical laser product" means any laser product manufactured, designed, intended or promoted for purposes of in vivo diagnostic, surgical, or therapeutic laser or collateral irradiation of any part of the human body.

(23) "Operation" means the performance of the laser product over the full range of its intended functions. It does not include maintenance or service as defined in paragraph (b)(20) and (34) of this section.

(24) "Protective housing" means those portions of a laser product which are designed to prevent human access to laser or collateral radiation in excess of the prescribed accessible emission limits under conditions specified in this section and in § 1040.11.

(25) "Pulse duration" means the time increment measured between the half-peak-power points at the leading and trailing edges of a pulse.

(26) "Radiance" means radiant power per unit area of a radiating surface per unit solid angle of emission, expressed in watts per square centimeter per steradian ($W\ cm^{-2}\ sr^{-1}$).

(27) "Radiant energy" means energy emitted, transferred or received in the form of radiation, expressed in joules (J).

(28) "Radiant exposure" means the radiant energy incident on an element of a surface divided by the area of that element, expressed in joules per square centimeter ($J\ cm^{-2}$).

(29) "Radiant power" means power emitted, transferred or received in the form of radiation, expressed in watts (W).

(30) "Remote control connector" means an electrical connector which permits the connection of external controls placed apart from other components of the laser product to prevent human access to all laser and collateral radiation in excess of the limits specified in this section and in § 1040.11.

(31) "Safety interlock" means a device associated with the protective housing of a laser product to prevent human access to excessive radiation in accordance with paragraph (f)(2) of this section.

(32) "Sampling interval" means the magnitude of the time interval during which the level of accessible laser or collateral radiation is determined by a measurement process. The sampling interval is represented by the symbol (t), expressed in seconds.

(33) "Scanned laser radiation" means laser radiation having a time-varying direction, origin or pattern of propagation with respect to a stationary frame of reference.

(34) "Service" means the performance of those procedures or adjustments described in the manufacturer's service instructions which may affect any aspect of the product's performance for which §§ 1040.10 and 1040.11 have applicable requirements. It does not include maintenance or operation as defined in paragraph (b)(20) and (23) of this section.

(35) "Surveying, leveling, or alignment laser product" means a laser product manufactured, designed, intended or promoted for one or more of the following uses:

(i) Determining and delineating the form, extent, or position of a point, body, or area by taking angular measurement.

(ii) Positioning or adjusting parts in proper relation to one another.

(iii) Defining a plane, level, elevation, or straight line.

(36) "Warning logotype" means a logotype as illustrated in either Figure 1 or Figure 2 of paragraph (g) of this section.

(37) "Wavelength" means the propagation wavelength in air of electromagnetic radiation.

(c) *Classification of laser products*—(1) *All laser products.* Each laser product shall be classified in accordance with definitions set forth in paragraph (b)(5) through (8) of this section on the basis of that combination of emission level(s), emission duration(s), and wavelength(s) of accessible laser radiation emitted over the full range of operational capability which results, at any time after manufacture, in the highest class specified in Tables I–A, I–B, and I–C of paragraph (d) of this section pursuant to paragraphs (d) and (e) of this section. For purposes of classification, Class II is higher than Class I, Class III is higher than Class II, and Class IV is higher than Class III.

(2) *Removable laser systems.* Any laser system which is incorporated into a laser product and is capable without modification of producing laser radiation when removed from the laser product, shall be considered a laser product and shall be separately subject to the applicable requirements for laser products of its class. It shall be classified on the basis of accessible emission of laser radiation when so removed.

(d) *Accessible emission limits.* Accessible emission limits for laser radiation in each class are specified in Tables I–A, I–B and I–C of this paragraph in terms of the factors, k_1 and k_2, for different ranges of wavelength and emission duration. These factors are given in Table II–A of this paragraph, with selected numerical values in Table II–B of this paragraph, for various subranges of wavelength and emission duration. The accessible emission limits in Tables I–A, I–B and I–C of this paragraph are also expressed in terms of the sampling interval (t) for some emission duration intervals; and the correction factors in Table II–A of this paragraph are expressed in terms of the specific wavelength (λ) and sampling interval (t) for some subranges of wavelength and subintervals of emission duration. Accessible emission limits for collateral radiation are specified in Table III of this paragraph.

Notes applicable to Tables I–A, I–B and I–C:

(1) The quantities presented in the Tables are radiant energy expressed in joules (J); radiant exposure expressed in joules per square centimeter ($J\ cm^{-2}$); and integrated radiance expressed in joules per square centimeter per steradian ($J\ cm^{-2}\ sr^{-1}$).

(2) The factors k_1 and k_2 are wavelength dependent correction factors determined from Table II–A.

(3) The variable t in the expressions of emission limits is the magnitude of the sampling interval in units of seconds.

(4) An accessible emission limit containing the units of joules, when divided by the sampling interval (t), is equivalent to an accessible emission limit containing the units of watts.

TABLE I–A

CLASS I ACCESSIBLE EMISSION LIMITS FOR LASER RADIATION

Wavelength (nanometers)	Emission duration interval (seconds)	Class I – Accessible emission limits
>250 but ≤400	$\leq 3.0 \times 10^{4}$	$2.4 \times 10^{-5} k_1 k_2$ J*
	$> 3.0 \times 10^{4}$	$8.0 \times 10^{-10} k_1 k_2 t$ J
>400 but ≤1400	$> 1.0 \times 10^{-9}$ to 2.0×10^{-5}	$2.0 \times 10^{-7} k_1 k_2$ J
	$> 2.0 \times 10^{-5}$ to 1.0×10^{1}	$7.0 \times 10^{-4} k_1 k_2 t^{3/4}$ J
	$> 1.0 \times 10^{1}$ to 1.0×10^{4}	$3.9 \times 10^{-3} k_1 k_2$ J
	$> 1.0 \times 10^{4}$	$3.9 \times 10^{-7} k_1 k_2 t$ J
	OR**	
	$> 1.0 \times 10^{-9}$ to 1.0×10^{1}	$10 k_1 k_2 t^{1/3}$ J cm^{-2} sr^{-1}
	$> 1.0 \times 10^{1}$ to 1.0×10^{4}	$20 k_1 k_2$ J cm^{-2} sr^{-1}
	$> 1.0 \times 10^{4}$	$2.0 \times 10^{-3} k_1 k_2 t$ J cm^{-2} sr^{-1}
>1400 but ≤13000	$> 1.0 \times 10^{-9}$ to 1.0×10^{-7}	$7.9 \times 10^{-5} k_1 k_2$ J
	$> 1.0 \times 10^{-7}$ to 1.0×10^{1}	$4.4 \times 10^{-3} k_1 k_2 t^{1/4}$ J
	$> 1.0 \times 10^{1}$	$7.9 \times 10^{-4} k_1 k_2 t$ J

* Class I accessible emission limits for the wavelength range of greater than 250 nm but less than or equal to 400 nm shall not exceed the Class I accessible emission limits for the wavelength range of greater than 1400 nm but less than or equal to 13000 nm with a k_1 and k_2 of 1.0 for comparable sampling intervals.

**Instructions for the Class I dual limits are set forth in paragraph (d)(4) of this section.

TABLE I–B

CLASS II ACCESSIBLE EMISSION LIMITS FOR LASER RADIATION

Wavelength (nanometers)	Emission duration interval (seconds)	Class II – Accessible emission limits
>400 but ≤ 700	$>2.5 \times 10^{-1}$	$1.0 \times 10^{-3} k_1 k_2 t$ J

TABLE I–C

CLASS III ACCESSIBLE EMISSION LIMITS FOR LASER RADIATION

Wavelength (nanometers)	Emission duration interval (seconds)	Class III – Accessible emission limits
>250 but ≤ 400	$\leq 2.5 \times 10^{-1}$	$3.8 \times 10^{-4} k_1 k_2$ J
	$>2.5 \times 10^{-1}$	$1.5 \times 10^{-3} k_1 k_2 t$ J
>400 but ≤ 1400	$>1.0 \times 10^{-9}$ to 2.5×10^{-1}	$10 k_1 k_2 t^{1/3}$ J cm^{-2} to a maximum value of 10 J cm^{-2}
	$>2.5 \times 10^{-1}$	$5.0 \times 10^{-1} t$ J
>1400 but ≤ 13000	$>1.0 \times 10^{-9}$ to 1.0×10^{1}	10 J cm^{-2}
	$>1.0 \times 10^{1}$	$5.0 \times 10^{-1} t$ J

TABLE II–A

VALUES OF WAVELENGTH DEPENDENT CORRECTION FACTORS k_1 AND k_2

Wavelength band (nanometers)	k_1	k_2		
250 to 302.4	1.0	1.0		
> 302.4 to 315	$10^{\left[\frac{\lambda - 302.4}{5}\right]}$	1.0		
> 315 to 400	330.0	1.0		
> 400 to 700	1.0	1.0		
> 700 to 800	$10^{\left[\frac{\lambda - 700}{515}\right]}$	if: $t \leq \frac{10100}{\lambda - 699}$ then: $k_2 = 1.0$	if: $\frac{10100}{\lambda - 699} < t \leq 10^4$ then: $k_2 = \frac{t(\lambda - 699)}{10100}$	if: $t > 10^4$ then: $k_2 = \frac{\lambda - 699}{1.01}$
> 800 to 1060	$10^{\left[\frac{\lambda - 700}{515}\right]}$	if: $t \leq 100$ then: $k_2 = 1.0$	if: $100 < t \leq 10^4$ then: $k_2 = \frac{t}{100}$	if: $t > 10^4$ then: $k_2 = 100$
> 1060 to 1400	5.0			
> 1400 to 1535	1.0	1.0		
> 1535 to 1545	$t \leq 10^{-7}$ $k_1 = 100.0$	1.0		
	$t > 10^{-7}$ $k_1 = 1.0$			
> 1545 to 13000	1.0	1.0		

Note: The variables in the expressions are the magnitudes of the sampling interval (t), in units of seconds, and the wavelength (λ), in units of nanometers.

TABLE II–B

SELECTED NUMERICAL SOLUTIONS FOR k_1 AND k_2

Wavelength (nanometers)	k_1	k_2				
		$t \leq 100$	$t = 300$	$t = 1000$	$t = 3000$	$t \geq 10{,}000$
250	1.0					
300	1.0					
302	1.0					
303	1.32					
304	2.09					
305	3.31					
306	5.25					
307	8.32					
308	13.2					
309	20.9					
310	33.1			1.0		
311	52.5					
312	83.2					
313	132.0					
314	209.0					
315	330.0					
400	330.0					
401	1.0					
500	1.0					
600	1.0					
700	1.0					
710	1.05	1	1	1.1	3.3	11.0
720	1.09	1	1	2.1	6.3	21.0
730	1.14	1	1	3.1	9.3	31.0
740	1.20	1	1.2	4.1	12.0	41.0
750	1.25	1	1.5	5.0	15.0	50.0
760	1.31	1	1.8	6.0	18.0	60.0
770	1.37	1	2.1	7.0	21.0	70.0
780	1.43	1	2.4	8.0	24.0	80.0
790	1.50	1	2.7	9.0	27.0	90.0
800	1.56	1	3.0	10.0	30.0	100.0
850	1.95	1	3.0	10.0	30.0	100.0
900	2.44	1	3.0	10.0	30.0	100.0
950	3.05	1	3.0	10.0	30.0	100.0
1000	3.82	1	3.0	10.0	30.0	100.0
1050	4.78	1	3.0	10.0	30.0	100.0
1060	5.00	1	3.0	10.0	30.0	100.0
1100	5.00	1	3.0	10.0	30.0	100.0
1400	5.00	1	3.0	10.0	30.0	100.0
1500	1.0					
1540	100.0*			1.0		
1600	1.0					
13000	1.0					

*The factor $k_1 = 100.0$ when $t \leq 10^{-7}$, and $k_1 = 1.0$ when $t > 10^{-7}$

Note: The variable (t) is the magnitude of the sampling interval in units of seconds.

TABLE III

ACCESSIBLE EMISSION LIMITS FOR COLLATERAL RADIATION FROM LASER PRODUCTS

1. *Accessible emission limits* for collateral radiation having wavelengths greater than 250 nm but less than or equal to 18,000 nm are identical to the accessible emission limits of Class I laser radiation as determined from Tables I–A and II–A set forth in this paragraph for the appropriate wavelength(s) and emission duration interval.

2. *Accessible emission limit* for collateral radiation within the x-ray range of wavelengths is 0.5 milliroentgen in an hour, averaged over a cross-section parallel to the external surface of the product, having an area of 10 square centimeters with no dimension greater than 5 centimeters.

(1) *Beam of a single wavelength.* Laser or collateral radiation of a single wavelength exceeds the accessible emission limits of a class if its accessible emission level is greater than the accessible emission limit of that class within any of the emission duration intervals specified in Tables I–A, I–B and I–C of this paragraph.

(2) *Beam of multiple wavelengths in same range.* Laser or collateral radiation, having two or more wavelengths within any one of the wavelength ranges specified in Tables I–A, I–B and I–C of this paragraph, exceeds the accessible emission limits of a class if the sum of the ratios of the accessible emission level to the corresponding accessible emission limit at each such wavelength is greater than unity for that combination of emission duration and wavelength distribution which results in the maximum sum.

(3) *Beam with multiple wavelengths in different ranges.* Laser or collateral radiation having wavelengths within two or more of the wavelength ranges specified in Tables I–A, I–B and I–C of this paragraph exceeds the accessible emission limits of a class if it exceeds the applicable limits within any one of those wavelength ranges. This determination is made for each wavelength range in accordance with paragraph (d)(1) or (2) of this section.

(4) *Class I dual limits.* Laser or collateral radiation in the wavelength range of greater than 400 nm but less than or equal to 1,400 nm exceeds the accessible emission limits of Class I if it exceeds both:

(i) The Class I accessible emission limits for radiant energy within any corresponding emission duration interval specified in Table I–A of this paragraph; and,

(ii) The Class I accessible emission limits for integrated radiance within any corresponding emission duration interval specified in Table I–A of this paragraph.

(e) *Tests for determination of compliance*—(1) *Tests for certification.* Tests on which certification pursuant to § 1010.2 of this chapter is based shall account for all measurement errors and uncertainties. Because compliance is required for the useful life of a product, such tests shall also account for increases in emission and degradation in radiation safety with age.

(2) *Test conditions.* Tests for compliance with each of the applicable requirements of this section and § 1040.11 shall be made:

(i) Under those operational conditions and procedures which maximize the accessible emission levels including start-up, stabilized operation, and shut-down of the laser product; and,

(ii) With all controls and adjustments listed in the operation, maintenance and service instructions adjusted for the maximum accessible emission level of radiation which is not expected to be detrimental to the functional integrity of the product; and,

(iii) At points in space to which human access is possible in the product configuration during operation, maintenance or service which is necessary to determine compliance with each requirement, e.g., if operation may include removal of portions of the protective housing and defeat of safety interlocks, measurements shall be made at points accessible in that product configuration; and,

(iv) With the measuring instrument detector so positioned and so oriented with respect to the laser product as to result in the maximum detection of radiation by the instrument; and,

(v) For a laser product other than a laser system, with the laser coupled to that type of laser energy source which is specified as compatible by the laser product manufacturer and which produces the maximum emission level of accessible radiation from that product.

(3) *Measurement parameters.* Accessible emission levels of laser and collateral radiation shall be based upon the following measurements as appropriate, or their equivalent:

(i) The radiant power (W) or radiant energy (J) detectable within a circular aperture stop having a diameter of 80 millimeters (except for scanned laser radiation).

(ii) The irradiance (W cm^{-2}) or radiant exposure (J cm^{-2}) averaged over a circular aperture stop having a diameter of 7 millimeters.

(iii) The radiance (W cm^{-2} sr^{-1}) or integrated radiance (J cm^{-2} sr^{-1}) which is equivalent to the radiant power (W) or radiant energy (J) detectable through a circular aperture stop having a diameter of 7 millimeters and within an effective solid angle of acceptance of 10^{-2} sr, divided by that solid angle (sr) and by the area of the aperture stop (cm^2).

(4) *Measurement parameters for scanned laser radiation.* Accessible emission levels of scanned laser radiation shall be based upon the measurement of radiation detectable within a stationary circular aperture stop having a 7-millimeter diameter. The resulting temporal variation of detected radiation shall be considered as a pulse or series of pulses.

(f) *Operational requirements*—(1) *Protective housing.* Each laser product, regardless of its class, shall have a protective housing which, when in place, prevents human access during operation to:

(i) Laser radiation in excess of the accessible emission limits of Class I wherever and whenever human access to laser radiation exceeding the limits of Class I is not necessary for the performance of the intended function(s) of the product; and,

(ii) Laser radiation in excess of the accessible emission limits of Class II wherever and whenever human access to laser radiation exceeding the limits of Class II is not necessary for the performance of the intended function(s) of the product; and,

(iii) Laser radiation in excess of the accessible emission limits of Class III wherever and whenever human access to laser radiation exceeding the limits of Class III is not necessary for the performance of the intended function(s) of the product; and,

(iv) Collateral radiation in excess of the accessible emission limits specified in Table III in paragraph (d) of this section wherever and whenever human access to collateral radiation in excess of those limits is not necessary for the performance of the intended function(s) of the product.

(2) *Safety interlocks.* (i) Each laser product, regardless of its class, shall be provided with a safety interlock for each portion of the protective housing which is designed to be removed or displaced during operation or maintenance, if removal or displacement of such portion of the protective housing could permit human access to laser or collateral radiation in excess of the accessible emission limits applicable under paragraph (f)(1) of this section. Each required safety interlock, unless defeated, shall:

(*a*) Prevent such human access to laser and collateral radiation upon removal or displacement of such portion of the protective housing; and,

(*b*) Preclude removal or displacement of such portion of the protective housing upon failure to prevent human access to laser and collateral radiation as required in paragraph (f)(2)(i)(*a*) of this section.

(ii) Laser products which incorporate required safety interlocks designed to allow safety interlock defeat shall incorporate a means of visual or aural indication of interlock defeat. During interlock defeat, such indication shall be visible or audible whenever the laser product is energized, with and without the associated portion of the protective housing removed or displaced.

(iii) Replacement of a removed or displaced portion of the protective housing shall not be possible while required safety interlocks are defeated.

(3) *Remote control connector.* Each laser system classified as a Class III or IV laser product shall incorporate a

readily accessible remote control connector having an electrical potential difference on the remote control connector no greater than 130 root-mean-square volts. When the terminals of the connector are not electrically joined, human access to all laser and collateral radiation from the laser product in excess of the accessible emission limits of Class I and Table III of paragraph (d) of this section shall be prevented.

(4) *Key control.* Each laser system classified as a Class III or IV laser product shall incorporate a key-actuated master control. The key shall be removable and the laser shall not be operable when the key is removed.

(5) *Laser radiation emission indicator.* Each laser system classified as a Class II, III, or IV laser product shall provide a visible or audible indication immediately before and during the emission of accessible laser radiation in excess of the limits of Class I. Any visual indicator shall be clearly visible through protective eyewear designed specifically for the wavelength(s) of the emitted laser radiation. If the laser and laser energy source are housed separately and can be operated at a separation distance of greater than 2 meters, both laser and laser energy source shall incorporate visual or aural indicators as described. The visual indicators shall be positioned so that viewing does not require human access to laser or collateral radiation in excess of the accessible emission limits of Class I and Table III.

(6) *Beam attenuator.* Each laser system classified as a Class II, III, or IV laser product shall be provided with one or more permanently attached means, other than laser energy source switch(es), electrical supply main connectors or the key-actuated master control, capable of preventing human access to all laser and collateral radiation in excess of the accessible emission limits of Class I and Table III.

(7) *Location of controls.* Each Class II, III, or IV laser product shall have operational and adjustment controls located so that human access to laser and collateral radiation in excess of the accessible emission limits of Class I and Table III of paragraph (d) of this section is unnecessary for operation or adjustment of controls.

(8) *Viewing optics.* All viewing optics, viewports, and display screens incorporated into a laser product, regardless of its class, shall attenuate at all times the accessible levels of transmitted laser and collateral radiation to less than the accessible emission limits of Class I and Table III of paragraph (d) of this section. For any shutter or variable attenuator incorporated into such viewing optics, viewpoints, or display screens, a means shall be provided:

(i) To prevent human access to laser and collateral radiation in excess of the accessible emission limits of Class I and Table III of paragraph (d) of this section whenever the shutter is opened or the attenuator varied; and,

(ii) To preclude, upon failure of such means as required in paragraph (f) (8) (i) of this section, opening the shutter or varying the attenuator when human access is possible to transmitted laser or collateral radiation in excess of the accessible emission limits of Class I and Table III of paragraph (d) of this section.

(9) *Scanning safeguard.* Laser products which emit accessible scanned laser radiation shall not, as a result of scan failure or other failure causing a change in either scan velocity or amplitude, permit human access to laser radiation in excess of the accessible emission limit(s) which are applicable to the scanned laser radiation when the product is functioning as intended.

(g) *Labeling requirements.* In addition to the requirements of §§ 1010.2 and 1010.3 of this chapter, each laser product shall be subject to the applicable labeling requirements of this paragraph.

(1) *Class II designation and warning.* Each Class II laser product shall have affixed a label bearing the warning logotype A (Figure 1 in this paragraph) and including the following wording:

(Position 1 on the logotype)
"LASER RADIATION—DO NOT STARE INTO BEAM"; and,
(Position 3 on the logotype)
"CLASS II LASER PRODUCT".

WARNING LOGOTYPE A

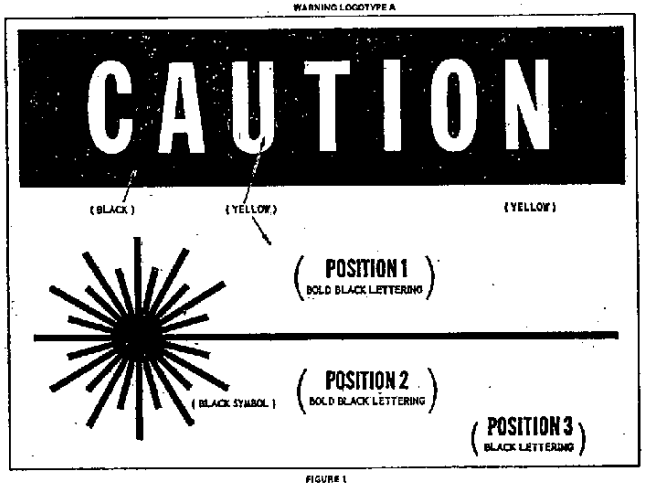

FIGURE 1

(2) *Class III designation and warning.* (i) Each laser product classified in Class III solely because of the emission of accessible laser radiation for emission durations greater than 3.8×10^{-4} second and in the wavelength range of greater than 400 nm but less than or equal to 700 nm, with an irradiance of less than or equal to 2.5×10^{-4} W cm^{-2} and with a peak radiant power of less than or equal to 5.0×10^{-4} W shall have affixed a label bearing the warning logotype A (Figure 1 of paragraph (g) (1) of this section) and including the following wording:

(Position 1 on the logotype)
"LASER RADIATION—DO NOT STARE INTO THE BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS"; and,
(Position 3 on the logotype)
"CLASS III LASER PRODUCT".

(ii) Each Class III laser product other than those described in paragraph (g) (2) (i) of this section shall have affixed a label bearing the warning logotype B (Figure 2 in this paragraph) and including the following wording:

(Position 1 on the logotype)
"LASER RADIATION—AVOID EXPOSURE TO BEAM"; and,
(Position 3 on the logotype)
"CLASS III LASER PRODUCT".

WARNING LOGOTYPE B

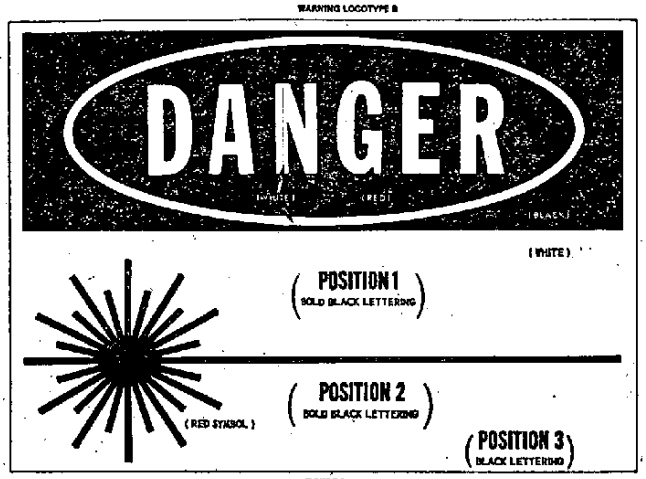

FIGURE 2

(3) *Class IV designation and warning.* Each Class IV laser product shall have affixed a label bearing the warning logotype B (Figure 2 of paragraph (g) (2) (ii) of this section), and including the following wording:

(Position 1 on the logotype)
"LASER RADIATION—AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION"; and,
(Position 3 on the logotype)
"CLASS IV LASER PRODUCT".

(4) *Aperture label.* Each laser product, except medical laser products, shall have affixed, in close proximity to each aperture through which is emitted accessible laser or collateral radiation in excess of the accessible emission limits of Class I and Table III of paragraph (d) of this section, a label(s) bearing the following wording: "AVOID EXPOSURE—Radiation is emitted from this aperture."

(5) *Radiation output information.* Each Class II, III, and IV laser product shall state in appropriate units, at position 2 on the required warning logotype, the maximum output of laser radiation, the pulse duration when appropriate, and the laser medium or emitted wavelength(s).

(6) *Labels for noninterlocked protective housings.* For each laser product, labels shall be provided for each portion of the protective housing having no safety interlock, which is designed to be displaced or removed during operation, maintenance or servicing, and which thereby could permit human access to laser or collateral radiation in excess of the limits of Class I and Table III in paragraph (d) of this section. Such labels shall be visible on the protective housing prior to displacement or removal of the protective housing and visible on the product in close proximity to the opening created by removal or displacement of the protective housing, and shall include the wording:

(i) "CAUTION—Laser radiation when open. DO NOT STARE INTO BEAM." for accessible laser radiation:

(*a*) In excess of the accessible emission limits of Class I for emission durations greater than 0.25 second and in the wavelength range greater than 400 nm but less than or equal to 700 nm; and,

(*b*) Not in excess of the accessible emission limits of Class II; and,

(*c*) Not in excess of the accessible emission limits of Class I for any other combination of wavelength(s) and emission duration(s).

(ii) "CAUTION—Laser radiation when open. DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS." for accessible laser radiation:

(*a*) In excess of the accessible emission limits of Class II; and,

(*b*) In excess of neither an irradiance of 2.5×10^{-3} W cm^{-2} nor a peak power of 5.0×10^{-3} W for emission durations greater than 3.8×10^{-4} second for wavelengths greater than 400 nm but less than or equal to 700 nm; and,

(*c*) Not in excess of the accessible emission limits of Class I for any other combination of wavelength(s) and emission duration(s).

(iii) "DANGER—Laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM." for accessible laser radiation:

(*a*) Not in excess of the accessible emission limits of Class III for all wavelengths; and either,

(*b*) In excess of either an irradiance of 2.5×10^{-3} W cm^{-2} or a peak power of 5.0×10^{-3} W for emission durations greater than 3.8×10^{-4} second for wavelengths greater than 400 nm but less than or equal to 700 nm; or,

(*c*) In excess of the accessible emission limit of Class I for any other wavelength.

(iv) "DANGER—Laser radiation when open. AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION." for accessible laser radiation in excess of the accessible emission limits of Class III for all wavelengths.

(v) "CAUTION—Hazardous electromagnetic radiation when open." for collateral radiation in excess of the accessible emission limits in Table III, item 1 of paragraph (d) of this section.

(vi) "CAUTION—Hazardous x-ray radiation when open." for collateral radiation in excess of the accessible emission limits in Table III, item 2 of paragraph (d) of this section.

(7) *Labels for defeatably interlocked protective housings.* For each laser product, labels shall be provided for each defeatably interlocked protective housing which is designed to be displaced or removed during operation, maintenance or servicing, and which thereby could permit human access to laser or collateral radiation in excess of the limits of Class I or Table III in paragraph (d) of this section. Such labels shall be visible on the protective housing prior to displacement or removal of the protective housing and visible on the product in close proximity to the opening created by the removal or displacement of the protective housing, and shall include the wording:

(i) "CAUTION—Laser radiation when open and interlock defeated. DO NOT STARE INTO BEAM." for accessible laser radiation:

(*a*) In excess of the accessible emission limits of Class I for emission durations greater than 0.25 second and in the wavelength range greater than 400 nm but less than or equal to 700 nm; and,

(*b*) Not in excess of the accessible emission limits of Class II; and,

(*c*) Not in excess of the accessible emission limits of Class I for any other combination of wavelength(s) and emission duration(s).

(ii) "CAUTION — Laser radiation when open and interlock defeated. DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS." for accessible laser radiation:

(*a*) In excess of the accessible emission limits of Class II; and,

(*b*) In excess of neither an irradiance of 2.5×10^{-3} W cm^{-2} nor a peak power of 5.0×10^{-3} W for emission durations greater than 3.8×10^{-4} second for wavelengths greater than 400 nm but less than or equal to 700 nm; and,

(*c*) Not in excess of the accessible emission limits of Class I for any other combination of wavelength(s) and emission duration(s).

(iii) "DANGER—Laser radiation when open and interlock defeated. AVOID DIRECT EXPOSURE TO BEAM." for accessible laser radiation:

(*a*) Not in excess of the accessible emission limits of Class III for all wavelengths; and either,

(*b*) In excess of either an irradiance of 2.5×10^{-3} W cm^{-2} or a peak power of 5.0×10^{-3} W for emission durations

greater than 3.8×10^{-4} second for wavelengths greater than 400 nm but less than or equal to 700 nm; or,

(c) In excess of the accessible emission limit of Class I for any other wavelength.

(iv) "DANGER—Laser radiation when open and interlock defeated. AVOID EYE OR SKIN EXPOSURE TO DIRECT OR SCATTERED RADIATION." for accessible laser radiation in excess of the accessible emission limits of Class III for all wavelengths.

(v) "CAUTION—Hazardous electromagnetic radiation when open and interlock defeated." for collateral radiation in excess of the accessible emission limits in Table III, item 1 of paragraph (d) of this section.

(vi) "CAUTION — Hazardous x-ray radiation when open and interlock defeated." for collateral radiation in excess of the accessible emission limits in Table I, item 2 of paragraph (d) of this section.

(8) *Warning for invisible radiation.* On the labels specified in this paragraph and § 1040.11, if the wavelength(s) of the laser or collateral radiation referred to is:

(i) Less than or equal to 400 nm or greater than 700 nm, the word "invisible" shall appropriately precede the word "radiation"; or,

(ii) In the range specified in paragraph (g)(8)(i) of this section and also within the range of greater than 400 nm but less than or equal to 700 nm, the words "visible and invisible" shall appropriately precede the word "radiation".

(9) *Positioning of labels.* All labels affixed to a laser product shall be positioned so as to make unnecessary, during reading, human access to laser and collateral radiation in excess of the accessible emission limits of Class I and Table III of paragraph (d) of this section.

(10) *Label specifications.* Labels required by this paragraph and § 1040.11 shall be permanently affixed to the laser product, legible, and clearly visible during operation, maintenance or service as appropriate. If the size, configuration, or design of the laser product would preclude compliance with the requirements for any required label, the Director, Bureau of Radiological Health, may approve alternate means of providing such label(s).

(h) *Informational requirements*—(1) *User information.* Manufacturers of laser products shall provide as an integral part of any user instruction or operation manual which is regularly supplied with the product, or, if not so supplied, shall cause to be provided with each laser product:

(i) Adequate instructions for proper assembly and safe use including clear warnings concerning precautions to avoid possible exposure to laser and collateral radiation in excess of the accessible emission limits in Tables I–A, I–B, I–C and III of paragraph (d) of this section, and a schedule of maintenance necessary to keep the product in compliance with this section and § 1040.11.

(ii) A statement in appropriate units of pulse duration(s) and maximum output, with the magnitudes of the cumulative measurement uncertainty and any expected increase in the measured quantities at any time after manufacture added to the values measured at the time of manufacture (duration of pulses resulting from unintentional mode-locking need not be specified; however, those conditions associated with the product known to result in unintentional mode-locking shall be specified).

(iii) Legible reproductions (color optional) of all labels and hazard warnings required by paragraph (g) of this section and § 1040.11 to be affixed to the laser product or provided with the laser product, including the information required for positions 1, 2, and 3 of the applicable logotype (Figure 1 or 2 of paragraph (g) (1) and (2)(ii) of this section). The corresponding position of each label affixed to the product shall be indicated or, if provided with the product, a statement that such labels could not be affixed to the product but were supplied with the product and a statement of the form and manner in which they were supplied shall be provided.

(iv) A listing of controls, adjustments and procedures for operation and maintenance, including the warning "Caution—use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure."

(v) In the case of laser products other than laser systems, a statement of the compatibility requirements for a laser energy source that will assure compliance of the laser product with this section and § 1040.11.

(2) *Purchasing and servicing information.* Manufacturers of laser products shall provide or cause to be provided:

(i) In all catalogs, specification sheets and descriptive brochures pertaining to each laser product, a legible reproduction (color optional) of the warning logotype required to be affixed to that product, including the information required for positions 1, 2, and 3 of the applicable logotype (Figure 1 or 2 under paragraph (g) (1) and (2)(ii) of this section).

(ii) To servicing dealers and distributors, and to others upon request at a cost not to exceed the cost of preparation and distribution, adequate instructions for service adjustments and service procedures for each laser product model including clear warnings and precautions to be taken to avoid possible exposure to radiation and a schedule of maintenance necessary to keep the product in compliance with this section and § 1040.11; and, in all such service instructions a listing of those controls and procedures which could be utilized by persons other than the manufacturer or his agents to increase accessible emission levels of radiation, and a clear description of the location of displaceable portions of the protective housing which could allow access to laser or collateral radiation in excess of the accessible emission limits in Tables I–A, I–B, I–C and III of paragraph (d) of this section. The instructions shall include protective procedures for service personnel, and legible reproductions (color optional) of required labels and hazard warnings.

(i) *Modification of a certified product.* The modification of a laser product, previously certified pursuant to § 1010.2 of this chapter, by any person engaged in the business of manufacturing, assembling or modifying laser products shall be construed as manufacturing under the act if the modification affects any aspect of the product's performance or intended function(s) for which this section and § 1040.11 have an applicable requirement. The manufacturer who performs such modification shall recertify and reidentify the product in accordance with the provisions of §§ 1010.2 and 1010.3 of this chapter.

§ 1040.11 Specific purpose laser products.

(a) *Medical laser products.* Each medical laser product shall comply with all of the applicable requirements of § 1040.10 for laser products of its class. In addition, the manufacturer shall:

(1) On Class III or IV laser products, incorporate in each medical laser product a means for the measurement of the level of that laser radiation intended for irradiation of the human body with an error in measurement of no more than ±20 percent when calibrated in accordance with paragraph (a)(2) of this section. Indication of the measurement shall be in International System Units.

(2) Supply with each medical laser product instructions specifying a procedure and schedule for calibration of the measurement system required by paragraph (a)(1) of this section.

(3) Affix to each medical laser product, in close proximity to each aperture through which is emitted accessible laser or collateral radiation in excess of the accessible emission limits of Class I and Table III of § 1040.10(d), a label bearing the wording: "Radiation is emitted from this aperture."

(b) *Surveying, leveling, and alignment laser products.* Each surveying, leveling, or alignment laser product shall comply with all of the applicable requirements of § 1040.10 for a Class I, Class II, or Class III laser product and, in addition:

(1) Shall not permit human access to laser radiation in the wavelength range of greater than 400 nm but less than or equal to 700 nm with a peak radiant power that exceeds 5×10^{-3} W for any sampling interval greater than 3.8×10^{-4} second; and,

(2) Shall not permit human access to laser radiation in excess of the accessible emission limits of Class I for any other combination of emission duration and wavelength range.

(c) *Demonstration laser products.* Each demonstration laser product shall comply with all of the applicable requirements of § 1040.10 for a Class I or Class II laser product and shall not permit human access to laser radiation in excess of the accessible emission limits of Class I and Class II as applicable.

Interested persons may, on or before October 4, 1974, file with the Hearing Clerk, Food and Drug Administration, Rm. 4–65, 5600 Fishers Lane, Rockville, MD 20852, written comments (preferably in quintuplicate) regarding this proposal. Comments may be accompanied by a memorandum or brief in support thereof. Received comments may be seen in the above office during working hours, Monday through Friday.

Dated: August 19, 1974.

SAM D. FINE,
Associate Commissioner for Compliance.

[FR Doc.74–19655 Filed 9–3–74;8:45 am]

資　　料　　3

西独における小売関係統計指標

NCR Germany"Wer Wie Was" より

1　表　　標準所帯の所帯当り家計収支月額（1971－1973）　　（単位：DM＝ドイツマルク）

	1971 所帯のタイプ			1972 所帯のタイプ			1973 所帯のタイプ		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
	1	2	3	1	2	3	1	2	3
可分所得総額	621.50	1,427.36	2,630.39	701.76	1,572.71	2,805.41	755.94	1,761.02	3,074.63
支　出									
食料，嗜好品費	246.57	414.73	519.51	261.95	436.25	552.00	277.49	466.02	588.80
衣料，履物費	41.87	129.24	221.29	49.32	143.37	218.94	47.48	146.51	232.20
住　居　費	115.41	182.69	278.43	127.64	209.09	313.65	140.17	227.44	344.74
光，熱　費	38.91	55.30	72.37	42.34	57.65	75.14	50.97	73.01	93.17
家　財　費	48.94	126.09	216.00	56.40	128.38	241.34	65.91	161.12	246.57
交通，通信費	22.93	138.62	319.29	24.29	138.64	334.41	29.87	176.78	339.91
健康管理品費	21.02	42.71	122.23	22.17	45.68	123.30	26.70	47.20	140.57
教養，娯楽費	23.11	93.16	180.17	26.04	105.31	192.14	25.36	117.39	216.02
雑　費	9.72	40.03	99.77	10.67	47.14	113.97	13.07	55.40	125.09

注：(1)　年金生活者または社会保障給付対象者で2人所帯，最低収入；(2)　ブルーカラー，4人所帯，中位所得；(3)　ホワイトカラー，4人所帯，高所得

2　表　　標準所帯の所帯当り家計支出百分比内訳（1971－1973）

（単位：%）

	1971 所帯のタイプ			1972 所帯のタイプ			1973 所帯のタイプ		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
	1	2	3	1	2	3	1	2	3
支出合計	(DM) 568.48 =100%	1,222.57 =100%	2,029.06 =100%	620.82 =100%	1,311.51 =100%	2,164.89 =100%	677.02 =100%	1,470.87 =100%	2,327.07 =100%
食料，嗜好品費	43.4	33.9	25.6	42.2	33.3	25.5	41.0	31.7	25.3
衣料，履物費	7.4	10.6	10.9	7.9	10.9	10.1	7.0	10.0	10.0
住居費	20.3	15.0	13.7	20.6	15.9	14.5	20.7	15.5	14.8
光熱費	6.8	4.5	3.6	6.8	4.4	3.5	7.5	5.0	4.0
家財費	8.6	10.3	10.7	9.1	9.8	11.1	9.7	11.0	10.6
交通，通信費	4.0	11.3	15.7	3.9	10.6	15.4	4.4	12.0	14.6
健康管理品費	3.7	3.5	6.0	3.6	3.5	5.7	3.9	3.2	6.0
教養，娯楽費	4.1	7.6	8.9	4.2	8.0	8.9	3.8	8.0	9.3
雑費	1.7	3.3	4.9	1.7	3.6	5.3	1.9	3.8	5.4

注：(1)　年金生活者または社会保障給付対象者で2人所帯，最低収入；(2)　ブルーカラー，4人所帯，中位所得；(3)　ホワイトカラー，4人所帯，高所得

3　表　　食料品に関する小売形態別売上（１９７３）

	店　数	売場面積（百万平方メートル）	売　上（十億マルク）	売上百分比
通常小売店	20,899	0.78	4.1	5.9
スーパーマーケット	3,510	1.91	15.1	21.6
百貨店における食料品部門	564	0.35	4.7	6.7
セルフ・サービス・センターおよびセルフ・サービス百貨店における食料品部門	974	1.30	10.5	15.0
その他のセルフ・サービス店（ディスカウント店を含む）	73,703	9.24	35.5	50.8
合　計	99,650	13.58	69.9	100.0

4　表　　セルフ・サービス店の売上と売場面積の発展（1960－1973）

年	売上 十億マルク	売上 指数 1960=100	店数	店数 指数 1960=100	売場面積 百万平方メートル	売場面積 指数 1960=100
1960	10.0	100	22,619	100	1.6	100
1965	26.3	263	62,714	277	5.7	356
1966	31.6	316	72,241	319	6.6	413
1967	34.5	345	80,214	355	7.7	481
1968	38.2	382	85,357	377	8.9	556
1969	43.2	432	85,602	378	10.1	631
1970	47.5	475	86,398	382	11.38	711
1971	52.8	528	82,950	367	11.69	731
1972	58.7	587	79,723	352	12.14	759
1973	65.8	658	78,751	348	12.80	800

5　表　　セルフ・サービス・チェーンストアおよびスーパーマーケットにおける
売場面積1平方メートル当りの売上（１９７２－１９７３）　　（単位：ＤＭ）

売場面積段階（平方メートル）	売場面積1平方メートル当り売上 年間 1972	1973	週間 1972	1973
100—149	10,428	11,139	199	214
150—199	9,656	9,719	185	186
200—299	9,048	9,316	173	179
300—399	8,435	8,916	161	171
平　均	9,404	9,674	179.90	185.55

6　表　　セルフ・サービス店における単位売上の発展（1960—1973）

（単位：DM）

年	年間売上	
	従業員1人当り	売場面積1平方メートル当り
1960	98,000	8,230
1961	104,600	7,930
1962	111,900	8,020
1963	121,100	8,090
1964	128,800	8,550
1965	139,600	8,890
1966	145,200	8,820
1967	149,000	8,850
1968	152,900	8,870
1969	164,187	9,215
1970	177,338	9,210
1971	181,794	9,748
1972	189,662	9,404
1973	194,495	9,674

7　表　　セルフ・サービス・チェーンストアおよびスーパーマーケットにおける
従業員1人当り売場面積（1972－1973）　　（単位：平方メートル）

売場面積段階（平方メートル）	従業員1人当り売場面積 1972	1973
100—149	17.0	16.2
150—199	18.1	18.7
200—299	20.4	20.4
300—399	23.6	23.5
平　　均	21.3	21.8

8　表　　セルフサービス・チェーンストアおよびスーパーマーケットにおける
客単価と1レジ当り年間売上（1972－1973）　　（単位：DM）

売場面積段階（平方メートル）	客単価		1レジ当り年間売上	
	1972	1973	1972	1973
100—149	7.70	7.60	577,601	574,001
150—199	8.40	8.60	609,180	623,723
200—299	9.20	9.70	696,812	697,290
300—399	10.50	10.90	764,064	802,184
平　均	9.60	10.20	739,855	766,457

9　表　　セルフ・サービス・チェーンストアおよびスーパーマーケットにおける人件費（１９７２－１９７３）

売場面積段階（平方メートル）	対売上％		従業員１人当り年間人件費（ＤＭ）	
	１９７２	１９７３	１９７２	１９７３
１００－１４９	9.0	9.5	16,127	16,355
１５０－１９９	8.7	9.1	15,300	16,655
２００－２９９	8.4	9.1	15,287	17,171
３００－３９９	7.5	8.0	14,893	16,508
平　　均	8.2	8.6	15,552	16,726

１０表　　食料品および日用品のアイテム数（１９７４　初）

売場面積段階（平方メートル）	チェーン店			単独店		
	食料品	日用品	合計	食料品	日用品	合計
400未満	2,446	592	3,038	2,361	900	3,261
%	(80.5)	(19.5)	(100.0)	(72.4)	(27.6)	(100.0)
400以上	2,518	927	3,445	2,462	1,322	3,784
%	(73.1)	(26.9)	(100.0)	(65.1)	(34.9)	(3.166)
平均	2,501	848	3,349	2,386	999	3,385
%	(74.7)	(25.3)	(100.0)	(70.5)	(29.1)	(100.0)

１１表　　スーパーマーケットにおける売場，倉庫，後方室面積（１９７３）

売場面積段階（平方メートル）	店数比	面積（平方メートル） 売場	倉庫	後方室	合計
400—499	(56)	445	238	138	821
500—599	(21)	542	261	140	943
600—799	(15)	667	342	178	1,187
800—999	(5)	877	368	279	1,524
1000以上	(3)	1,262	534	292	2,088
平均	(100)	547	277	156	980

１２表　　スーパーマーケットにおける在庫関連数値（１９７２－１９７３）

店舗面積段階（平方メートル）	在庫回転率（回／年）		売場面積1平方メートル当り在庫金額（ＤＭ）		平均在庫滞留日数（日）	
	１９７２	１９７３	１９７２	１９７３	１９７２	１９７３
400—499	21.8	20.9	403	428	16.5	17.2
500—599	25.6	24.5	400	401	14.1	14.7
600—799	23.3	23.1	430	423	15.4	15.6
800—999	24.9	23.2	330	388	14.5	15.5
1000以上	21.2	23.2	360	383	17.0	15.5
平均	22.9	22.3	404	418	15.7	16.1

１３表　　スーパーマーケットにおける従業員当りの売上と人件費コスト（１９７２－１９７３）

売場面積段階（平方メートル）	従業員数		売上（ＤＭ）従業員１人当り	
	１９７２	１９７３	１９７２	１９７３
400—499	20.9	19.2	209,405.—	202,923.—
500—599	24.1	23.8	228,911.—	219,576.—
600—799	29.0	28.6	199,663.—	208,432.—
800—999	36.2	38.6	187,014.—	212,208.—
1,000 以上	42.1	39.6	207,842.—	210,543.—
平　　均	24.8	24.3	209,417.—	208,124.—

売場面積段階（平方メートル）	人件費コスト 対売上（％）		人件費コスト 従業員１人当り（ＤＭ）	
	１９７２	１９７３	１９７２	１９７３
400—499	7.7	8.2	16,124.—	16,640.—
500—599	7.3	7.9	16,710.—	17,346.—
600—799	7.6	8.1	15,174.—	16,883.—
800—999	8.6	8.1	16,083.—	17,189.—
1,000 以上	8.1	8.6	16,835.—	18,107.—
平　　均	7.7	8.1	16,125.—	16,858.—

１４表　　スーパーマーケットにおける建屋費用（１９７２－１９７３）

売場面積段階（平方メートル）	賃借費または償却費				諸掛				合計建屋費用			
	対売上%		売場面積1平方メートル当り費用		対売上%		売場面積1平方メートル当り費用		対売上%		売場面積1平方メートル当り費用	
	1972	1973	1972	1973	1972	1973	1972	1973	1972	1973	1972	1973
400—499	2.2	2.5	191.—	222.—	1.0	1.1	87.—	97.—	3.2	3.6	278.—	319.—
500—599	1.8	2.2	185.—	218.—	0.8	1.0	82.—	99.—	2.6	3.2	267.—	317.—
600—799	2.3	2.5	231.—	247.—	0.9	0.8	91.—	79.—	3.2	3.3	322.—	326.—
800—999	2.8	2.8	221.—	255.—	1.3	1.2	102.—	109.—	4.1	4.0	323.—	364.—
1,000 以上	2.1	2.6	166.—	183.—	1.3	1.0	103.—	70.—	3.4	3.6	269.—	253.—
平　　均	2.2	2.4	201.—	221.—	1.0	1.0	91.—	92.—	3.2	3.4	292.—	313.—

１５表　　スーパーマーケットにおけるレジ当り売上，客単価，取引数（１９７２－１９７３）

売場面積段階（平方メートル）	１レジ当り売上（ＤＭ）		平均客単価（ＤＭ）		開店１日当り取引数	
	１９７２	１９７３	１９７２	１９７３	１９７２	１９７３
400—499	842,877	875,102	11.10	11.60	1,153	1,131
500—599	988,279	926,127	11.50	11.70	1,581	1,505
600—799	1,086,969	1,065,540	11.80	12.70	1,887	1,747
800—999	1,083,969	997,782	11.90	12.40	1,988	2,223
1,000以上	1,060,989	979,745	13.40	13.05	2,271	2,117
平　　均	936,195	935,357	11.40	12.00	1,476	1,435

※　年間３００日として算出

１６表　　レジ台数と１レジ当り売場面積（１９７３）

売場面積段階（平方メートル）	レジ台数	１レジ当り売場面積（平方メートル）
400—499	4.4	101.1
500—599	5.5	108.5
600—799	5.8	114.9
800—999	6.5	134.9
1000以上	8.3	152.0
平　　均	5.0	109.4

第17表　ヨーロッパにおける小売企業上位50社

	社名	国	業種	推定売上（百万ドル）
1	Karstadt/Kepa	独	百貨店／卸店	2.435
2	Kaufhof/Kaufhalle	独	〃	2.110
3	Hertie/bilka	独	〃	2.075
4	Printemps/Prisunic	仏	〃	1.830
5	Quelle	独	通販百貨店／セルフサービス百貨店	1.790
6	Migros	スイス	食料品／セルフサービス百貨店	1.530
7	Marks & Spencer	英	百貨店	1.460
8	Galeries Lafayette/Monoprix	仏	百貨店／卸店	1.430
9	C & A Brenninkmeyer	独	衣料品	1.430
10	Great Universal Stores	英	通販／出張販売	1.245
11	GB−Inno−BM	ベルギー	百貨店／卸店／食料品	1.210
12	Tengelmann/Kaiser's	独	食料品小売	1.150
13	Nouvelles Galeries/Réunis−Uniprix	仏	百貨店／卸店	1.145
14	Horten	独	百貨店／家具	1.080
15	Tesco	英	食料品小売	1.020
16	Woolworth	英	百貨店	960
17	Cavenham Foods	英	食料品小売	930
18	Neckermann	独	通販／百貨店	880
19	Casino−Epargne	仏	食料品小売	865
20	Boots	英	医薬品／百貨店	865
21	J. Sainsbury	英	食料品小売	845
22	Carrefour	仏	セルフサービス百貨店	800
23	Ahold (ehemals Albert Heijn)	蘭	食料品／セルフサービス百貨店	705
24	Associated British Food	英	食料品小売	700
25	Standa	伊	卸店	690
26	Radar (ehemals Docks Rémois)	仏	食料品／セルフサービス百貨店	680
27	Vroom & Dreesmann	蘭	百貨店／卸店	670
28	Littlewoods	英	通販百貨店	670
29	Otto−Versand	独	通販／百貨店	630
30	Albrecht	独	食料品小売	610
31	NK−Turitz (EPA)	スウェーデン	百貨店／卸店	605
32	La Rinascente−UPIM	伊	〃	590
33	House of Fraser	英	百貨店	585
34	Sears Holdings	英	靴／百貨店	570
35	Ahlen & Holm (Tempo)	スウェーデン	百貨店／卸店	570
36	U.D.S.(ehem.United Drapsry Stores)	英	衣料品／繊維品小売	545
37	Debenhams	英	百貨店	530
38	Unigate	英	食料品小売	510
39	Johns Lewis Partnership	英	百貨店／食料品	480
40	Docks du Nord	仏	食料品小売	470
41	B.A.T. (International Stores)	英	〃	465
42	Docks de France	仏	〃	415
43	KBB Royal Bijenkorf	蘭	百貨店／卸店	405
44	Werhahn−Gruppe	独	食料品小売	400
45	Woolworth	独	卸店	390
46	C & A Brenntnkmeyer	蘭	衣料品	360
47	Delhaize−Le Lion	ベルギー	セルフサービス百貨店／食料品	355
48	Sarma (J.C. Penney)	ベルギー	セルフサービス百貨店	350
49	El Corte Ingles	スペイン	百貨店	330
50	Express Dairies	英	食料品／飲料品	315

１８表　　セルフサービス百貨店およびセルフサービス・センター
における管理証指標（１９７３）

店舗面積段階（平方メートル）	従業員１人当り売上（DM）	売場面積１平方メートル当り売上(DM)	客単価（DM）	１レジ当り売上（DM）
1,000—1,999	313,711.--	6,817.--	23.62	1,012,432.--
2,000—3,999	258,015.--	5,256.--	35.07	1,090,752.--
4,000 以上	268,219.--	4,219.--	35.43	1,526,672.--
平　　均	271,785.--	4,805.--	32.29	1,313,468.--

１９表　　セルフサービス百貨店およびセルフサービス・センター
における建屋費用（１９７３）

店舗面積段階（平方メートル）	賃借費または償却費		諸掛		合計	
	1平方メートル当り費用（ＤＭ）	対売上%	1平方メートル当り費用（ＤＭ）	対売上%	1平方メートル当り費用（ＤＭ）	対売上%
1,000—1,999	124.--	1.8	66.--	1.0	190.--	2.8
2,000—3,999	103.--	2.0	42.--	0.7	145.--	2.7
4,000 以上	106.--	2.5	43.--	1.0	149.--	3.5
平均	107.--	2.2	45.--	0.9	152.--	3.1

２０表　　セルフサービス百貨店およびセルフサービス・センターにおける対売上コスト（１９７３）

（単位：％）

店舗面積段階（平方メートル）	人件費	建屋費	宣伝費	金　利	償却費	その他	合　計
1,000—1,999	5.6	2.8	1.3	0.2	1.5	0.8	12.2
2,000—3,999	6.0	2.7	1.3	0.2	1.1	0.7	12.0
4,000 以上	5.6	3.5	1.3	0.6	0.9	1.5	13.4
平　　均	5.7	3.1	1.3	0.4	1.0	1.1	12.7

２１表　　セルフサービス百貨店およびセルフサービス・センターにおける
総経費中の各コストの割合（１９７３）

（単位：％）

店舗面積段階（平方メートル）	人件費	建屋費	宣伝費	金　利	償却費	その他	経費合計
1,000—1,999	４６	２３	１１	2	１２	6	１００
2,000—3,999	５０	２２	１１	2	9	6	１００
4,000 以上	４２	２６	１０	4	7	１１	１００
平　　均	４５	２５	１０	3	8	9	１００

２２表　　小売業におけるコンピューター利用の現状と計画（調査対象2,９５５社）

年商（百万ＤＭ）	コンピュータ利用			コンピュータ未利用		調査総数
	利用総数	自社導入	計算センタ利用	未利用総数	導入計画中	
	%	%	%	%	%	%
0.1 －0.25	25.0	－	25.0	75.0	6.6	100
0.25－0.5	40.3	－	40.3	59.7	9.8	100
0.5 － 1	46.1	－	46.1	53.9	20.1	100
1 － 3	52.6	1.0	51.6	47.4	27.3	100
3 －10	55.6	5.7	49.9	44.4	35.0	100
10 －25	75.4	13.8	61.6	24.6	31.3	100
25 以上	70.8	29.2	41.6	29.2	85.7	100
平均	46.6	1.5	45.1	53.4	16.4	100

２３表　　計算センタ利用の際のランニング費用

年商（百万DM）	計算センターへの支払費用（対売上%）	EDP総経費（対売上%）
0.5 未満	0.30	0.98
0.5－ 1	0.30	0.84
1－ 3	0.15	0.78
3－10	0.17	0.47
10 以上	0.10	0.30
平均	0.24	0.74

資　　料　　4

ミラノRinascente百貨店をめぐる

ターミナル・ネットワークの用途

Rinascente社情報システム・ＥＤＰ部長

Aldo de Thierry技師の報告テキスト

ミラノにて，１９７５年６月４日

Rinascente社百貨店部は１９７１年中からすでに新構想の電子設備によるターミナルの利用に関する徹底分析を開始していた。それは主要メーカーが市販を準備していたものである。

このような分析は，ＩＲ部の着手する目的が近代的装置の利用により達成され得るかどうかを確かめることが狙いだった。

その目的を要約すれば，次の通りである。

・）経営および経理のため必要な情報の取出しに最大限の時宜性と正確性を確保すること。

・）使用されている手続きの簡素化を計ること。

レファレンスの対象となる情報は次の通りである。

・売上げ

・クレジットの移動

・商品の移動

こうして実施された研究の結果，充分なＰＯＳシステムを用いれば，技術面にせよ，経済面にせよ，従来のあらゆる要求を満足に解決しうる，という結論に達した。

特に明らかになったのは，ＰＯＳシステムが次の機能をもつことである。

・）販売，クレジット等の活動を，それが確認される時点に至るまで，直接取り出し得ること。

・）部門別，レファレンス，商品価格，カード番号，割引きないしクレジット販売の請求などのデーターを，磁気読出しにより正確かつ完全に取出し得るよう保証すること。

・）蒐集情報をすべて磁気テープに記録し，それをミラノの中央処理センターへ送ること。

また，予定された他の目的の達成をも可能にするような構成のデーターアーカイブズを設置することについても，触れておく必要があろう。その目的とは

・）同支店の近くに設置されたコンセントレーター（集信装置）により，注文に関する情報レポートおよび毎日の〆めに関する情報レポートで直ちに利用できる情報を含むものを発

出すること。

・）データー処理で得られた毎日，毎月，ないし定期的な情報をミラノの処理センターへ送ること。これには次のような情報を含む。

・売上げ

・クレジット

・商品の移動

・各種の統計

・）社内情報システムの他の手続きとの連絡，たとえば

・ストックの集中管理

・経理

こうして，新設のトリノ支店の近くに実験用設備を設置することが決定され，１９７３年３月から活動を開始した。

この設備は，プラスの良好な運営成績を収め，研究を実施した当時の結論が改めて確認された。そこで経営首脳部では，ミラノ支店にアナログ式ＰＯＳシステムを適用することに踏切った。

設備された現物システムはSWEDA７００シリーズのもので，以下のような構成になっている。

・）販売現物用にスタンド・アローン式７２５型ターミナル１００台

・）事務所でのクレジットおよび割賦販売用にストア・コントロールド式７２０型ターミナル２台

・）ユニット・テープによるデュープレックス式コンセントレーター（集信機）１台

・）プリントおよびコマンド用テレタイプ１台

販売現場用にスタンド・アローン式ターミナルを採用する方向へ考慮が傾いたのは，販売活動の正常な流れを確保する必要から決定されたところが大きく，またコンセントレーターが使用不能になった場合に備えたものである。

事務所での活動は，主としてクレジットおよび割賦販売制度に関するもので，これに対しては逆にストア・コントロールド式ターミナルの採用に傾いた。理由は，この面におけるRinascente社の特殊事情を考慮したものである。

コンセントレーターについては，デュープレックス・システムとしたことで安全率を増している。システムの動作には，大きな安全率を与えることが意図されている。

販売用ターミナルの行うトランザクションは次の通り。

・売上げ（現金，割賦勘定，当座勘定）および利益

・割賦および当座勘定の収入

・勘定の支払いおよび払戻し

・売上げ外の収入

オフィス用ターミナルの行うトランザクションは次の通り。

・社員用割賦手続きの開設

・個人用割賦手続きの開設

・契約に関する割賦手続きの開設

・クレジットの移動

・情報の請求

ターミナルにより入れられたデーターはすべて磁気テープに記録される。

夕方の勘定のために際しては，各ターミナルがトランザクションの種類別にトータルをプリントする一方，コンセントレーターはテープを読出して一連のレポートを作成する。

各種の事情でテープないし処理装置に受入れられなかったトランザクションが存在すれば，支店に対して注意されるので，支店はその再投入を指示することになる。

テープは次にミラノの処理センターへ送られ，その後の処理を受ける。処理結果は同支店ないし社内の他の部門に向けられる。

毎日，支店に返送される比較的重要なアウトプットとしては，次のものがある。

・）販売活動の１時間ごとの分布

・）部門別の売上げ

・）異常状態の注意

・）データーの統計的要約，各種分類によるレポート

・）レファレンス別，グループ別等の売上げの経過に関する情報

月別に提供されるアウトプットとしては，部門別の売上げその他の各種統計資料のほか，勘定の抜粋，クレジットや割賦の現状などがある。

そのほか支店がいつでも要求できる処理活動があり，これは主としてクレジット情報に関するものである。

資　料　5

WPO(World Product Code)

案に対する西独の修正提案

European Article Numbering | Numérotation Européenne des Articles | Europäisch Artikel Numerierung

Minutes of Joint Meeting between Working Party & Equipment Manufacturers

Monday, 3rd November, 1975 at the Royal Horseguards Hotel

Present :

B.A. French R. Neidhardt K. Hagen C. Jacobsson M. Laplane F. Miot	Working Party
H.J. Neuhausen P. Niederhausen	(presenting A+2 Version)

Manufacturer's representatives (see attached list)

1. Mr. French explained the background to the decisions of the Ad Hoc Council taken at the meeting on September 23rd. These were that the Numbering System as described in pages one to four of the draft specification had now been agreed as the European Article Numbering System. With regard to the symbol, the Working Party had been asked to further examine the alternatives and would report back to the Ad Hoc Council by June 26th, 1976. (The approved specification for the Numbering System has been circulated to all manufacturers representatives).

2. The meeting discussed the implications of these decisions, and in particular that the chosen numbering system was as simple as possible and was such that, on an international basis, an unique number was guaranteed for each different retail pack, but no structuring could be read into this unique number. This was of particular relevance in the design of price look-up files where the file search would usually have to be across the full 12 characters of the number (i.e. excluding the check character).

.../2/

The example of flag allocation indicated the degree of compatability which can be achieved with the UPC version "A" number system zero and UPC version "A" number system 2 (variable weight).

This degree of compatibility was only relevant if the symbol chosen was also compatible with UPC, since it would allow identical de-coding logic.

3. Mr. French explained that in the choice of a symbol the main alternatives were :-

a) an entirely original symbology for Europe,

b) a symbol based on the UPC bar code.

Once this decision had been taken then the next level of decision would only be signigicant if the choice favoured a symbol based on the UPC bar code. So far two submissions had been made. One, which had already been discussed at a previous meeting, is the version known as WPC, the second is a version proposed by the German Standards Committee and known as "A+2"

Representatives of the German Standards Committee were invited to present the "A+2" version (full details of this are contained in the specification which is being sent to manufacturer's representatives, together with a questionnaire, attached to these minutes).

4. The meeting discussed these alternatives and the general concensus of opinion appeared to be that that only symbology which might meet the desired level of readability, and was currently available, was one based on the UPC technology. It was agreed that the Working Party would circulate a questionnaire relating to the alternative symbols together with a specification of the "A+2" version. Manufacturers would be invited to compare the alternatives. The questionnaire would also provide an opportunity for the submission of a totally original symbol, provided that it met the main criteria laid down by the Working Party.

5. Mr. French explained that the Working Party felt that the expertise necessary for the choice of symbol lay with equipment manufacturers and that, therefore, they should play a more definitive role in the presentation and examination of proposals. The present method by which the Working party were putting forward new alternatives was extremely limiting and provided insufficient opportunity for all

alternatives to be examined. The manufacturers representatives, however, rejected any suggestion of a joint Working Party, formed from amongst themselves, which would be prepared to put forward an agreed proposal for the symbol. Since, therefore, it was necessary to continue the present method of working, the Working Party would clarify the basis on which their decisions were taken and would issue a summary of the selection criteria for a symbol as part of the questionnaire.

6. Certain manufacturer's representatives felt that the time-table outlined at the beginning of the meeting was too drawn-out and that the work could be accelerated. The following outline time-table was therefore agreed :-

END NOVEMBER - Working Party submit questionnaire, selection criteria and A+2 specification to equipment manufacturers

END DECEMBER - Manufacturers to comment on these proposals

MIDDLE OF JANUARY - Working Party to indicate their choice and issue a final specification to manufacturers and Ad Hoc Council

FIRST WEEK IN FEBRUARY - Comments to be received from Ad Hoc Council and equipment manufacturers

24TH FEBRUARY, 1976. - Working Party to report to Ad Hoc Council

7. Mr. French said the Working Party appreciated that, at a general meeting, it was extremely difficult for equipment manufacturers to speak openly. If there were manufacturers who wished for further private discussions the Working Party would be pleased to arrange this. Despite this, the meeting had been productive and the Working Party were grateful to all manufactuere's representatives for their co-operation.

November 1975.

European Article Numbering | Numerotation Européenne des Articles | Europäisch Artikel Numerierung

From the Chairman of the Working Party

As we discussed at the recent joint meeting in London, I am enclosing a detailed specification of the proposals made by the German Standards Committee for an "A+2" Version of the UPC symbol. In examining these proposals would you please also consider the relationship between the symbolic representation and the numbering system. The German proposals are only viable if a variable length numbering system is adopted so that the majority of products can be covered by a symbol smaller than the 12 character version of the A+2 system. (The symbol is larger than the UPC Version A for the 12 and 14 character versions). Such a variable length numbering system may have areas of confusion when dealing with house codes, variable weight lines etc.

As agreed at the meeting the choice before the Working Party lies between :-

a) a totally original symbology

b) a symbology based on UPC ;-
(i) WPC
(ii) A+2

. . . 2/

In order to clarify the criteria by which the Working Party are evaluating the symbol I have summarised all the requirements, which we have previously discussed, in an appendix headed "symbol selection criteria". These criteria are, of course, the main points, and the Working Party will also take into account any detailed comments which you may wish to make. To ensure adequate coverage of available alternatives, the questionnaire relates to all aspects of the choice, i.e. completely original symbols as well as alternative versions of the UPC symbol.

I would be most grateful if you would give detailed replies to the questionnaire, and would also appreciate any further information which you consider may be relevant.

I look forward to receiving your reply by the end of this year.

I would also like to take this opportunity, on behalf of the Working Party, to wish you a Very Happy Christmas and a Successful New Year.

Yours sincerely,

Brian A. French
Chairman of the Working Party

Encl:

European Article Numbering | Numérotation Européenne des Articles | Europäisch Artikel Numerierung

SYMBOL SELECTION CRITERIA

The following are the basic criteria which must be met by any symbol submitted for consideration as a representation of the European Article Number.

The final choice will be determined by the degree by which the basic criteria are surpassed, together with any further benefits which the proposed symbol may offer. A significant factor will be the overall economics of the system by which the symbol may be applied and read.

1. The symbol must possess the following physical characteristics:-

   a) be capable of encoding the European Article Number of 13 decimal characters

   b) be capable of omnidirectional scanning and hand-held wand scanning.

   c) be scannable when in motion at a velocity not exceeding 250 cms/sec

   d) be scannable with a rejection rate less than 1% and with an undetected error rate less than 0.01%

   e) be capable of resisting environmentsl contamination (i.e. abrasion, dirt, etc,)

   f) be economic in size and capable of scalar reduction or enlargement to suit print processes or background material when necessary

   g) it must also include the representation of the European Article Number (with check character) by means of human readable figures. (The question of whether these should be in OCR characters is open and depends on the replies received from equipment manufacturers).

2...

2. a) The symbol must be printable by the normal processes currently used for product packaging and in the colours normally found on each separate package or label, i.e. must not require additional print passes, or further adhesive labelling except in exceptional cases.

b) The Symbol must also be capable of being printed by in-store automatic label printers and hand-held printers.

3. The symbol must be capable of being read and interpreted by a scanner which can also read and interpret UPC symbols unambiguously.

4. The symbol must be demonstrated by an operational installation in a live environment, where the symbol reading mechanism is installed as part of an appropriate Electronic Cash Register system.

5. The symbology must be freely available to all equipment manufacturers and users. Use of the symbol must not require the payment of royalties. Every manufacturer must be free to design or choose the symbol reading equipment.

November, 1975.

European Article Numbering | Numérotation Européenne des Articles | Europäisch Artikel Nummerierung

PROPOSAL FOR A SYMBOL BASED ON THE UPC TECHNOLOGY (KNOWN AS "VERSION A+2")

1. INTRODUCTION

This specification provides more details of the alternative to the WPC version. The " version A+2 " had been proposed by the "Bar-code Ad Hoc Committee" of the German Standards Committee.

2. SPECIFICATION

2.1 2.1.1. Character Set

The set of characters in bar code form is identical with that specified by the UPCC and described in the UPC Symbol Specification (DCI - May 1973), with the addition of two further guard patterns

H5 ~~H2~~ = ~~0~~10101 Right guard patter for the short version

H3 = 101010 as yet unassigned.

NOTE: By comparison the UPC specification includes :-

H1 = 101 Left and Right Guard pattern of full symbol

H4 = 01010 Centre " " " "

H2 ~~H5~~ = ~~01010~~ 010101 Right Guard patten of zero suppression symbol

2.1.2. Modules and Dimensions

These are identical with the UPC specification but would be expressed in metric units as approved by the UPCC. The Version A+2 may be enlarged or reduced in a manner similar to UPC to suit print processes.

(NOTE: The absolute dimensions of the standard form will depend on whether OCR characters are incorporated as part of the symbol, see section 5)

2.2 SYMBOL STRUCTURE

The A+2 symbol has two formats :-

2.2.1. Short Version

Consists of a set of character symbols between Guard patterns H_1 and H_2. The number of characters may be 4, 5, 6 or 7 represented with odd parity.

2.2.1. Full Version

The symbol consists of two halves separated by a centre pattern (H4) and bounded on each side by guard patterns (H1). Each half consists of an identical number of characters and the full symbol may contain 8, 10, 12 or 14 characters.

All characters forming the left hand half are represented by bar code modules with odd parity, and characters forming the right hand half are represented with even parity.

3. Interpretation of the Symbol

The symbol as described above can therefore represent an article number containing a variable number of characters i.e. 14, 12, 10, 8, 7, 6, 5 or 4.

When used to represent the full European Article Number (EAN) the maximum number of characters used would be 13 and the symbol would have to include a zero character on the left hand side to make both halves equal.

Equipment reading the symbol would only be required to handle 14 characters if the symbol were also being used to represent a 14 character house code (for department stores, etc.) - distinguished by a non-zero first character. Installations without this requirement (restricted to EAN numbers only) would only require a 13 character capacity.

If a variable length EAN is adopted (maximum 13 characters) the symbol would be decoded into a 13 character field with leading zeroes inserted before the symbol characters, e.g.

```
                        X X X X X    SYMBOL (5 character version)
                        | | | | |
O O O O O O O O F F X X C    DECODE MEMORY
                             (13 characters)
```

where F = national flag (included in check character computation)
(Note: depending on allocation of flags this can be one or two characters)
C = check character

4. Check Digit Calculation

Since the symbol is interpreted into a fixed length field it is obviously not important at which end any check digit calculation commences. However the manual calculation of the check character, when setting up the EAN number or symbol, is made less confusing if the calculation commences at the Right Hand character immediately preceeding the check character.
i.e.

Character number	12	11	10	9	8	7	6	5	4	3	2	1	0
Character	X	X	X	X	X	X	X	X	X	X	X	X	C

1. Add together characters 1, 3, 5, 7 etc to form S_1

2. Multiply this sum by 3 to give S_2

3. Add together characters 2, 4, 6, 8, 10, 12 to form S_3

4. Add S_2 and S_3

5. The modulo 10 check character C (character no. 0) value is the smallest number which when added to the sum of step 4 produces a multiple of 10.

NOTE: this gives a calculation for the 12 character version of EAN identical to that for the UPC number Version A.

5. Human Readable Characters

The symbol would express all characters encoded in a human readable form. If such characters are entered via a key-board they should be placed in a maximum 13 character field as described in section 3 and the check character computation described in section 4 carried out.

The possibility exists of making these human readable characters an OCR font, but this is not yet incorporated in this specification. The decision depends on answers to section 4 of the questionnaire.

The effect of the inclusion of OCR characters would be to fix the dimensions of the basic version of the symbol to a module width of 0.36285 cms.

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ＰＯＳ海外事情調査報告書

昭 和 51 年 3 月

財団法人　日本情報開発協会
東京都千代田区霞が関・霞が関ビル30Ｆ
電話　東京 581－6401

昭和51年４月１日以降、お問合せその他は下記へ

財団法人　日本情報処理開発協会
東京都港区芝公園３－５－８ 機械振興会館
電話　東京 434－8211 EXT. 539