
Omslag: Karin Ågren.
Vetenskap och politik
Bo Gustafsson 1931–2000, en minnesskrift på 80-årsdagen av hans födelse

Redaktörer

Lars Magnusson, Klas Nyberg och Lynn Karlsson
Abstract

This book is a commemorative publication, with annotated, posthumously published material, in honor of Professor Bo Gustafsson on the 80th anniversary of his birth. Gustafsson was a professor at the Department of Economic History 1977–2000 at Uppsala University and one of the discipline’s most prominent figures during the late 20th century. The title “Research and Politics” refers to his political and publishing activity in 1960- and the 70’s left-wing movement and to his academic legacy up to the time of his death. His life and work are presented initially in an essay by Lars Magnusson, and thereafter for the first time Bo Gustafsson’s unfinished autobiography is published. The bulk of the book, however, is made up of his posthumously published essay, “The Transition from Domestic Industries to Factories” on the emergence of mechanized cotton spinning in the 18th century. It is a weighty contribution to the debate on the origins of the factory system in England and is presented in an introduction by Klas Nyberg. Finally Bo Gustafsson’s bibliography, compiled by Larisa Oldireva Gustafsson, is published.

Keywords: Mechanized cotton mills, factory system, economic history, Lancashire, England, Industrial Revolution, cotton, scientific biography, scientific bibliography, the left movement, social movements, 1960s

Department of Economic History, Box 513, Uppsala University, SE-75120 Uppsala, Sweden

© The authors 2012

ISSN 0346-6493
Innehåll

Lars Magnusson, *Ekonomihistorikern Bo Gustafsson – en inledning* ........ 7

Bo Gustafsson, *Jag flög med ett rött hallon i näbben. Några minnesanteckningar* .......................................................... 17

Klas Nyberg, *Introductory Comments to Bo Gustafsson’s “The Transition from Domestic Industries to Factories: With Special Reference to the British Cotton Industry”* .................................................. 49

Bo Gustafsson, *The Transition from Domestic Industries to Factories: With Special Reference to the British Cotton Industry* ......................... 61

Part I. A Preliminary Narrative and Explanatory Sketch ............... 63
   I. Abstract ........................................................................................................... 65
   II. The Transition from Domestic Industry to Factory Production .. 68
   III. Some Problems of Meaning and of Research ................................. 70
   IV. An Overview of the Problem ................................................................. 75
   V. The Structure of Domestic Industries and the Putting-out System .................................................................................. 83
   VI. The Rise of the First Factories in the Cotton Industry .......... 97
   VII. Suggestions for future research ......................................................... 123

Literature ........................................................................................................... 124

Appendix 1: Some suggestions as to how the problem of the transition from putting-out industries to factories may be approached .................................................................................. 127

Appendix 2: A note on the concept of factory and on factory employment in England 1840................................................................. 138

Appendix 3: Why were wages lower in domestic industries than in factories? ..................................................................................... 141

Appendix 4: Notes on Marx and the transition to the factory system .............................................................................................. 144

Appendix 5: Three reviews ................................................................. 155


När Bo Gustafsson i början av 1950-talet knöt sina första kontakter med ämnet var det fortfarande ett oskrivet blad. Den historiska och aktörsorienterade bakgrunden fanns redan – kunde en sådan även förenas med en

I detta fanns förstås också ett spänningsförhållande som han inte alltid lyckades överbrygga. Som samhällsvetare kunde han ibland hänge sig åt en stark kritik av historicismens försök att ”förstå” gångna tiders aktörer mot bakgrund av den tid de levde i. Det var strukturer och de ekonomiska krafterna som gällde. Men i praktiken var han samtidigt djupt skeptisk till anarkionism och genuint fascinerad av den enskilda människans möjlighet att påverka det historiska förloppet. Han var mycket kritisk till vad han uppfattade som re duktionism eller ekonomisk determinism. I hans omfattande produktion finns utan tvivel många bevis på hur han nästan kunde dra i riktning mot personkult och en närmast volontaristisk tro på den enskilda människans förmåga – detta är ett tema som vi skall återvända till.


8


* *

**Lars Magnusson**


välfärdsutvecklingen påverkat förhållandena för vanliga människor under efterkrigstiden. Det var ett ovanligt grepp – en tillämpning av den ”gräv där du står” metod som vid denna tid förespråkades av författaren Sven Lindqvist och andra.


Men SCASSS kom igång och under tiden fram till sin död femton år senare skulle det komma att utgöra Bo Gustafssons främsta hemvist både

* 


Så tidigt som 1953 hade han dragits in i arbetet kring det svenska Clarté-sällskapet – till att börja med i lokalföreningen i Uppsala som då bestod av tre personer. Han kom med i redaktionen för tidskriften *Clarté* några år därefter och bidrog med många artiklar där han inte minst presenterade internationell marxistisk litteratur för en svensk publik. År 1960 deltog han i den delegation av unga kommunister som utsänts av Demokratisk ungdom – SKP:s ungdomsförbund – för att besöka Folkrepubliken Kina. Det var mitt under det så kallade Stora språnget (Maos version av Stalins tvångsvisa industrialiseringskampanj under tidigt 1930-tal) som förorsakade den största hungersnöden i Kina sedan 1800-talets dagar; miljoner människor dog av svält. Efterat har Bo berättat att de svenska besökarna inte hade fått sett något av detta. Man hade äkt omkring i sovjetiska Volgabilar med svärtade vindrutor. Till skillnad från andra kom Bo senare att mycket skarp kritisera denna enögdhet och inse att han blivit dragen vid näsan.

Bo liksom andra inom det svenska Clarté kom dock under 1960-talet att successivt bli alltmera influerade av Mao – i konflikten mellan Sovjet och Kina.
Lars Magnusson
tog man Mittens rike i försvar. Själv uppfattade han sig i efterhand som att ha
varit en svensk missionär för det kinesiska kommunistpartiets ståndpunkter.
Midsommar 1967 bildade han tillsammans med den välkända Göteborgs-
maoisten Nils Holmberg och företrädare för den ungdomliga Vietnamrörelsen
(De Förenade FNL-grupperna) KFML, Kommunistiska förbundet marxist-
leninisterna, och han blev dess förste ordförande. Som redaktör för förbundets
teoretiska organ, Marxistiskt Forum, förutsattes han formulera dess huvudsak-
liga ideologiska linje. Men KFML var på intet sätt en homogen företeelse. Här
samsades gamla stalinister med unga FNL:are liksom med svärmiska maoister
av vilka en del i Lund och i synnerhet Uppsala kom att bilda grundvalen för
den extremradikala så kallade rebellrörelsen. På sikt var detta en häxbrygd
som inte kunde hålla samman. Trots sin beundran av Maos Kina hade Bo svårt
för den närmast eskatologiska maoism som kännetecknade de unga rebell-
erna – hos dessa blev följdriktligen Gustafsson en avfälling med namnet
"sosse-Bosse". Inte heller hos de järnhårda stalinisterna hörde han hemma.
Dessa bröt sig ut med göteborgaren Frank Baude i spetsen och bildade 1970
KFML(r) – Kommunistiska förbundet marxist-leninisterna (revolutionär-
erna). Det som blev kvar i det gamla förbundet utgjordes i hög grad av unga
FNL:are. Det var dessa som tillsammans med några fackliga kritiker av LO:s
solidariska lönepolitik – till exempel typografen Sture Ring som dessutom var
Bos svåger – 1973 grundade det nya SKP, Sveriges kommunistiska parti. Det
var folkfrontens politik från 1930-talet i lika hög grad som Maos paroll om
att ”tjäna folket” som vägledde de unga SKP:arna. Så länge Vietnamkriget
pågick kunde partiet utnyttja det folkliga stöd som FNL-grupperna till viss
del åtnjöt. Men när kriget tog slut ökade motsättningarna inom partiet. Olika
falanger uteslöt varandra – och vips hade även Bo Gustafsson (tillsammans
med författaren av dessa rader) uteslutits ur SKP 1977. Successivt därefter
drog han sig emot socialdemokratin och han kom att gå med i partiet några år
därefter. Men det var ingen enkel seglats. Av många inom socialdemokratin
betraktades han med viss skeptis. Några öppna armar var det inte tal om.
Något stukad kunde han senare känna att han inte fått en sådan position inom
socialdemokratin (inte ens på det lokala planet) som han hade hoppats på.
Hans kommunistiska övertygelse låg annars långt tillbaka i tiden. Som han
skildrar i sin självbiografiska skiss ”Jag flög med ett rött hallon i näbben” som
här publiceras för första gången, växte han upp i det lilla samhället Karlbo ut-
anför Avesta. Hans relation till fadern, ”Rallar-Gustaf” Anders Gustaf Gus-
tafsson var komplicerad, men han insöp säkert en god portion av dennes snarast
syndikalistiskt färgade radikalism – eller tog åtminstone del av de radikala
böcker som han samlade på sig, allt från Krapotkin till Upton Sinclair och de
svenska proletärförfattarna. Fadern var från början anhängare av de så kallade
ungkinerna och tog ställning för vänsterns avhopp från socialdemokratin i
slutet av Första världskriget. Men Anders Gustaf var ingen enkel person att
ha att göra med. Själv misstänkte jag alltid att en del av Bos socialt empatiska
grundäskådning utgick från det faktum att han ofta fick ta moderns parti i de
Ekonomihistorikern Bo Gustafsson

konflikter som uppstod i hemmet och som färgade syskonen Gustafssons uppväxt (förutom Bo två bröder och en syster).


Ibland fanns också något naivt över hans sökande efter en fast grund, ett slags barnatro. Han lyste och berörde alla med sin entusiasm när han tyckte sig ha funnit vad som var rätt och riktigt. För mera skeptiskt lagda tycktes hans frenetiska letande efter den Heliga Graal ibland som utmattande, ja nästan generande. Men det betydde också att han berörde alla som han mötte, som


Vi vill med detta markera att Bo Gustafsson var en stor ekonomisk historiker. Hans omfattande skriftliga produktion innehåller många arbeten med stort vetenskapligt värde som förtjänar att bevaras och åberopas även i framtiden. Om hans vilja att försöka hålla isär det politiska från det vetenskapliga har vi redan talat om. Gustafsson hade en omnejd tilltro till vetenskapens förmåga att skapa grund för en sannare och bättre tillvaro. I detta stod han i nära samklang med upplysningens radikala budskap. Ansträngde man sig tillräckligt mycket kunde man träna in i lejonets kula och få erfara sanningen. Hur svårt detta än kan verka är det ändå något som även i fortsättningen måste vägleda all god vetenskap.
Bo Gustafsson
Jag flög med ett rött hallon i näbben
Några minnesanteckningar


Mor – Judith Teresia Hallgren (1896–1955) – hade tidigt börjat arbeta i Stockholm som tjänsteflicka och kokerska i s.k. finare familjer, bl.a. hos en kapten Hallström, som tydligen var kartograf, bl.a. i Härjedalen, där familjen vistades på sommaren. När hon blev gravid med Britta erbjuds hon t.o.m. att få stanna i en av dessa familjer, ett erbjudande som jag tror hon övervägde, eftersom hon blivit tveksam till ett giftermål med far. Det var mor som stod för de litterära och konstnärliga intressena i äktenskapet. Hon förde med sig i boet verk av Snoilsky och andra författare och hennes stolthet var ett köksmöbel-i-sammet av Carl Malmsten. Det var mor som såg till att jag fick börja spela flöjt och hon själv var mycket musikinteresserad. Tyvärr dömdes hon till att bli en hårt arbetande husmor i en omodern bostad och hade ytterst lite hjälp av min far. Hon fick hämta vatten från en brunn, som var frusen på vintern och för att tvätta stortvätt tvingades hon frakta tung och våt tvätt på en skottkärra mellan hemmet och älven, som låg flera kilometer bort.


1938 flyttade vi från Uppsjön in till stan, närmare bestämt Garmakaregatan, till ett flerbostadshus i två våningar och två uppgångar som allmänt kallades Ångermansbo därför att byggaren som uppförde huset ångrade sig efteråt. Vi
Jag flög med ett rött hallon i näbben


Det var lätt men långt att ta sig från Uppsjön till Klosterskolan i Älnäs. Det var kortare men svårare att hitta hem till Garmakargatan första gången, trots att avståndet inte var längre än högst en kilometer. Det var för att den tätare bebyggelsen med identiskt lika stora röda bruksvillor för järnverksarbe-
tare var så annorlunda från vad jag var van vid från de vida, öppna fälten runt Uppsjön. Där kunde man räkna husen på den ena handens fingrar: närmast oss Kalle Vesslén och hans bror, båda lite underliga, sen Solhströms, så Perssons och därefter Djäkneyttan, där farmer och farbroer Herbert med familj bodde, och halvvägs till Älvnäs Nybo, Storbo och Skärbo, där morbroer Axel (som hade epilepsi) och moster Alerta från Gotland bodde och där också brukets jordbruksförvaltare Jakobsson bodde. Men så småningom lärde jag mig vägen mellan hem och skola, som bl.a. passerade konsul Jonssons ridstallar med alla hans ridhästar, som sommartid skrattade omkring i avlånga fällor runt stallen.


Som barn var vi också organiserade i ligor för äppelknyckning (gärna iförda golfbyxor, s.k. äppelknyckarbyxor) som gruffade med varandra på mörka höstkvällar. Det fanns en Villa-liga från de röda fyrfamiljshusen av trä för bruksarbetarna (numera finns bara en eller två av dessa träslott bevarade, gulmålade), en Ollarsbo-liga, som vi tillhörde, och en By-liga från Gamla Byn i Avesta med 1600-talsbebyggelse från kopparverkets tid. Ollarsbo var en liten stadsdel med träkåkar mellan Garmakargatan och in mot stan fram till den plats där biografen Röda Kvarn låg. Numera finns högst ett eller två hus kvar av den bebyggelsen. Ligorna var ganska harmlösa och ägnade sig mindre åt slagsmål än åt att krycka äpplen i trädgårdarna och att spela harts-fiol vid stugknutarna. Förmodligen var det Thurnemans Sala-liga som var inspirationen.

1940 började jag i den s.k. storskolan, d.v.s. klasserna 3–6 i folkskolan, i den stora skolbyggnaden nära Marcus-torget. Min debut var också där fatal. Vi stod på skolgården och pratade före uppropet. Jag råkade spotta på marken men märkte inte att en skolfröken samtidigt promenerade förbi och fick spottloskan på skon. Jag fick en skopa ovett och fick torka bort loskan med min näsduk.

22
Jag flög med ett rött hallon i näbben

Krigsåren kände vi mest av genom ransoneringen, även om vi ibland fantiserade att kriget också nått oss, när vi hörde muller i fjärran. De flesta livsmedel var ransonerade: bröd, socker, mjöl, kött, fläsk, smör, kaffe m.m. Behov av och tillgång på ransoneringskuponger för enskilda livsmedel varierade mellan familjer med och utan barn, familjer på landet och i stad o.s.v. Det innebar att det uppstod en marknad på lösa kuponger: bönder behövde inte alla smör- och köttkuponger men saknade sockerkuponger i tillräcklig omfattning. Eftersom pappa hade kontakter med bönder i trakten klarade vi oss ganska bra. Kaffe drygades ut genom att mamma rostade havre i ugn till kaffeersättning, pappa köpte fläsk, kött och smör av bönder och höll kaniner och vi hade ett stort potatisland hos en bonde. Svårast var det att få tag i fisk. Jag stod ibland i fiskkö hos stadens fiskhandlare (Fisk-Pelle) för ett kilo strömming, sill eller vitling. Men jag har inget minne av att det var ont om mat för oss under kriget.

Vid det laget var pappa också egenföretagare i byggmaterialbranschen, skapad av 30-talets bostadsbyggande. Pappa tillverkade mellanväggsplattor och hålsten för husgrunder. Liksom många arbetslösa under 30-talet hade pappa börjat på egen hand hemma i trädgården på Uppsjön att slå mellanväggsplattor av slagg, sand och cement i enkla formar som torkade på pallar i långa rader. I slutet av 30-talet skaffade han sig en lastbil av märket Chevrolet för att frakta slagg från Spännarhyttan i Norberg till en liten ”fabrik” som han hade mellan Avesta och Rembo. Han hade ett par-tre anställda och dessutom en chaufför, eftersom han själv inte hade körkort. Plattfabriken gav större men mer oregelbundna inkomster än tidigare, men pappa var ingen stor affärsman. Han var mer intresserad av politik än av affärer och låg ofta efter med faktureringen. Mamma fick rycka pengar av honom till hushållet, särskilt när han fått betalt och penningpungen nästan sprack av sedlar. Men det hände inte alltför ofta, eftersom köparna vanligen var egnahemsbyggande arbetare på järnverket.


Mitt största nöje var att åka med i lastbilen, som kunde pressas upp i 40 km i timmen på Norbergsvägen. Jag har ännu oset av olja och bensin i näsan när jag tänker på dessa tillfällen. En gång lånade jag tio år gammal bilnyckelarna och köpte bilen 50 meter och backade tillbaka, medan kvarterets barn beundrande bevittnade bravaden.

Efter krigsslutet konkurrerades pappas företag ut av större och teknisktt mer avancerade företag i branschen (jag tror det var Bröderna Forsell i Norberg). Då började pappa arbeta åt andra företag, t.ex. Ernst Sundhs byggföretag i Avesta och därefter Västerås Byggmaterial som dessas platschef i Avesta. Pappas
byggintressen övertogs av Anders, som blev verkmästare hos Sundströms byggnadsföretag i Krylbo, och Kjell, som läste till teknisk byggnadsteknik i Solna och sedan blev egenföretagare i byggmaterialbranschen. Själv arbetade jag på somrarna, först i plattfabriken i Rembo och därefter med att slipa och ytbehandla golv åt Västerås Byggtavla. Men pappa var en krävande arbetsledare, som hade lätt att ge kritik och svårt att berömma. Lyckligtvis såg jag inte av honom så ofta beroende bl.a. på att mina föräldrar skildes 1949 och pappa flyttade hemifrån.

Jag har nu gått händelserna långt i förväg. När jag slutade i folkskolan 1944 som näst bäste elev i min klass fick jag börja realskolan, som var fyraårig och som avslutades med realexamen. Realskolan var inhyst i en grå träbyggnad, som senare brann ned, och som jag upplevde som ganska nedslitet. Rektor var Josef Lindh, matematiklärare var först Folke Nordström ("Kalle", en inte aldeles behaglig typ som hade lätt att bryta ut i kommentarer som "Heliga Enfald!"). "Du måste vara en tänkande August(a)"! etc.) Matematik var inte mitt bästa ämne och i tredje klass fick jag B- i betyg. Då köpte jag från NKI-skolan samtliga uppgifter som getts i realexamen i matematik sedan 1917 och räknade igenom dessa och fick litet a i betyg i fjärde klass! Efter "Kalle" fick jag Ingrid Tunell som matematiklärare, en underbar lärare som tog fram det bästa hos eleverna. Läraren i biologi var "Fimpen", passionerad rökare, vänlig men excentrisk. Han fick mig att samla och pressa växter till ett stort herbarium, som jag övertagit av mina bröder. Men den viktigaste läraren för mig i realskolan var dr Stig Backman i historia. Han var en fascinerande lärare med stora kunskaper som han gärna delade med sig av. När jag kom till Uppsala fann jag att han skrivit en avhandling om Karl XII:s polska fälttåg, som tyvärr inte fick docentbetyg och som uppenbarligen hade haft Karl-Gustaf Hildebrand, min blivande lärare i Uppsala, som opponent. (Hildebrand själv lär ha sysslats med Karl XII-forskning innan han skrev avhandlingen om Falu stads historia men han hade enligt rykten tvingats lämna ämnet efter att ha stupat på ogenomtränglig chiffertext. När han under 1950-talet meritade sig för professuren i ekonomisk historia skrev han en lång uppsats om Karl XII-bilden hos Bernard Beskow, vill jag minnas.)


Någon gång under åren 1943–44 blev jag tidningspojke på kvällarna och sålde den av LO nystartade Afton-Tidningen (AT), som väl var täntk som en motvikt mot det nazianstuckna Aftonbladet, ägt av Torsten Kreuger. AT var en verkligt bra tidning, som lyckades engagera intressanta journalister som
Jag flög med ett rött hallon i näbben


Bo Gustafsson


bilderna i en illustrerad utgåva av Casanovas memoarer tills bibliotekarierna undrade vad jag var så intresserad av och jag parallellt började läsa ett stort vetenskapligt verk som avledningsmanöver.


därför att marxismen enligt min mening var den mest överlägsna av existen-
terande världsåskådningar, när det gällde att förklara och ge mening åt den
historiska utvecklingen. Men marxismen var och förblev huvudsakligen ett
intellektuellt intresse. Jag var aldrig intresserad av praktiskt politiskt arbete,
vilket jag emellertid drogs in i så småningom på grund av en fäktig oförmåga
även åren i Clarté i Uppsala handlade mest om studier och diskussioner.
Jag sade ovan att musiken vid sidan av idrotten var mitt andra stora intresse
under tonåren. Intresset kom säkert från mamma, som väl kände både den
klassiska och den moderna musiken. Men det stimulerades också av syster
Britta och hennes fästman Emil Olsson, som kunde vissla Fritz Kreislers låtar
nästan lika bra som Kreisler spelade dem på sin fiol. Bach, Beethoven och
Mozart – de stod i centrum. Ingen i familjen trakterade något instrument. Men
mamma ville att jag skulle lära mig spela cello (Pablo Casals, den spanske
mästaren, var hennes store idol). Sagt och gjort. När jag började i realskolan
hösten 1944 anmälde jag mig för musikdirektör König. Vi fick visa upp oss
och tala om vilket instrument vi ville spela. För mig var saken klar: cello. Nej,
sa han, du ska spela basun för du har så bra basunläppar! Jag blev jätteledsen,
men tvingades släpa hem en stor ventilbasun. Efter en veckas traktning av
instrumentet var jag less och lämnade tillbaka det. Jaså, sa den stränge herr
König: om du inte vill spela basun så får du inte spela någonting alls!

Långt senare lärde jag mig hjälpligt cellospelement under gymnasietiden
genom att ge privatlektioner i engelska till en pojke, Kjell Berglund, som
behövde läsa upp sig i engelska och som samtidigt spelade cello. Men det var
mer en episod. När pappa hörde Königs beslut blev han arg och skaffade mig
e en flöjt, en gammal halvböhm som han köpt billig i Stockholm men som blev
en bra startpunkt: halvböhmne hade bara några få klaffar, resten fick man klara
av genom att täcka hålen med fingerdynorna. Som lärare fick jag flöjtisten i
Avesta orkesterförening, en f.d. militärmusiker som hette Westin och liksom
andra musiker i den av Axel Axelsson Johnsson finansierade Avesta orke-
terförening (dirigent Lennart Nerbe, som sen tror jag kom till Norrköpings
symfoniorkester och vars dotter Kerstin också blev en duktig dirigent) hade
en kontoristtjänst på järnverket som bas för musicerandet. Westin var en liten,
rödhårig och ganska kolerisk f.d. musiksergeant som tyvärr ofta förgyllde sin,
men inte min, tillvaro med alkohol. Jag gick en timme per vecka hos honom
och Westin krävde för det tio kronor. I dagens penningvärde motsvarade det
kanske 200 kr. Han kallade mig sitt ”guldägg” för denna extrainkomst. Redan
i realskolans andra klass kunde jag framträda för det tio kronor. I dagens penningvärde motsvarade det
kanske 200 kr. Han kallade mig sitt ”guldägg” för denna extrainkomst. Redan
i realskolans andra klass kunde jag framträda på en klassfest och framföra
Haydens Serenade. I tredje klass fick jag spela en sats ur Mozarts flöjtkonsert
i G-dur på hela skolans avslutningshög tid i början av juni. Då hade jag fått
en riktig flöjt (helböhm) av franskt märke av min brod Anders. Jag tror den
kostade nära tusen kronor, vilket i dag väl skulle vara 15–20 000. Jag fort-
satte att spela flöjt gymnasiet igenom, samtidigt som jag började sjunga bas
i gymnasiekören och i den nybildade jazzkören ”Avesta Steel Singers”, som
Jag flög med ett rött hallon i näbben


Jag arbetade naturligtvis en del under skolstiden. Jag har tidigare berättat om att jag var tidningspojke några år vid krigsslutet. Under kriget hjälpte jag också till som hantlangare vid pappas cirkelsåg, en vedkap som drogs omkring i stan, mest av min farbror Herbert. Vanligen sågade vi meterved och min uppgift var att lägga vedklabbarna i vaggan, som farbror Herbert därefter sköt fram med ena knät så att de sågades igenom på ca 3–4 ställen avpassat för vedeldning i köksspisarna. När gubbarna kom ut med en ölflaska åt Herbert och en åt mig, 12–14 år gammal, kände jag mig enormt vuxen och njöt av de beundrande blickarna från de omgivande barnskockarna. Värre var det på vintern då vi ibland måste säga två meter lång kolved, som kunde vara frusen och isig. Om farbror Herbert då var bakfull en måndag och vresig, så var det inte lätt att vara hantlangare. Pappa själv aktade sig för vedkapen sen han en gång nästan sågat tuggen av sig.

Ättiksfabrik som också gjorde slottssenapen. Det var ett arbete vid bandet eller också sysslade jag med att köra ut kartonger på lagret. Fabriken, som senare köptes av Cadbury, var på den tiden mycket idyllisk. ”Varma korvgubbar” kom dagarna i ända med sina burkar för att köpa senap. En sommar arbetade jag tillsammans med en pingstvän, som trots bemödanden inte kunde omvända mig.

Samma sommar som mamma fick sin hjärnblödning började jag göra min rekryttjänstgöring på 114 i Gävle, d.v.s. sommaren 1951. När jag mönstrade året förut ville militärerna först sända mig till ett pansarregemente i Enköping, alternativt luftvärnet i Sundsvall eller artilleriet i Östersund. Det första alternativet föll, eftersom jag var för stor för att komma upp och ned i en pansarvagn, i varje fall tillräckligt kvickt. De två andra alternativen föll, eftersom de enligt min mening låg alltför avlägsna från hemorten. Så det blev infanteriet i Gävle, som var huvuddestination för rumpmasar och som hade bra järnvägsförbindelser med Avesta. Jag placerades så småningom på ett pansarvärnskompani och fick specialisera mig på kulsprutor (m/36 och m/42) men fick också utbildning på mausergevär, kulsprutepistol, kulsprutegevär, pansarnäve, raketgevär m.m. Jag låg inne under Koreakriget, som delvis färskade av sig på utbildningen. De fientliga styrkorna kom alltid in från öster i Gävlebukten och när vi skulle sikta och skjuta ute i terrängen uppmunrades vi att se skäggiga ryssar för vår inre blick. Eftersom jag var kommunist fortfarande med illusioner om Sovjetunionen, reagerade jag naturligtvis. På ren trots hade jag beställt till logementet alla s.k. vänskapstidningar, d.v.s. Sverige-
Jag flög med ett rött hallon i näbben


man åtnjuta den fina helgenmenyn, för maten var överlag mycket bra och lagad på platsen. Men i allmänhet var det trist att stanna kvar över en helg.


Jag flög med ett rött hallon i näbben

kom släntrande genom parken från Carolinahållet. Han var klädd i grå flanellyxor och blå kavaj och sneglade vänligt på mig genom sina tjocka glasögon. Det var Karl-Gustaf Hildebrand. ”Du vet inte du men jag vet”, sa jag tyst för mig själv för det var klart att jag skulle börja med att studera historia parallellt med att jag kompletterade latin (som då var obligatorium för historiestudier med hänvisning till att äldre tiders dokument ofta var avfattade på latin).


I Uppsala kompletterade jag som sagt studentlatin och lärde då känna Ragnar Henriksson från Sandviken, som under flera år var min bäste vän. Han skulle också skaffa sig en fil. mag. i svenska och historia och vi valde båda historia enligt den ekonomisk-historiska linjen för Karl-Gustaf Hildebrand. Ragnar var lång, smal och fämdal med en torr humor. Vi förenades i vårt intresse för klassisk musik och han lärde mig uppskatta Bruckner, som vi båda tyckte var den mest intressante av de sena Wien-klassikerna och mycket mer seriös än Mahler och Richard Strauss. Vi gick på bio tillsammans och drack kaffe på kondis 1–2 gånger i veckan, vilket vi ansåg vara utomordentligt lyxigt: vi föredrog Tischners på Sysslomansgatan. Efterhand förlorade vi kontakten när jag blev mer och mer engagerad i Clarté och samtidigt min minsta syster Kerstin flyttade till Uppsala och vi hyrde en dubbeltillsammans på Österplan hos lokförare Borg. Dubletten saknade rinnande vatten och vi delade toalett med vårdfolket, som också saknade badrum. När vi ville bli riktigt rena gick vi till badhuset och dessemanen kokade vi upp vatten med en doppvärmare, blötte en badhandduk i det heta vattnet och tog heta avrivningar. Detta var


Uppsala var på den tiden över huvud taget så idylliskt. Som barn hade jag under kriget förtjust läst böckerna om Pelle Svanslös av Gösta Knutsson. Den sistnämnde såg man ofta på baksidan av universitetshuset nedre bot- ten, där Sveriges Radio då höll till. Han var ju chef för lokalradion. När jag kom till Uppsala fick jag också reda på att flera av katterna i Pelle Svanslös...
hade lokala förebilder. Måns var naturligtvis allmänt inspirerad av Hitler och Gösta själv var Pelle Svanslös liksom hans fru, Erna, var Maja Gräädnos. De klösiga på Övre Slottsgatan var överbibliotekarie Tönnes Kleberg (Fritz) med fru (Frida) och barnen Olof, Lars m.fl. (Fridolf, Fridolfin, Fridolfina), som verkliga bodde just där eller möjligen på den bakomliggande Kyrkogårdsgatan. Trisse i Observatorieparken med sina strömmungssymfonier var director musices Sven E. Svensson, vars institution verkliga låg i Observatorieparken och som själv var rund som en ost. Richard från Rickomberga var musikprofessorn Richard Engländer, flykting från Hitlers Tyskland. Men dumskallarna Bill och Bull och Murre från Skogstibble – han som luktede lagård – kunde jag inte identifiera. Var Gamla Maja i domkyrkotornet möjligen ärkebiskopinnan Söderblom?

Samtidigt upplevde jag universitetets Uppsala som begränsat. Man gick omkring i konfirmationskostym och slips, hackordningar måste respekteras

Jag flög med ett rött hallon i näbben


Men i stort sett var Hildebrand mycket tolerant. Han t.o.m. inbjöd mig att öppna en seminariediskussion med anledning av den sovjetiska översättningen med kommentarer av Ingvar Andersons ”Sveriges historia”. Kommentarerna hade översatts till svenska och publicerats i en särskild liten skrift med kommentarer av Ingvar Anderson själv. Egentligen var dessa kommentarer tämligen andefattiga och stelbenta, vilket jag bara delvis såg. Men seminariet lyssnade artigt och jag blev inte alls utbuad.

Bo Gustafsson

till! Man fick köa vid disken men jag tror inte det var mer än ett tjugo tal re-
centiorer som erlade en avgift och fick tentamentsbok. (Sen skulle man skriva
in sig i nation, vilket för mej var Västmanland-Dala nation. Vid den tiden lekte
jag med tanken att bli jurist. Men jag avråddes kraftfullt av l. Qurator Björn
Bosaeus med motiveringen att ”det väller ut jurister från krisorganen”; alla
följde prognosen och fem år senare var det brist på jurister!)

Men nu skulle det bli information om historieämnet. Den sköttes dels av
amanuens Folke Rudberg från Historiska institutionen som med militärtisk
disciplin klargjorde vad man skulle och inte skulle göra och dels av Karl-
Gustaf Hildebrand, nybliven preceptor i ekonomisk historia och inhyst i ett
rum på Historiska institutionen, där han dels skulle meddela undervisning
i ”ren” ekonomisk historia (inte många studenter) och dels i historia efter
den ekonomisk-historiska linjen som accepterades som alternativ i fil. mag.
examениn historia. (Det hade blivit precepturer i ämnet, sedan någon bonde-
förbundare i riksdagens utbildningsutskott (Skabersjö?) eller möjligen i
koalitionsregeringen Erlander-Hedlund hade fått klart för sig att en preceptor
hade lika stor undervisningsskyldighet som en professor, fast till lägre be-
talning…) Rudberg tog större delen av tiden i anspråk och Karl-Gustaf gav
några strödda synpunkter på sitt ämne med tillägget att han fanns tillgänglig
i rummet bakom sal IX om någon till äventyr skulle vara intresserad. Jag
tror jag var den ende och mottogs därför väl villigt. Jag presenterades en del
stenciler över böcker som jag skulle läsa och jag gav genast en recension av
dem som jag hade läst. ”Mja, den där Röpke är kanske inte så bra” eller ”Jo,
den är ganska intressant” o.s.v. Karl-Gustaf som är en konciliant människa
höll hela tiden med. En annan episod var hans föreläsningar i nationalekonomi
för ekonom-historiker. Han hade själv motarbetats av Heckscher när han sökte
tjänsten med hänvisning till att han inte var så framstående i nationalekonomi.
Han hade därför tagit tre betyg i nationalekonomi för Erik Lundberg och skri-
vit en alldeles lysande uppsats i Ekonomisk Tidskrift om den monopolistiska
konkurrensen som ekonom-historiskt problem. Över huvud taget visste Karl-
Gustaf mer om det mesta än han ville visa. Föreläsningarna i nationalekonomi
var som vanligt intelligenta men kanske ibland lite vimsiga. Det blev inte
bättre av att vi okunniga studenter gärna kommenterade det sagda och ökade
på förvirringen. Jag minns ännu hur spänd och nervös Karl-Gustaf var när vi
resonerade på rasterna om det han sagt på föreläsningarna. Som alla mycket
intelligenta människor såg Karl-Gustaf att allt hade många sidor och många
möjliga tolkningar.

Karl-Gustafs seminarier präglades av öppenhet och tolerans och alla skulle
känna sig välkomna. Hans valspråk var: ”Alla stämmor i kören skall höras”. Men
naturligtvis fanns det även där en stämning av högaktning och under-
kastelse, som hörde tiden till och som försvann först efter 1968. Karl-Gustaf
sade ofta att han var helt oteoretisk, vilket inte var riktigt sant och som, om
det var så, hade en ganska nyttig effekt på oss. Han lärde oss att se under ytan
och förstå det sammansatta i historien och han gav oss ofta aha-upplevelser
Jag flög med ett rött hallon i näbben

som var mycket lärorika. Uppblåsthet och arrogans var det värsta han visste och han punkterade gärna företrädarna för dessa egenskaper med en diabolisk mildhet.


När mina historiska grundstudier var avslutade hösten 1954 eller möjligen våren 1955 började jag studera nordiska språk, som fascinerade mig djupt. På den tiden läste man isländsk grammatik och isländska texter, innan man började med fornsvenskan, eftersom fornsvenskan redan var ett språk i upp-

Vi hade inget bibliotek att tala om men Karl-Gustaf hade fått löfte om att vi skulle kunna få dubbletter av för oss intressant litteratur från Carolina. Jag tillbringade två månader i en av universitetsbibliotekets dammiga källare och lyckades skrapa ihop några hundra volymer att börja med. Samtidigt påbörjade jag mina licentiatstudier med att läsa in kurserna över antikens och medeltidens ekonomiska historia, som på den tiden var betydligt mer omfattande än vad de senare blev. Såvitt jag minns fick jag också undervisa en del, i varje fall mot slutet av 50-talet.


Den sommaren bjöd Kristina hem mig till sina föräldrar i Gisslarbo utanför Kolsva i Västmanland, där hennes pappa Ivan Bohman var folkskollärare. Jag mottogs mycket hjärtligt av honom och hans fru Ruth. Ivan var betydligt äldre.
Jag flög med ett rött hallon i näbben


Det viktigaste som hände på kongressen var att vi blev vänner med indiern Baren Ray från New Delhi. Baren var intresserad av historia och filosofi och
Bo Gustafsson


Under dessa år blev Kristina färdig med sin akademiska grundexamen i pedagogik, psykologi och sociologi och hon ville inte fortsätta, eftersom hon inte kände sig uppskattad, framför allt inte i pedagogik som var hennes stora intresse. Hon tog arbete på Stockholms skolförvaltning och måste alltså pendla mellan Uppsala och Stockholm. Senare blev kvällsgymnasiet i Uppsala, sedermera Cederbladsskolan, hennes arbetsplats där hon arbetade som bl.a. SYO-konsulent.

Jag flog med ett rött hallon i näbben


Bo Gustafsson

procent dålig) och likaså hävdade att ryssarna (läs: Chrusjtjov) lade alltför ensidig vikt vid möjligheterna till fredlig samlevnad med kapitalismen. (Det var i det sammanhanget som Mao yttrade de famösa orden att även om världen skulle utsättas för ett kärnvapenkrig, så skulle det efter ett sådant finnas tillräckligt många människor (kinesiska kommunister?) kvar för att en ny skön värld skulle resa sig ur den gamla.) Men å andra sidan kritiserade kineserna ryssarna för att ha förvanskat socialismen genom att upphäva demokratin och massinflytandet, centralisera alltför många ekonomiska beslut, lägga alltför stor vikt vid tung industri och utarma jordbruket. I en officiös skrift ("De tio stora relationerna") gjorde sig Mao till tolk för en demokratisk socialism som till och med gav utrymme för konkurrierande partier, eftersom kommunistpartiet enligt Mao behövde motståndarpartier för att inte göra alltför många och stora misstag. Detta var 1956. Vad vi inte visste men som kom fram långt senare var att Mao med detta gillrade en fålla för att locka fram oppositionen och att fälla slog igen 1957, då han slog till mot det ”ogräs” som vuxit upp i hägnet av ”Låt-hundra-blommor-blomma-politiken”). Men vi godkrogo vänsterintellektuella i Väst trodde på den officiella retoriken och dessutom låg ju Kina tillräckligt långt bort för att det skulle vara svårt att undersöka de verkliga förhållandena. T.o.m. vetenskapliga icke-kommunistiska västtidskrifter som ”The China Quarterly” innehöll ingenting eller föga som kunde korrigera bilden. 1958 satte Mao igång med folkkommunerna för att integrera jordbruk och industri och 1959 kom det s.k. Stora Språnget, då alla skulle producera järn i Kina. När fri litteratur om Kina började publiceras under 1980-talet fick vi reda på sanningen om dessa projekt och hur de ödelagt både människor och produktion.

Jag flög med ett rött hallon i näbben


Året 1960 var dramatiskt inte bara internationellt utan också i Kina. År 1958 hade folkkommunerna bildats och det s.k. Stora Språnget inlets med


Förutom järnindustri besökte vi en bilfabrik, en filmmstudio, affärer i Changchun och dessutom universitet i Kirin (f.d. Harbin), där vi bl.a. fick träffa koreanska studenter på en fest. Vår delegation uppmunrades att visa något av svensk kultur och det enda vi kunde göra var att hoppa runt i ring och sjunga ”Små grodorna”, vilket gjorde stor succé!
Klas Nyberg

Introductory Comments to Bo Gustafsson’s “The Transition from Domestic Industries to Factories: With Special Reference to the British Cotton Industry”

The emergence of the first centralized factories, namely the growth of the mechanized cotton mills in North-West England at the end of the eighteenth century, had a unique allure and magic even in contemporary Europe. Factories, such as the Arkwright mills in Cromford, simply created a feeling that a pioneering transition to a new kind of society was underway.¹ Already by the turn of the nineteenth century, developments in Lancashire were the actual symbol for the factory system and the alarming social consequences in the initial phase hardly changed this impression.² The factories were thought to promise the solution not only to the problems of hand spinning, but also to the many limitations of mass production that characterized the archaic putting-out industry. Manufacturing by hand, but organized as large-scale putting out, had been around since the High Middle Ages. In Lancashire, it was dominated by the manufacture of fustians—cheap, light cloths made of flax warp and cotton weft.³

The textile-factory system developed by way of early modern forms of production. The factories in England and most of Europe grew out of a widespread, large-scale cottage industry rather than out of the much-debated manufacturing stage Karl Marx highlights in the first volume of Das Kapital. There were proto-factories in most countries; however, in research, they increasingly appeared as a peripheral phenomenon.⁴ As early as the 1960s and the beginning of the 1970s, the now classic studies by Herbert Kisch (the Rhineland) and Franklin Mendels (Flanders) demonstrated the large size of the putting-out system.⁵

In this anthology, the Marxist economic historian Bo Gustafsson’s article “The Transition from Domestic Industries to Factories: With Special Reference to the British Cotton Industry” (1987/1991), has been published for the first time, and it should be seen in the light of this altered view of the putting-out system.6 Gustafsson was, however, not only interested in the transition to a factory system at the end of the eighteenth century and during the nineteenth century. As a Marxist economic historian, he had a genuine academic interest in the broader problem of economic transitions.7 Already in the 1950s, he corresponded with both Maurice Dobb and Paul Sweezy. In the present anthology, Gustafsson points this out in his unfinished autobiography and Lars Magnusson also touches upon the context of the correspondence in the introduction to the volume. Between 1986 and 1994, Gustafsson was also in charge of the international project “From Verlag to Factory” at the Swedish Collegium for Advanced Study in the Social Sciences (SCASSS; later Swedish Collegium for Advanced Study, SCAS). Apart from the already-mentioned Lars Magnusson, Amit Bhaduri (University of Vienna), Maxine Berg (Department of Economic and Social History, Warwick University), William Lazonick (Barnard College, Columbia University) and Jürgen Schlumbohm (Max Planck Institute for History, Göttingen) were also involved in this project.

Gustafsson’s posthumously published article can be seen as the last in a series of three separate contributions that all deal with various important transition problems. The other two have already been published: one discusses the decline of ancient slavery and the growth of smallholdings (coloni) at the end of the Roman period, and the other the fundamental, inherent limitation of the medieval guild system’s production method compared with capitalism’s. These three related articles have a similar fundamental way of applying economic-theoretical models to the main problems in the debates on economic-historical transitions.8 The final article can, as far as Gustafsson is concerned, be seen particularly as an underlying dispute with Marx’s manufacturing stage, although Marx’s evolutionist approach characterized most of Gustafsson’s scholarly—and political—work. Larisa Oldireva Gustafsson, who has compiled his complete bibliography for this anthology, classifies it as “…scholarship and politics”.

The proto-factories were regarded as a transitional stage heralding the emergence of the factory system during the end of the eighteenth century and the nineteenth century. The emergence of textile factories in the Marxist sense, and that of many subsequent researchers, with their centralized production,

---

6 This current version has been compiled by the editors from two earlier versions that were presented at SCASSS, in September 1987 and November 1991 respectively. The latter version was also presented at the senior seminar of the Department of Economic History in Uppsala during the academic year 1991/92. The present essay is an edited version of these two drafts.
where mechanical spinning machines (spinning jennies, water frames, and spinning mules) and mechanical looms were connected to a single power source, had long been seen as the fundamental dynamic in the British and—as it was also viewed at the time—the subsequent European Industrial Revolution. The analysis was based on a limited supply-oriented explanatory model with the new method of production as its starting point.⁹

After the proto-industrial debate of the 1970s and 1980s, the manufacturing stage was rejected as an envisaged independent development stage in the transition. As previously mentioned, this rejection was rooted in empirical observations. There turned out to be relatively few proto-factories. Their production was small scale and often exclusive, whereas the mass production of the putting-out system appears to have existed throughout Europe where the conditions for traditional agriculture were limited.

As early as the thirteenth century, a large-scale, mass market production of standardized textile goods for export existed in Flanders and other places. Merchants or their representatives provided rural labour with raw materials for spinning or yarn for weaving—a kind of decentralized home production. This was then collected and distributed for further preparation and treatment in the towns, where the textiles were dyed and finished.¹⁰ For many post-war researchers, such as Fernand Braudel, Herman Kellenbenz, Paul Sweezy, and later even Jürgen Schlumbohm, the whole putting-out industry played a crucial role in the transition to the early textile factories. In the influential 1977 anthology *Industrialisierung vor der Industrialisierung* (published in English in 1981), Schlumbohm develops a Marxist stage model. In this model, prominent merchants are at the heart of the theory formation of proto-industrialization, the concept coined by Mendels in 1972.¹¹ This resulted in different kinds of variations: *Kaufsystem* and *Verlagsystem* run by merchants who arranged for the purchase of raw material and organized the production, treatment, inspection, and selling of the cloth.

The term putting-out system also here includes a social dimension. In this system, craftsmen and farmers became increasingly subordinated and in debt,

---

⁹ See Chapman, 1974 on various factory types in England up to the birth of the mechanized cotton mill. For the genesis of the factory system in New England, see Jeremy, 1973 and Tucker 1984. Gross, 1987 and Laurie, 1987, are reviews of Tucker, 1984; Miskell, 1999 deals with Dundee, which was the Scottish linen industry’s equivalent to the development in northern England. A typology of proto-factories in Sweden was developed in Nilsson & Schön, 1978 and was applied in Schön, 1979.

¹⁰ Braudel’s three volumes *Civilizations and Capitalism, 1400–1800* has been translated into Swedish and many other languages and appeared in the 1980s, 1982–1986. They are summarized in a short volume, Braudel, 1988. Mendel’s article “Proto-industrialization: The First Phase of the Industrialization Process”, published in 1972, was followed by Kriedte, Medick & Schlumbohm. 1981. Also see Kisch, 1989; see Tilly, R., ‘Prologue: Herbert Kisch, the Man and His Work’, pp. 3–38, in this volume that explains the context. This was followed by the studies that were published in the early 1990s: Kriedte, 1991, Medick, 1996 and Schlumbohm, 1994.

¹¹ Kriedte, Medick & Schlumbohm, 1977.
and an industrial proletariat emerged. Gustafsson’s article should be seen as a contribution to the topical debate of the 1970s and 1980s. However, the article is not about whether “proto-industry”—a term the so-called “Göttingen Three” further developed in the 1970s after Mendel had coined it—preceded the factory system, but what forms the causal relationships in the transition took. Gustafsson is especially interested in the development in northern England. Many, including David Landes in *The Unbound Prometheus*, have seen this development as the starting point for the technology transfer of British technique and organization, which soon spread to the Continent and Scandinavia. When the first draft of Gustafsson’s article was presented in 1987, this was a hypothesis in which he took a keen interest.

The historical growth of the European textile-factory system outside England was, however, more influenced by the formation of society’s institutions than Gustafsson and most researchers of his generation thought. The varying institutional conditions produced different regional developments in various parts of Europe.

From the outset, quality wool, cotton, and silk were international raw materials. The putting-out and factory systems were integrated through these materials into world trade even before the finished products were exported. In Western European settings, such as England as well as Scotland and the Netherlands, where the guild system soon waned, the transition from the putting-out cottage industry to the textile-fabric industry is now regarded as the historical focal point, even though the development was by no means uniform: old industrial regions sometimes went into decline and were de-industrialized. However, researchers are divided over to what extent early modern proto-industrial activities, besides the putting-out system, led to the factory system in the German principalities, France, and Spain. In addition to the guild system, these countries and principalities had several institutions, including state-owned, princely, and royal proto-factories with special privileges. The manufacturing stage is more prominent in the Central European research tradition, although in present-day research the prevailing school of

---

12 Nyström, 1955, chapter 1.
13 Hans Medick, Peter Kriedte & Jürgen Schlumbohm, the term after Tilly, 1989.
16 Chapman (ed.), 1997, put together the most important articles that were current 15 years ago in four volumes. Subsequently David Jenkins published two volumes in 2003 with new material that presented new perspectives and took into account results from current primary works; Jenkins (ed.). 2003, vol. I–II. He had previously, a few years before Chapman’s edition, edited volume 8, which reflects what was considered as the most important contributions on the place of the textile industry in the first industrial revolution in facsimile print of the classic edition of a total of 11 volumes in the series, *The Industrial Revolution* edited by R. A. Church & E. A. Wrigley; see Jenkins, 1994. Mann and Wadsworth, 1931 is a standard work on the British cotton industry’s origins and is still regarded as the main work of from an older period.
thought is that, quantitatively speaking, proto-factories played a limited role, even in areas other than Western Europe. Many proto-factories were, if anything, of an arts-and-crafts nature, like, for example, Les Gobelins in Paris. Where the guild system was particularly strong, such as in the Württemberg Black Forest in southern Germany, the kind of development towards mass production for export discussed here was discouraged by the guilds.\textsuperscript{17} It was often the countryside, which was outside the guild system’s control, that was home to the pre-industrial textile mass production, while generally speaking all the production in the putting-out system was then finished, marketed, and sold from the towns under the auspices of merchants.\textsuperscript{18} In his article, Gustafsson’s elaborate definitions of the pre-industrial conditions do not actually consider the question whether society’s institutions are preconditions for, or obstacles to, industrial development and industrialization. He stresses the rise of free wage-earners almost as an axiom, which, of course, narrowly restricts the causal relationships to British conditions.

Gustafsson’s overall approach in his analysis of the causal relationships behind the transition to the factory system in northern England— which many, including Pat Hudson, have felt was a development, even in England, with strong regional features for both the cotton and wool industries—is essentially demand-based.\textsuperscript{19} The huge increase in demand, first for cotton yarn and then for cotton fabrics, was historically unique and put pressure on the old method of production. In the end, the organization of the cottage industry could not increase its production at the same rate as the change in the demand. The putting-out system’s many general problems—a lack of control, a waste of material, and social antagonisms—are well known and were complicated.\textsuperscript{20} When production was increased, the biggest difficulty was procuring enough yarn. The labour-intensive spinning had a limited capacity, despite accounting for approximately a third of the labour costs, which in turn amounted to roughly half of the total production costs. As for the number of employed workers, spinners and others who prepared the yarn (winders, bobbiners, and reelers) accounted for between 50 and 80 per cent of the workforce. This depended on how much they worked. Spinning was often a spare-time occupation in extended households. Therefore, the number involved could be very large and spatially dispersed.\textsuperscript{21} The much discussed mechanization of spinning marked the beginning of the end of the putting-out system. At the end of the eighteenth

\textsuperscript{17} Ogilvie, 1997 and 2003; Marx, 1970; Conradi-Engqvist, 1994.
\textsuperscript{18} Cerman & Ogilvie, 1996.
\textsuperscript{19} Hudson, 1989
\textsuperscript{20} Randall, 1991 and Mann, 1971 on the putting out system in the West of England which created major social tensions. Conflicts there were, according to Randall, a contributing factor to the woolen industry’s regional shift to the West Riding of Yorkshire during industrialization, where workers and small businessmen were integrated in the production structure and could coexist with the larger factories.
century, machine spinning in England paved the way for centralized production within a couple of decades. Between 1770 and 1830, the British consumption of raw cotton increased fifty-fold, and at the beginning of the 1830s, the prices of yarn were approximately a thirteenth of the 1780s level.\footnote{These figures date back to Edward Baines’ classic study from 1835, Baines 1966 [1835].}

Initially, however, mechanized spinning was to be done in the workers’ homes. The first generation of spinning machines, Hargreaves’s spinning jenny (1766), was manually operated and sometimes meant to be used in the homes within the decentralized putting-out system. Spinning jennies, however, only produced a relatively loosely spun yarn suitable as weft yarn. The more-tightly spun warp yarn, which required a different thinness and durability, continued initially to be spun by hand using traditional treadle spinning wheels. The spinning jenny first replaced the great wheel. Nevertheless, it was an important innovation because to make the cloth, somewhat more weft yarn than warp yarn is usually needed. The fluffier and feltier the fabric, the more weft yarn is used. Only with the development of Englishman Richard Arkwright’s famous water frame (so-called because it was powered by water), completed in 1775, was a machine-spun yarn produced that could be used for warping.\footnote{Aspin & Chapman, 1964; Cameron, 1951; Charlton et al., 1973; Crankshaw & Blackburn, (year of publication is missing); Dobson, 1911; English, 1969; Fitton & Wadsworth, 1958; Gilbert, 1971; Jeremy, 1990; Tucker, 1984; Unwin, 1924; Usher, 1954.} This machine reduced the need for skilled workers and laid the foundations for the controversial and heavily criticized use of child labour in the first generation of cotton spinning mills in Lancashire and many other places.\footnote{Aspin, 1969, p. 36; Engels, 1983 [1845].} The subsequent spinning mule, developed by Samuel Crompton in the 1770s, was a combined machine, i.e. a hybrid that rolled Hargreaves’s and Arkwright’s machines into one.\footnote{Note 23.}

All in all, the mechanization of the first generation of spinning mills was, therefore, not radical in the way that characterizes nineteenth-century integrated textile factories, where a single power source was used for the treatment of raw material and yarn, weaving, and finishing.\footnote{Chapman, 1974, p. 451; Schön, 1979, p. 8f.} That Gustafsson’s article focuses on the predecessors, namely the mechanized cotton spinning mills, is probably because their emergence represents the linchpin of the birth of the factory system. Primarily, this was done by taking the first step towards centralized mass production, with a new kind of full-time wage earner compared with the conditions of the guild and putting-out systems. The actual factories, with centralized production and a single power source, can be interpreted as a consequence of the fundamental departure of the first generation of spinning mills from the earlier conditions in the cottage industry and handicrafts.

Despite attempts to prevent the spread of the new technology, it quickly reached the Continent. On the Continent and in Scandinavia, the mechanized
cotton spinning mills had their heyday during the first half of the nineteenth century. However, in such a far-off country as Sweden, the breakthrough did not come until the 1830s, despite the fact that, until 1830, importing coarse cotton yarn was prohibited and thereafter was expensive due to the high tariffs. Just before the middle of the 1830s, factory production overtook the handicraft industries’ production level, and around 1840 the cotton spinning mills produced as much as the imports. Not long after that, there was a drop in the latter. After 1850, the spinning mills in both Scandinavia and most other places began to be gradually integrated with the mechanized cotton textile factories and a new epoch began in the textile-factory system.27

The textile-factory system’s breakthrough was, nevertheless, a gradual, ongoing process not really complete until the 1860s. Gustafsson’s article also shows the continuity of the past, and this is a fundamentally important observation. The mechanized cotton spinning mills, and later the textile factories of the 1850s, were not only the result of the dissemination of technology from Belgium and England as the import bans on textile machines were lifted during the first half of the nineteenth century.28 Already within the non-mechanized textile industry—principally organized as putting-out systems, but also as handicraft and proto-factories, and often regarded as an early modern phenomenon that had nothing to do with the late-eighteenth- and nineteenth-century industrialization—efforts were underway to develop technologically. On the Continent, many of those who built the first factories were part of a social nexus of innovators, where practising engineers were part of a larger cluster of scholars, merchants, and directors who actively sought out the leading region for trade and industry of their time, namely Lancashire in North-West England.

* 

With his important theoretically analytical approach, we believe Gustafsson’s contribution should be seen as a significant one in the 1980s debate on the emergence of the factory system. Although by now Gustafsson’s article is almost twenty-five years old, it feels strangely timeless—still refreshingly new and vital. As the editors, we hope the article will be widely read.

27 Schön, 1979, pp. 100–101. See also Bagge, 1889. For the emergence of the Swedish mechanized cotton weaving mills, see Jonsson, 2000.
Bibliography

Bagge, Daniel Henric, Anteckningar om Sveriges bomullsspinnerier samlade under en lång lifstid, utg. på författarens åttionde födelsedag. Norrköping 1889.
Baines, Edward Jr, History of the cotton manufacture in Great Britain. With a notice of its early history in the East, and in all the quarters of the globe. ...[Illustr.]. London 1966 [1835].
Cameron, Hector Charles, Samuel Crompton. [inventor of the spinning mule]. London 1951.


Ulrich, Pamela V., “From fustian to merino. The rise of textiles using cotton before and after the gin.” *Agricultural History*; Spring94, Vol. 68 Issue 2, pp. 219–32.


The Transition from Domestic Industries to Factories

With Special Reference to the British Cotton Industry

Bo Gustafsson
Part I

A Preliminary Narrative and Explanatory Sketch
I. Abstract

The transition from domestic industries and putting-out systems to factories is an important problem in economic history and economics from several points of view. In the first place, the problem has been insufficiently investigated. The standard explanation referring to technological causes—“machines and steam-power”—takes one important structural condition into account. But it is deficient in so far as it treats technological change as an exogenous variable, it has nothing to say on other as important conditions, such as manifest changes in economic, social, demographic or cultural structures or changing marketing conditions, and it disregards the fact that the new technology was to a great extent utilized parallel in domestic industries and factories and that the first factories did not utilize steam-power at all. Secondly, the transition from domestic industries to factories had wider ramifications in so far as it was a part and an expression of a larger and more fundamental phenomenon: the transition from (developed) simple commodity production with more or less independent producers, although under the growing command of merchant capital, to a mode of production made up of proletarianized wage earners and capitalists having monopolized the ownership of the means of production. Thirdly, an investigation of the transition from domestic industries may throw light on the general problem of centralized versus decentralized production in a market economy, a recurring phenomenon in industrial capitalism.

The transition from domestic industries to factories seems to have originated in the rapidly rising demand for final output in the textile industries, especially the cotton industries, from the middle of the 18th century and especially from the 1770’s. This expansion of demand was of course conditioned upon the take-off of industry resulting in growing production and, at least for some strata, growing real incomes. But it may also be a reflection of a structural transformation of production from rapidly decreasing self-sufficiency to increasing division of labour and increasing reliance on markets. If domestic producers specialized in specific lines of production and some strata were divorced from land and commons, the effects should be an increased market demand especially for consumers’ goods but also producers’ goods (à la Lenin’s model in “The market question”). In any case it should be possible to treat demand, especially foreign demand, as an exogenous variable for a separate industry, like cotton.

The rapidly increasing demand put domestic industries under severe strains. To an astonishingly large extent domestic industries succeeded in meeting the requirements of expanding demand, partly by a simple extension of production

---

'This essay has been compiled from two, somewhat different, papers that were presented at SCASSS, in September 1987 and November 1991 respectively. The latter version was also presented at the senior seminar of the Department of Economic History in Uppsala during the academic year 1991/92. The present essay is an edited version of these two drafts. Language has been corrected, and some text has been edited for clarity. Underlined text is as it appears in the original versions.'
to new households and partly by increasing productivity assisted by innovations, like the flying shuttle, the spinning jenny, carding machines etc. Still, domestic industries operated under constraints that were difficult to overcome: in the first place the inelasticity and irregularity of labour supply (conditioned by the existence of agricultural pursuits and by “leisure-preference”); the uneven quality of products (conditioned by the great variation in skills in and between families); high costs of transportation of raw materials, through-puts and outputs; low rates of turnover of capital (conditioned by the large amount of fetching and carrying and the decentralized decision-making process); embezzlement of raw-materials (conditioned by the shared responsibilities between domestic producers and putters-out). These constraints became more pronounced when demand and production increased and competition was intensified both in input and—especially—in output markets. Employers became anxious to get hold of the most important factor of production, labour, to exploit it more efficiently, to lower the time of production from the purchase of labour and means of production to the realization of final output, to lower capital requirements and to increase control over labour, the process of production and final output. Thus, strong incentives to change the relations of production arose by centralizing production under the command of the capitalists.

This was made possible by parallel changes in social structure and productive forces (population and technology). The enclosure movement concentrating land and dissolving the commons increased rapidly during the course of the 18th century. This tended to marginalize or proletarianize domestic producers and dissolve the traditional ties between labour and land, making domestic producers more mobile and more dependent upon both the labour market and the market for food-stuffs. Increasingly they had to sell their labour-power and buy their subsistence (wood, milk) on the market for wages earned. The industrialization increased demand for labour-power and favored family formation, increasing birth rates. The growing families needed supplements to the family income and the labour of women—freed from supplementary work on the commons—and children gave rise to an increasing pool of labour to be tapped. Similarly the growing production and demand for final output gave incentives to continuously innovate and increase the size of machinery, e.g. jennies and carding machines. To begin with these enlarged and more expensive machines could be accommodated within domestic industries. But sooner or later they became beyond the reach of many domestic producers. The more prosperous among them and putters-out started to concentrate machines and workers (often whole families) in workshops and primitive factories, sometimes combining carding, spinning, winding and weaving and other processes. By this development of productive forces class differentiation of direct producers increased. Some direct producers were transformed into pure wage labourers, while putters-out, manufacturers and merchants got control over labour utilization, the process of production and the quality of
products, lowered capital requirements and transaction costs and increased the intensity—and sometimes also the productivity—of labour as well as its profitability.

This development took a qualitative leap forward with the invention of the Arkwright water-frame and carding machine, which represented a substantial investment out of reach for most domestic producers. It is noteworthy that Arkwright’s patented water-frame was considerably larger than was technically necessary. If this was because his large machine was more productive (and thus more profitable) than smaller variants or because he wished to exclude competition from domestic producers is uncertain. In any case, Arkwright’s machines could definitely not be accommodated within domestic production. Thus arose those first large factories with large machines propelled by water-power turning out products of higher and more even qualities (although not finer yarn) and making an increased productivity of labour and a higher profitability possible.

Since the growth of production and demand to begin with far outstripped the capacity of the first factories, the pressure on labour to take up employment in the first factories was not strong. Indeed, the increased production of yarn gave increased employment possibilities to weavers as well as to those jenny spinners—and later mule spinners—who put out yarn of higher counts. This fact, in combination with the forced localization of the Arkwright factories to places where water-power could be supplied, created a labour problem for the first factory masters. Thus, they devised their machines preferably for children and apprentice children and women constituted the main labour force. Parish apprentices were successively substituted for free labour children when the utilization of steam-power loosened the constraints on localization put up by water-power and when it was found that parish apprentices’ efficiency wages were relatively high. Still the utilization of children and women as labour power long remained characteristic for cotton manufacture, partly because it was profitable and partly because labour families were in need of the supplementary income provided by them. To begin with it was very difficult to recruit male labour to the factories except as overseers and foremen, even if factory wages are reported to be higher than in domestic industries and employment certainly more continuous. This may have been conditioned partly by the existence of alternative employments and partly by culturally conditioned resistance against factory work, which was looked upon as, and in fact was, work-house labour.

This seems to have changed with the new conditions of factory production arising after 1820 with the introduction of mechanized mule-spinning (the self-actor mule) and mechanized weaving (the power-loom). In these factories productivity was high enough to permit the combined existence of low unit-labour cost, high capital productivity and high profits (not necessarily high profit rates) on the one hand, and relatively high labour earnings made possible by the high productivity and enforced by labour organizations. When
labour had been won over for the factory system the transition was finally safe-guarded. The dominance of production of absolute surplus value gave way for the dominance of the production of relative surplus value.

Putting this transitional problematic in a nutshell, we might say that the transition from domestic industries to factories was conditioned by on the one hand the increasing market demand for final output and on the other hand the increasing costs of domestic industries caused thereby. This created incentives to develop machines to increase labour productivity and to centralize labour and production, which also was made possible by the intensified primary accumulation creating more mobile and marginalized labour but also by investible funds among merchants and manufacturers. Evidence shows that the first factory owners were recruited from employers of the preceding industrial systems.

Centralized labour and production provided the basis for a more efficient utilization of labour and for control of product quality, but also—and this became progressively more important—for innovation activity and its efficient incorporation into the capitalist business firm. It was these far-reaching technological changes, ultimately ending in the automatized factory, which consolidated the factory system as a new and successful mode of production. It struck a new, if precarious, balance between the opposite interests of the employers and the direct producers.

II. The Transition from Domestic Industry to Factory Production

The purpose of this paper is to provide a preliminary explanatory sketch of the historical transformation from domestic industries to factory production, based upon a classic case, the British cotton industry. The importance of this problem is not only that the transition in question signaled a change of the technical-organizational form of production, from households to factories or from decentralized to centralized production. More important is that this change of technical-organizational form was embedded in a fundamental change of the relations of production from a system of predominantly simple commodity production, with more or less independent small producers, to a system of capitalist relations of production with capitalists monopolizing the means of production and exploiting the labour power of property-less workers. This change was mediated by an intervening stage called the Verlag or the putting-out system, which originated in the late Middle Ages and grew in importance, especially during the course of the 18th century. The Verlag system was a transitional stage in so far as it entailed the successive encroachment of nascent capitalist relationships on domestic industries and
The Transition from Domestic Industries to Factories

implied an increasing centralization of ownership of the means of production and final output, before the direct operation of production was transferred to centralized workshops or factories. Thus the Verlag system should be looked upon as an extension of simple commodity production in the direction of capitalist relations of production and the factory system.

It is this transition from simple and developed commodity production to capitalist relations of production, which lends the whole transitional problematic its great historical interest. If it had only been a story of how decentralized production became centralized in its technical-organizational aspects, we would not treat this transitional problematic as unique, since one may observe recurrent waves of centralization and decentralization of production in the course of industrial history, without such upheavals and fundamental structural changes of the whole fabric of society as witnessed in the first industrial revolution.

The transition from domestic industries and putting-out systems to factories thus involved a change of the relations of production (the rise to predominance of the capital-labour relationship) as well as a change of the forces of production (the transition from domestic industries to factories). In fact, this transition may be taken as a very interesting example of the complicated interplay of relations of production and forces of production in the development of economic society with now the relations of production, now the forces of production playing the role of prime mover, the two sets of determinants of change usually inter-mixed and sometimes difficult to isolate or even to define consistently. The following simple time matrix may provide a preliminary interpretative frame of reference:

<table>
<thead>
<tr>
<th>Production Ownership</th>
<th>Centralized</th>
<th>Decentralized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralized</td>
<td>Capitalist factory</td>
<td>Putting-out system</td>
</tr>
<tr>
<td>Decentralized</td>
<td>Cooperative factory</td>
<td>Domestic industries</td>
</tr>
</tbody>
</table>

What occurred in the transition was that, firstly, property relations were centralized in the growing dominance of merchant capital over domestic industries. Only on the basis of this change of relations of property did the operation or management of production completely change from decentralized to centralized forms (the victory of the factory). (One may also note that the
possible combination of centralized production and decentralized ownership, e.g. in the form of producer-owned factories—cooperatives—never materialized, although the breakthrough of the share-company later signified to begin with a limited “collectivization” of ownership on the basis of capitalist relations of production. This problematic should probably be studied in order to make clear why only the capitalist factory became a viable alternative in the industrial revolution. In fact, it occurred, as e.g. Unwin noted in his book on Samuel Oldknow and the Arkwright (1924), p. 130, that some spinners centralized in Oldknow’s premises may have owned their jennies. More important, there existed a tradition of cooperative ownership in the fulling branch of the woollen industries and there are also instances of small-scale share-ownership or renting of premises in the first primitive cotton factories. Why could not domestic producers pool their resources and establish successful factories as producers’ cooperatives? Was it because of cultural traditions and social habits inhibiting a new role? Or, because of a hostile capitalist environment strangling producers’ cooperatives? Or, as Alchian and Demsetz want us to believe, because of problems of shirking and mutual monitoring (the 1/n-problem) or what? This should be investigated!

III. Some Problems of Meaning and of Research

The process of transition from domestic industries to putting-out and further to factories was exceedingly complicated and drawn-out with complications, short-cuts and bifurcations in the organizational set-up, as well as in the dynamics of the process in specific industries, between different industries and between different countries. There were domestic industries that remained domestic industries, domestic industries that switched directly over to factory production, factories that arose qua factories from the beginning, putting-out industries that remained putting-out industries, putting-out industries that degenerated to sweating industries, putting-out industries that were transformed to factory industries, putting-out industries that were combined with factory production and vice versa and so on. Still, over time the sequence domestic industries > putting-out system > factories was the dominant trend and the differences noted were mainly important for the phasing of the transition, sometimes early and sometimes late. But they may also give us insights into the mechanisms of transition and the relative weight of different conditions. In the woollen industries extensive regulations, technical problems in spinning and weaving and the enormous variety of products may explain the delay of the factories.

Further, when we talk about “factories” we imply that this is a thing rather than a process. Factories arose, developed and were transformed during the course of the industrial revolution. The first workshops with some carding machines and jennies and a dozen workers—often ex-domestic industry fam-
The Transition from Domestic Industries to Factories

Families— is something different from the first Arkwright mills with water frames and child labour and propelled by horses or, ultimately, water. And the last mentioned cannot be compared in all respects with the full-blown integrated cotton factories of the 1840’s with mechanized mule spinning and power-looms and propelled by huge steam engines. Much of the confusion around the causation of the factory system may emanate from this fact. When Ure, probably correctly, professes that the long-run victory of the factory system may have been conditioned by the fact that it made possible both higher wages and higher profits than the preceding forms of organization, his frame of reference are the developed and highly mechanized factories of the 1830’s. But it is doubtful how far that factory system and its mode of operation are relevant for the early factories. Still, if we want to explain the causes of the rise of the factory system it is those early factories that demand our attention. Maybe we have to assume that the causes leading to the victory of the factory system were different in different time periods? It is possible that at one point of time a specific set of causes gave rise to factories, while other causes, developing at a later point of time, became determining for the succeeding development. At least we should be aware of this problematic.

There are also other problems connected with the question of causation. It is sometimes held that one should allow for the operation of different sets of causes for different industries (S.H.R. Jones, 1986), e.g. technological determinants, transaction cost considerations or improved possibilities for exploitation. It has also been pointed out that the necessity of using water power or the scale of operation in certain industries like iron works and paper mills explain why they were organized in a centralized way already before the rise of the factory system in textile industries, while such causes could not have been important in the early phase of textile industries. This would only apply to the Arkwright factories of the 1780’s and 1790’s, which had to use water power (originally horse power) in order to propel the water frames and hence were located at water falls (natural or constructed with the help of reservoirs) in the countryside. While different sets of causes may have had unequal importance in individual industries or among firms in individual industries, a general set of causes is required for the explanation of the rise of the factory system as a general phenomenon. But it is exceedingly difficult to know whether a factor should be regarded as general or specific, especially since the evidence is so meagre and unevenly distributed over time and industries.

A still more difficult problem connected with the question of causation confronts us when we want to know how the causation in fact did work. Let us put the problem in this way. Domestic industries and putting-out systems were ways of organizing production and producing industrial products at a certain time, t1, and later, at time t2, these systems have been superseded by the factory system. It is reasonable to assume that the change of industrial organization was effected by a change in “data” or the initial conditions of industrial organization on the path from t1 to t2. These changes could, e.g., either refer to the
inputs of labour and/or capital, to the process of production, to the marketing of final output or to combinations of them together or in some sequence, like a massive rise of free labour, market expansion etc. The task then is to find out which of those conditions were the most important in bringing about the transition of industrial organization. But it is also possible to assume that nothing particularly new or important is happening in the “data” of the problem or the conditions. These being more or less unchanged one may imagine that the factories represented not an induced but an autonomous organizational innovation, which did not exist in (this new form) earlier and, because of efficiency properties, superseded the domestic industries and putting-out systems. In this case one might refer to new ways of organizing work or the invention of machines or new sources of power like steam.

Up to now problems of explanation have been framed only with reference to objective conditions and impersonal factors giving rise to the event or effect to be explained. But the transition could not have occurred if it had not been for the aims, plans, decisions and acts of the actors concerned. That these were important in the process of causation seems to be confirmed in several ways. (Framing the explanation in terms of aims etc. implies that we are confronted with a teleological explanation. But at least formally such explanations may be reduced to regular causal explanations, if we regard the aims etc. as part of the conditioning factors.) One may refer, e.g., to the reluctance of ordinary workers to take up employment in the early textile factories in spite of the fact that the earnings in those factories seem to have been both higher and more regular than in domestic industries or putting-out systems. The drawn-out decline of hand-loom weaving also seems to be a case in point in so far as hand-loom weavers refused to take up employment in factories because of social pride etc. Generally speaking capitalists may have wanted to establish factories at a certain point of time but could not do so, because workers would not take up employment in factories. Or, capitalists could do it, because workers also would do so. Thus, we should pay attention to the fact that not only capitalists but also workers—and probably other actors as well, like governments and their policies—were engaged in the process of transition.

Since there were different actors we should also assume the existence of different objective functions and behavioural rules of the actors involved and probably also changing objective functions and behavioural rules in the same actors over time. This problematic has been very important in the debate about family households in pre-industrial socio-economic structures (the existence of self-exploitation, backward-sloping supply curve of labour/leisure preference, satisfying behaviour etc.). Knowledge about such things may be important for the transitional problematic, at least as to timing and phasing, since they influenced reactions towards incentives, margins of survival etc. Attempts by factory owners to get hold of labour by offering higher wages may, e.g., have resulted in a corresponding decrease of the labour supply and, thus, resulted in the employment of children or in the introduction of harsh factory discipline.
Likewise the conditions of existence and capacity for survival of sweating industries must surely partly have been conditioned by something more than purely objective conditions, e.g. traditions of self-exploitation.

Let us now turn to problems of definition of the entities concerned. When speaking about a “factory” we usually refer to a technical-organizational entity as well as to a financial unit or a “firm”. But in the early days of the factory system factories and firms were not always synonymous entities, nor were they so later. To begin with many firms owned or rented a factory building together and later one firm could and did own several factories. Thus, what occurred in an early factory sometimes was the outcome of the operation of several firms and the success or demise of later factories was conditioned by the decisions of one firm. When we in this paper talk about factories we make the extreme simplification that factories and firms are more or less identical.

Also domestic industries and the putting-out system varied in organization and—probably—behaviour and function and were affected by changing initial and boundary conditions during the course of development. Take for instance the amount of land available for a domestic industrial household. If the amount of land at disposal was considerable, the bargaining position of the domestic industrialists was probably stronger than in cases when the amount of land at disposal was marginal. This should have had consequences for the outcome of the bargaining with putters-out and merchants and hence also for the living standard of the domestic industrialists and the profitability of the putting-out system or the merchant activities, respectively. But it also affected the amount of labour supplied, especially in the spring-time and the summer months, because of the time-consuming agricultural tasks. This should have made merchants and putters-out anxious to have at their disposal domestic industrialists with little land and thus highly dependent upon their industrial pursuits. On the other hand it is sometimes held that the putting-out system profited upon domestic industries offering low wages for the products precisely because there was land available so that the domestic producers had to “exploit” their agricultural side-lines. We do not know if there existed any clear trend as to the relative importance of agriculture and other primary economic activities for the primary producers during the course of the 18th century. Rapidly rising population and enclosures should have decreased the relative importance of agriculture, while the expansion of domestic industries, e.g. weaving, as a consequence of the rising demand from the factories, on the one hand should have made industrial production more rewarding, while on the other hand the extension of domestic industries into the countryside should have worked in the opposite direction. On balance it seems fair to assume that agriculture decreased and industry increased in the household economy of the domestic producers. Even if the evidence for such a general conclusion is missing, one gets the impression that this view is the dominant one (e.g. S.H. Chapman, 1904, Daniels 1920, Tupling 1927).
We shall not go into the complicated problems of various varieties of the putting-out system with very intriguing relationships between the direct producers, various sorts of middlemen (shop-keepers, putters-out, factors etc.) and merchants selling the end product, usually after some kind of finishing in their own premises. A specific variety is met with in the Midland hosiery industries with its developed debt system based upon the renting of knitting-frames. The degree to which the direct producers owned the means of production also varied between different industries and probably also over time. At the one extreme the direct producers owned both raw materials and the means of labour; at the other extreme they did not even own the cottages wherein they worked and lived. Usually they seem to have owned their means of labour.

Lastly there is the problem of sources and evidence and it has various dimensions. It is, firstly, striking that most of our knowledge about the operation of domestic industries and the early factories, respectively, rests on conjectures inferred from observations or obiter dicta of contemporary observers, pamphlets, regulations etc. and the most interesting passages are so few that they repeatedly recur in the secondary sources (like Aikin, Guest, Radcliffe, Kennedy and others). But have these sources ever been subjected to the stringent methods of historical source criticism by, preferably, British historians? One notes very little of such source criticism except occasionally, as by shrewd historians like T.S. Ashton. Mostly one meets with plain storytelling taking sources at face value. Take for example the celebrated and often utilized speech by the cotton lord John Kennedy in the Manchester Literary Society in 1819, “Observations on the rise and progress of the cotton trade in Great Britain”. Although Kennedy probably was in a privileged position to observe his trade, repeated reading of this piece has convinced me that it is nothing but a literary construction aimed at impressing the learned society by the speaker’s reading of Adam Smith! At least, this goes for his completely idealized rendering of the transition from domestic to factory production in the cotton trade. I noted above Unwin’s observation that the first jenny spinners at Oldknow’s premises owned their jennies. Although Unwin at least makes clear how he reached that conclusion it remains a fact that he did not have any document telling him that such was the case. He inferred this from the fact that some spinners had higher wages than others. Likewise, in all those cases when authors on the subject affirm that factories often arose because jennies or carding machines “became larger” and, hence, could not be owned by most domestic producers, I have the impression that we are confronted by a case of hypothetical inference, based on scattered observations of the renting of machines. Still, we cannot disregard this very common assertion met with in the literature.

I mention these problems just to make us aware of very complicated problems involved in the project of explaining the transition from domestic industries to putting-out and I am fully aware that it is impossible wholly to avoid them, as the following pages probably will testify!
IV. An Overview of the Problem

The transition from domestic industries and the putting-out system to factories was a process that originated in the early 18th century and took off by degrees after the 1760’s and, particularly from the 1780’s. (Here we talk about factories only or mainly as centralized work-places with a few machines, sometimes driven by water power.) Structural changes of importance for this transition seem to have been: 1) The growing commercialization of the economy from the end of the 17th century; 2) As a part of this process the concentration of land holding (i.a. through enclosures) and the dissolution of the commons; 3) The quickened pace of industrialization during the course of the 18th century before the rise of the factories, propelled by the commercial revolution being at the same time a part of and a condition for this; 4) The ensuing rise of population fundamentally conditioned by the growing demand for labour power.

As Mantoux aptly phrased it: “The Commercial expansion... preceded... the changes in industry” and he added: “The growth of Lancashire, of all English counties, the one most deserving to be called the cradle of the factory system, depended first of all on the development of Liverpool and of her trade.” (Mantoux, p. 91 and 108). This observation first and foremost applies to the role of foreign trade, which may be regarded as exogenous compared to the parallel growth of domestic production and domestic trade. Foreign trade obviously played an important role for British industry from the middle of the 18th century. But also domestic trade grew and may be regarded as exogenous in relationship to specific industries like textiles and particularly the cotton industry. While it would be pointless to refer to trade or demand in general as a prime mover of industry, since demand originates in production and income, it is certainly not pointless to do the same in relation to external trade for the industry of a particular country as a whole or in relation to domestic trade for specific domestic industries.

Already before the middle of the 18th century British industry and trade had grown considerably since the end of the 17th century. According to the estimates of Gregory King there were in 1688 110,000 families engaged in industry and trade. If we add to this a probably too large part, say 1/3 of King’s 364,000 “labouring people and servants” we get a total of about 230,000 families. In 1760 Joseph Massie made a more detailed breakdown of the occupational structure of England according to which there were about 480,000 families engaged in trade and industry (exclusive of 220,000 “labourers”). Thus while total population may have increased by probably no more than 20 per cent, that part of it that was engaged in industry and trade may have doubled. While King registered 50,000 merchants and traders, Massie registered 175,000. While according to King there were 60,000 “artisans and handicrafts”, Massie held that there were more than 300,000 “manufacturers” of different kinds. Although the figures of course are unreliable and difficult
to interpret they lend credence to the qualitative evidence we have according to which trade and industry had started to grow quicker than before already in the first half of the 18th century (calculations based upon P. Mathias, 1957). It was on this basis that the putting-out system started to develop rapidly from the middle of the 18th century, especially in the textile trade.

Of similar importance for the conditions of the domestic producers and the supply of free labour-power were the concentration of land holding and the dissolution of the commons during the course of the 18th century. Even if the extent and consequences of the enclosures have been disputed it seems fair to assume that the concentration of land holding and the dissolution of the commons had considerable consequences. In the first place, many domestic producers would have been more dependent upon non-agricultural pursuits, i.e. industry. Secondly, the dissolution of the commons had the same consequences and even took away an important source of subsistence for cottagers and squatters, especially the women, while transforming parts of the population to proletarians (J.L. and B. Hammond, The Village Labourer, p. 98ff.; Pinchbeck, p. 44 and 53; Bowden, p. 218, 244, 223, 234 and 240–41; Mantoux, p. 170 and 183–84; Moffit, p. 62, 110–111 and 125). Nothing is more revealing of these aspects of the enclosures than the re-evaluation of their effects made by Arthur Young in 1801, saying that “by nineteen enclosure acts out of twenty, the poor are injured, and, in some grossly injured. The poor in these parishes may say, and with truth, ‘Parliament may be tender of property, all I know is, I had a cow, and an act of parliament has taken it from me’” (Quoted by Bowden, p. 223). Mantoux (p. 183–84) sums up the tendency:

The changes in the conditions of rural life had still more direct influence on the progress of industry. We know that one of the characteristic features of the domestic system of manufacture was the scattering of workshops in the villages, the very basis of that system consisting of small holdings. We have noticed how a weaver would eke out his earnings with the product of a plot of ground, and how a rural family would in the evening spin wool for the merchant manufacturer. The blow dealt to peasant property broke that time-honoured alliance of labour on land and industrial work. The village artisan, when deprived of his field and of his right of common, could not continue to work at home. He was forced to give up whatever independence he still seemed to have retained, and had to accept the wages offered to him in the employer’s workshop. Thus labour was becoming more and more concentrated, even before the competition of machinery had finally destroyed the old village industries.

If the fact and the tendency could not be denied, it remains to evaluate the proper role of these structural changes in agriculture for the problem of the transition from domestic industries and putting-out systems to factories.

Even if agricultural improvement may have increased the demand for labour, the concentration of land holding and the dissolution of the commons should have increased the supply of labour from marginalized or evicted cottagers and squatters. Bowden, quoting contemporary observers on the
situation in Lancashire, suggests that agricultural employment decreased in
the Granary to one-sixth during the 18th century and that similar conditions
may have prevailed in e.g. Staffordshire and the Warwickshire region, “where
enclosures seem to have resulted in an unusual amount of unemployment”
(Bowden, p. 254f.). On the other hand agricultural labour flowed into the
manufacturing districts. A Bolton cotton spinner, who himself had started out
as a textile employee in 1780, told half a century later: “A good many (came)
from the agricultural parts; a many from Wales; a many from Ireland and from
Scotland. People left other occupations and came to spinning for the sake of
the high wages. I recollect shoemakers leaving their employ and learning to
spin; I recollect tailors; I recollect colliers; but a great many more husband-
man left their employ to learn to spin” (quoted by Bowden, p. 218–19). It
also seems quite clear that the wages of industrial labour—although not nec-
essarily factory labour—were higher than agricultural wages and acted as a
magnet on employment-seeking labour power (Bowden, p. 257). Also Pollard
emphasizes that the progress of manufacturing during the 18th century effect-
ed a redistribution of labour from agriculture to industry and particularly to
the industrial north (Pollard, 1978, p. 100–105) and that the further shift from
domestic industries to factories also led to increased earnings. If this last effect
was made possible by an increased productivity per time unit rather than by
an extended work week or work year is doubtful. The difficulties of the early
factory owners to recruit labour points rather to the second explanation.

While it seems clear that the enclosures and the dissolution of the com-
mons on the one hand and the growth of manufacturing on the other hand
increased the industrial population, primarily in domestic industries, and thus
contributed to the creation of a potential reservoir of free labour for the com-
ing factories, other effects are not at all sufficiently investigated and analysed.
Prima facie one is inclined to think that the supply of labour power should
have been more elastic than earlier, ceteris paribus leading to an increased
surplus for the employers from the mobilized labour power without any kind
of (substantial) landholding as an alternative employment opportunity. The
following diagram may capture this contrast illustrating the static surplus ef-
fect of the employment decision of a capitalist, in A of a putter-out confronted
by land-holding domestic producers and in B of a factory owner hiring free
labour (S = supply of labour power, W = wage rate, MPL = marginal product
of labour (= capitalists demand schedule for labour power) and Ld = employ-
ment of labour power):
Surplus generation in putting-out industries and in factories emanating from
different elasticities of supply of labour power

Per se an increased elasticity of the supply of labour on the part of free and
mobile labour would, thus, ceteris paribus, increase employment and surplus
for the employing factory owner compared to the situation for a putter-out.
So far the creation of free labour is a possible candidate among causes for the
transition from domestic industries and putting-out systems to factories. Since,
however, we also meet with domestic producers without means of production
(S.J. Chapman, 1904, p. 10f. and G.H. Tupling, 1927, p. 189) it is doubtful
if this circumstance—alone—can further our understanding of the transition
to the factories. It occurred that free labour rented a cottage with a plot and
thus was in no better position than factory labour, perhaps in a worse position,
since it may have been easier for factory labour to terminate the employment
contract. (Unfortunately we know very little about contracts of employment
in this period apart from the fact that we can read about some factory own-
ers trying to tie labour to long-time employment contracts (R.S. Fitton – A.P.
Wadsworth, p. 233)). It is also difficult to believe that wage rates—at least ef-
ficiency wages—were higher in putting-out industries than in factories, since
so much evidence points in the opposite direction and since the tenacity of the
putting-out system may have been due precisely to low wages made possible
by the alternative income provided by agricultural pursuits (see above). In this
connection Bowden has made a very interesting observation, which should
rather lead us to believe that the factories emerged as a salvation for labour. I
offer it for what it is worth:

When mechanical methods and factory organization began to encroach upon
the older forms of industry, a large proportion of English laborers were pri-
marily dependent upon agricultural employments and secondarily dependent
upon manufacturing for subsistence. This two-fold dependent forms the back-
ground of one of the major tragedies in English history. The workers were
denied a subsistence wage by farmers and landlords, because their families were expected to eke out a subsistence by spinning or some other form of industrial employment. They were denied a subsistence wage as industrial workers, because they were expected to depend primarily upon agriculture. Wages, which historically by law and by custom, were at the time of the origin of the factory system being rapidly forced farther and farther below the subsistence level—indeed, in many cases cut off entirely—by the jealous competition of the two sets of employers, agrarian and industrial, in reducing wages; by the upward trend of prices; and by the agricultural processes of enclosing and engrossing…. (Bowden, p. 252–53).

It is difficult to know the empirical value of this observation. While it does not apply to the experience of certain parts of domestic producers in the late 18th century, e.g. hand-loom weavers in the last quarter of the century when the tremendous rise in output from spinning increased the demand for weaving, it may still have some general relevance. If it is true it implies that irrespective of whether domestic producers had alternatives or not, the position of the employers was so strong that agriculture and industry, respectively, could not be used as an alternative by the domestic producers. This could be the case, if the situation in the labour market was characterized by a general surplus of labour power making it easy for employers to hire labour and depress wages.

To what extent did the quickened pace of population growth during the 18th century contribute to this? That there was a marked increase of population from the middle of the 18th century is quite certain and it may well be that the rate of growth of population doubled (R.D. Lee and R.S. Schofield, p. 17ff.). As a consequence the age structure of the population underwent a dramatic change leading to a substantial increase of children and young people. The main cause of the increased rate of growth of population was probably the increased birth rate, in its turn caused by an increased frequency of marriages and by marriages at an earlier age. Why? Because of an increased demand for labour, making family formation easier and more rewarding. If these observations are true the increase in population (and in labour participation rates) was mainly an effect of industrialization and economic growth (Pollard 1978, p. 105). Hence, it is difficult to imagine that the increased supply of labour and the rise of a proletarian factory population, making factory production more profitable than before, could have been caused by an exogenously determined rise of population and labour. Also here the earlier observation is relevant, viz., that the demographic revolution starts already during the expansionary period of domestic industries and the putting-out system and is not specifically associated with the transition to the factory system.

From this we may conclude that while the agricultural and the demographic revolutions of the 18th century are important for creating the labour supply necessary for the industrial revolution and the rise of the factory system of the late 18th century, these revolutions were mainly induced by the higher rate of growth generally and the higher rate of growth of industry in particular. This
conclusion also agrees with the generally acknowledged fact that population movements regionally as well as labour migrations were called forth by industrialization and expectations of higher incomes. The industrialization, as well as the transition to the factory system, may thus have been conditioned by demand- rather than supply-side factors.

The textile industry in general and the cotton industry in particularly expanded vigorously from the middle of the 18th century. The most dynamic growth was experienced by cotton manufacture and trade. This growth is clearly associated with the qualities of cotton products—fustians, calicoes, muslins etc.—which were light to wear and easily washed and hence increasingly replaced woollen and linen products. The cotton industry became the first industry producing for a mass market both at home and abroad. To some extent this growth was conditioned by the advent of machine spinning, carding and printing and the organization of these processes in factories, which increased productivity and product quality and decreased costs per unit of output. To this extent it was the adoption of the factory system that made increasing trade possible. Nonetheless, demand for cotton products increased well before the coming of the factories, i.e. when the overwhelming part of production was organized and performed by domestic producers, putters-out and merchants.

It is believed that domestic demand was of greater importance than foreign demand up to the 1790’s (Edwards, p. 27), after which foreign demand took the lead (expanding by well over 10 per cent per year in fixed prices). If this is true, domestic demand must have grown very rapidly from the middle of the 18th century, since from this time foreign demand—which at least symbolically may be appreciated thanks to figures on exports—suddenly started to grow quickly:

Exports of cotton piece goods 1699–1769

<table>
<thead>
<tr>
<th>Year</th>
<th>Exports (in constant £)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1699</td>
<td>13,138</td>
</tr>
<tr>
<td>1739</td>
<td>14,324</td>
</tr>
<tr>
<td>1750</td>
<td>19,667</td>
</tr>
<tr>
<td>1759</td>
<td>109,358</td>
</tr>
<tr>
<td>1769</td>
<td>211,606</td>
</tr>
</tbody>
</table>


Also John Kennedy relates the rise of the cotton industry to increasing demand and widening markets (Kennedy, p. 117), even if his stylized version of the early history of the cotton trade smacks too much of an Adam Smith success story (see above). Aiken, a more reliable source, confirms the importance of demand when dividing the development of the cotton trade into
The Transition from Domestic Industries to Factories

four periods: 1) before 1690, 2) 1690–1730, 3) 1730–1770 and 4) after 1770. (According to S.J. Chapman Aiken may have relied upon information from James Ogden.) Aiken writes:

The trade of Manchester may be divided into four periods. The first is that, when the manufacturers worked hard merely for a livelihood, without having accumulated any capital. The second is that, when they had begun to acquire little fortunes, but worked as hard, and lived in a plain manner as before, increasing their fortunes as well by economy as by moderate gains. The third is that when luxury began to appear, and trade was pushed by sending out riders for orders to every market town in the kingdom. The fourth is the period in which expense and luxury had made great progress, and was supported by a trade extended by means of riders and factors through every part of Europe (quoted by S.J. Chapman, p. 5).

The story is also in this case stylized. But we may well believe that the role of demand (“luxury” and “expense”) was clearly perceived and we have no reason to doubt the existence of foreign-based factors around 1770.

Pure cotton goods could be manufactured only after Arkwright’s successful application of roller-spinning (water-frames) to warp-spinning and the finer varieties of cotton products appeared only after the invention and application of Crompton’s mule, which made possible the combination of the fine-yarn spinning of the jennies with the strength and evenness of yarn achieved by water-frames. By the middle of the 18th century cotton cloth was a mixture of cotton weft and linen warp and the industry “was well established in parts of Lancashire, Cheshire, Nottinghamshire, Derbyshire, and Scotland, chiefly around Glasgow and Paisly” (Edwards, p. 3). By this time cotton manufacture may also have started to become more complex in organization due to the growth of demand and production. In a much discussed passage Guest informs us that in 1740 “the Manchester merchants began to give out warps and raw cotton to the weavers, receiving them back in cloth and paying for the carding, roving, spinning and weaving”. Further that about 1750 there arose, chiefly in the country districts, a class of “second-rate merchants called fustian-masters”, who “gave out a warp and raw cotton to the weaver, paying the weaver for the weaving and the spinning” (Guest, Compendious history of the cotton manufacture (1823), p. 10). Even if we should not believe that the putting-out organization did not exist before 1740 in the Manchester cotton trade, there is reason to believe that the system started to develop vigorously around the 1750’s. By then fustian weavers “were certainly the work-people of capitalist employers, as probably many of them were long before that time” (Daniels, p. 39).

Domestic industries and putting-out systems were put under pressure from the rapidly rising demand. Kay’s flying shuttle, which upset the balance between spinning and weaving, had by the 1750’s increased the productivity of the weavers, causing the demand for and the price of cotton yarn to rise.
Solutions to this yarn problem were supplied by the successive inventions in the spinning of yarn provided by Hargreave’s spinning jenny, patented in 1770 and developing from the original sixteen spindles to eighty spindles by the middle of the 1780’s; Arkwright’s water-frame patented in 1769, driven by water power and because of its dimensions utilized in factory buildings, thus making the first large-scale inroads on the domestic structure of the industry; Arkwright’s carding engine patented in 1775, placed in rudimentary factories and thus challenging domestic industry; and Crompton’s mule, gradually introduced during the 1780’s. By this time “the larger jennies and carding engines were moving into workshops, while the water-frame required artificial power, and was housed in ‘factories’” (Edwards, p. 5). But since much jenny-spinning as well as mule-spinning was still performed by domestic producers, the expansion of spinning and even of factory spinning and, particularly, of weaving, also implied a vigorous growth of domestic industries. Until at least the 1790’s the mule remained in the cottage. But at that time a centralization of mule spinning started to appear in two forms. First spinners were gathered to work hand mules in sheds, especially around Manchester. Secondly the mule was harnessed to water power and as a result “the mules were removed from the cottages to factories, were constructed more substantially and upon better mechanical principles and produced yarn of a more uniform quality and at less expense” (Kennedy, p. 129). Mule spinning early also adopted steam as source of power; in 1812 two-thirds of the steam engines then in existence turned mules (Smelser, p. 122). But first after the invention of Robert’s self-acting mule, patented in 1825, did mule spinning become essentially mechanized. And the mechanization of weaving through the power-loom followed close in suit. Also the power-loom factories were preceded by hand-loom factories, the first probably erected by Samuel Oldknow in the 1780’s. In 1833 six hand-loom-factories were reported to exist in Manchester, some with more than two hundred looms (Smelser, p. 142).

Summing this up it seems fairly clear that the transition from domestic industries and putting-out systems to factories not only was a rather drawn-out affair, but also that it took place in an environment of strongly rising demand, originating already well before the transition to factories and putting the organization of the industry under heavy strains. It became imperative to raise the output of the spinners. Was this possible by simply extending domestic industry? Was an extension of domestic industry and putting-out compatible with the demand for increased or at least not decreased productivity? To answer these questions we have to study the operation of domestic industry and the putting-out system under the new conditions. It is not enough to just single out growing demand as such as a condition for the rise of the factory system (E. Gilboy, 1932), since domestic industries and putting-out systems earlier had grown pari-passu with increasing demand and widening markets.
V. The Structure of Domestic Industries and the Putting-out System

Domestic industries had arisen and expanded for centuries but particularly since the end of the 17th century because of two fundamental conditions. On the one hand the restrictive practices of the city-based organized industries (guilds etc.), which pushed manufacturing activities to the countryside. On the other hand the secularly expanding domestic and foreign markets. Domestic industries arose as side-line activities in agriculture and other primary sectors mainly in regions where, on the one hand, expanding population caused diminishing returns in primary production and, on the other hand, where increasing returns made a division of labour between agriculture and industry possible. In the first case domestic industries served to preserve subsistence standards. In the second case domestic industries served to increase the level of real income.

The putting-out system arose more or less pari-passu with domestic industries and particularly in those domestic industries where demand expanded beyond local markets or where the raw materials were expensive compared to the resources of the domestic producers. When demand expanded and the scale of production was extended, several effects ensued. In the first place the domestic producer encountered difficulties in financing the purchase of raw materials. Secondly he/she had to wait a longer time before the proceeds from the sale of the products (the realization) had returned and he needed funds to finance the waiting. Thirdly, the domestic producer lost the overview over the market and it was costly for him/her to acquire the information on demand patterns and prices and their change. If the domestic producer was of some substance he might solve these problems by expanding into becoming a merchant-manufacturer. But in most cases he/she became dependent upon one or several merchants, who put raw materials and money at his disposal from the starting-point of the process of production up to the realization of the products and who also marketed the final output.

Thus nascent capitalist relations of production arose and developed in domestic industries. The domestic producer more and more lost control of parts of the means of production (mainly raw materials, but increasingly and especially in cotton manufacture also other means of production). Further he/she became dependent upon merchants or agents of merchants as to borrowing of money so that debt-interest relationships arose between merchants and domestic producers. Thus domestic industries under the putting-out system were shot through by credit-debt relationships. (See e.g. Tupling, p. 174ff.)

While the loss of ownership to parts of the means of production and the dependence upon merchants and putters-out for credit gave merchant capital a certain measure of control over the domestic producers, the latter were not wholly at the mercy of merchants and putters-out. The availability of alternative means of employment and income in agriculture, the possession of the
means of labour (in contradistinction to the objects of labour) and the control over his/her labour utilization and the process of production—to the extent this control had not been more or less lost due to monopsonistic contracts and/or closely prescribed and enforced product quotas and patterns—gave the domestic producers some bargaining power vis-à-vis merchants and putters-out. The domestic producer was not, like the factory worker, forced to work under the direct command of the capitalist and the merchant could not usually prevent the domestic producers from also working for other employers if there were any. If the merchant or putter-out was a monopsonist the domestic producer, on the other hand, was probably in a worse situation than the factory worker, since he was dependent upon his cottage and his plot for subsidiary income. (For general surveys of domestic industries and putting-out system, see Lipson, Heaton, Ashton, Moffat, James, Smelser, Wadsworth-Mann, Pinchbeck, Unwin, Smelser, Fitton, Rule, Styles, Tupling, Hudson, Pollard, Berg.)

Let us take a closer look at how domestic industries and putting-out systems were structured and behaved in different aspects and their merits and demerits for the respective agents. Since there were large variations between different industries and at different points of time the resulting picture has to emphasize the fundamental anatomy of the system. Since many of the descriptions seem to have been made from the vantage point of the victorious factory system there is probably an in-built bias in the sources.

The unit of production was the household with some division of labour between the members of the household: spinning and other preparatory processes performed by women and children, weaving by men. The capacity to produce was limited by the labour force of the family. It could be extended by the household by engaging members of other households or, if the employer took the initiative, by engaging new domestic producers. Since the domestic producers were attached to the land, an extension of production at constant productivity necessarily implied that production was extended spatially with consequential increases in the carrying and fetching of raw materials and final output.

1. Even if the working-day of the domestic producers was amorphous and self-exploitation occurred, the existence of agricultural side-line occupations as well as work-habits put limits to the utilization of labour. The most characteristic trait of labour utilization in domestic industries was the irregularity of employment over the week as well as the year. In fact, when the first factories were established, factory owners emphasized in their advertisements for labour power that employment was continuous (Chapman, 1967, p. 163). On the one hand labour was under-utilized because of the undeveloped markets for output. Market demand fluctuated and to safeguard themselves against this putters-out hoarded labour:

... the normal condition of most domestic producers was one of under-employment. Each master manufacturer liked to have at his disposal a number
of workers in excess of his need in ordinary times so that in periods of brisk demand he would not be hampered by shortage of labour. The possibility of working on their own scraps of land, of obtaining jobs on the farms and (in the case of women spinners) of falling back on the earnings of other members of the household, led the workers to acquiesce in the arrangement. Hence there existed at many points of the economy a pool of labour similar to that at the docks in our own day. More men and women were attached to each industry than could normally find full-time employment in it: the surplus of labour to which many writers called attention at various times was made up less of men permanently out of work than of those whose hold on employment was precarious. (Ashton, p. 203.)

With reference to the complaints of the small-ware weavers of Lancashire in 1756 of an oversupply of labour in their trades, John Rule remarks that underemployment rather than redundancy was the rule:

In order to keep contact with their weavers so as to be ready to expand production quickly when the market changed, masters preferred to spread what work was available rather than keep a small number fully employed. (Rule, p. 49–50.)

At the same time (according to those weavers) there was a seasonally conditioned mechanism leading to an over-supply of labour in the winter. During the summer the weavers engaged in agricultural pursuits. The masters then had to replace the missing labour power if possible with new workers. When the weavers returned in the autumn they had “to work at the looms upon any terms they could get” (ibidem). These side-line activities of the domestic producers seem to have reduced the availability of labour during summer drastically in the normal case. In a memoir of a worsted manufacturer of West Riding referring to conditions in the last quarter of the 18th century (Henry Hall, Esq. Leeds), this manufacturer writes:

In this manufacture, it was difficult to regulate employment of the weavers by the supply of yarn, the spinning being in a great measure done in the winter in the farming districts, there being out-door work for the families in the summer. I have known our stock of yarn so low in summer, that weavers have sometimes had to wait a few days for yarn. This evil was partly met by some of them going annually to the harvest in the low country, a work now performed by the Irish. The manufacturers of the present day can form no conception of the labours of their predecessors. The old manufacture was necessarily restricted, and an increased demand could not be met by a proportionate increased supply. (James, p. 312.)

According to Lipson “in the West Country it was not unknown for a weaver to be unemployed seventeen weeks altogether” (Lipson, p. 59). Rule summarizes this problem of labour utilization thus:
Workers of all kinds went into the fields for the harvest. Harvest was not then accomplished in a matter of days with a combine harvester. Striking evidence survives in the letters of a west-country clothier of the time lost to manufacturing every year, as he apologized to disappointed customers for his inability to keep up supplies. By mid-June the hay harvest was underway and after it there was only a brief interlude before the corn needed gathering in mid-August. In a late and difficult year that might not end before October at which time in the West Country the apple harvest and the cider-making occupied weavers until the end of the month. The earliest dated letter from him complaining of being deserted by his employees is 15 June; the latest 26 October. For around one-third of the year he was reduced accordingly to a low level of production. (Rule, p.16.)

If, as was the case particularly in cotton manufacture, markets and demand rose strongly during the second half of the 18th century, the problem of labour utilization must have increased. It furnished the capitalists with a strong incentive to increase their control over labour and labour time. To begin with they may have resorted to the earlier mentioned method of supplying out-workers not only with raw materials but also with a rented cottage with a land plot attached thereby monopolizing the labour power. But sooner or later it must have paid to centralize the labour power in workshops and factories in order to be able to control the very labour process. If this observation is correct it lends support to Marx’s view of the transition to the factory system, according to which the first phase did not change technology but only the control and continuity of labour:


This formal subsumtion of labour under capital with the production of absolute surplus value as the dominant form is later replaced by the real subsumtion of labour under capital based on primarily the production of relative surplus value conditioned by the general introduction of machines and continuously working power machines.

At that later stage of the introduction of the factory system the mechanism suggested by Ure (Philosophy of Manufacture, p. 321–24) and developed by Lazonick, viz. that work effort, productivity, earnings and profits became positively correlated, started to work, wiping out domestic industries to a large extent and changing the behaviour of labour as to work effort in response to increased earnings. But earlier, when the productivity of labour was constant or only changed slowly, workers did not “by nature wish to earn more and
more money but simply to live as [they were] accustomed to live and to earn as much as is necessary for that purpose” (Weber, p. 159).

This brings us to the third aspect of labour utilization under the putting-out system, the backward-sloping supply curve for labour, i.e. that rising wage rates normally led to reduced labour supply. This behaviour of domestic producers and wage earners generally led to that “economy of low wages” described by Heckscher. The testimonies on this mechanism are so many and come from so many different observers that we cannot doubt its reality. William Hutton, who had himself worked as a framework knitter, held in 1781 that manufactures tended to decline because of high real incomes and that “a man who could support his family with three days’ labour would not work six” (Rule, p. 53). Peter Mathias’ objection that employers did not reduce wages when they wanted to increase labour supply is of course irrelevant, since the satificing behaviour of domestic producers as to wages implied that they maximized leisure. Employers certainly wanted to increase labour supply by reducing wages when the demand for final output was rising. But to succeed in this strategy they would have been obliged to act as a monopsonistic cartel. Since this was not possible, some employers offered higher wages, which made it possible for workers to increase leisure. The only thing that could counteract the wage/labour supply trade-off was a rising cost-of-living. This was the reason why the master manufacturers of Manchester, as noted by Arthur Young, hoped most of all for high prices (Rule, p. 53).

Since textile industries in general and the cotton industry in particular expanded during the second part of the 18th century one may assume that the trend of wages generally tended upwards. Wages, at least, tended to rise in the northern districts. “The annual (300 days) £15 for 1750 becoming in the north £22 10s by 1775, while in the west £17 10s became £18. For London £30 remained constant from 1750 to 1790” (Rule p. 68–69). Also Ashton notes the rapidly rising wages in the northern textile areas (Rule as well as Ashton rely on Gilboy):

<table>
<thead>
<tr>
<th>Year</th>
<th>Lancaster</th>
<th>Oxford</th>
<th>London</th>
</tr>
</thead>
<tbody>
<tr>
<td>1700</td>
<td>8d</td>
<td>14d</td>
<td>20d</td>
</tr>
<tr>
<td>1750</td>
<td>12d</td>
<td>14d</td>
<td>24d</td>
</tr>
<tr>
<td>1790</td>
<td>20d</td>
<td>16d</td>
<td>24d</td>
</tr>
</tbody>
</table>

Source: Ashton, p. 232.

Thus, while day rates were practically constant in southern England they increased by 2/3 in Lancaster from 1750 to 1790. Real wages certainly did not parallel this rise, since the trend of prices was also upward. But at least at particular periods particular sections of domestic producers experienced
considerably rising real incomes as e.g. those proverbial weavers of Radcliffe, “the men with each a watch in his pocket, and the women dressed to their own fancy” (Radcliffe p. 67). If we may assume some upward trend of real wages before 1790 it should have resulted in a tendency towards a reduced or at least not markedly increasing labour supply matching the secularly rising demand for cotton and other textile products.

Lastly labour supply during the work-week was less than what might have been possible in domestic industries and certainly less than in the factories to be established. The practice of the short week was, according to Ashton, “almost universal”. A writer remarked in 1752 that the great problem was not one of general idleness but that people worked “but half their time”. Another commentator asserted that few of the working people in Manchester were regularly employed more than two-thirds of the week (Ashton, p. 204). There does not exist, of course, any comprehensive information about the length of the working-day in domestic industries. Maybe it averaged about 12 hours a day over the year, being considerably longer in spring and early autumn than in the winter (Rule, p. 60ff.). But during the week it varied more. After a “blue Monday” it started in a hectic tempo and lasted for five days, the tempo of work declining or collapsing towards the end of the week. The course of the work-week of the domestic producers is somewhat reminiscent of the work-month in Soviet industry although inverted (the “sturmovshina” at the end of the month in order to fulfill the monthly plan). Whatever the reason was for this lay-out of the working-week, it hardly was beneficial for product quality or for the long-run intensity of work.

Summing up these observations we may conclude that the supply of effort under the putting-out system was characterized by a low elasticity in response to demand for labour and also that the overall supply of labour was less than it would have been, if the workers had devoted themselves full-time to industrial work and under the direct control of the capitalist employer. Rule has made some comparisons with the supply of labour in the factories. If the average working-week in domestic industries was gross 72 hours (net 66 hours), it was 84–96 hours gross (78–90 net) in the factories up to the early 19th century. According to these estimates workers in the factories worked about 20 per cent more per week than domestic workers on the average (Rule, p. 60–61). According to estimates by Freudenberg and Cummins the average working week should have increased from about 58 hours by 1750 to perhaps 72 hours for factory workers in the early 19th century. This calculation has, however, been disputed by Bienefeld, who suggests that the main difference between domestic workers and factory workers was that the former worked 5 days and the latter 6 days per week indicating an increase from 50 to 60 hours per week at a ten hour day. If this is true, the introduction of factories should have increased the supply of effort per week by about 20 per cent and per year by probably more, taking the decreased labour supply in the domestic industries during summer into account (Tranter, p. 220). This estimate concurs with that
The Transition from Domestic Industries to Factories

of Rule although for a different reason (extension of the working week rather than the working day).¹

2. Turning from the supply of labour to the quality of the products produced in domestic industries, the recurring theme in the sources is that factory spinning and weaving resulted in a product of higher and more even quality, especially in the production of cotton articles for mass consumption. This observation applies to weaving as well as to spinning and to woollen and worsted as well as to the cotton industries. When the power-loom was introduced “it not only worked faster than the hand-loom... but also produced a more even texture, because of the uniform strength of the blows administered mechanically to the shuttle, a uniformity which no human agent could hope to rival” (Chapman, 1904, p. 27). According to Radcliffe power-loom cloth became so popular because of its evenness that fabrics made by hand were stamped “power-loom” by dishonest manufacturers (Radcliffe, p. 54). Of course, for very fine cloth hand-loom weaving remained superior, at least until the middle of the 19th century. In the memoir by Henry Hall, quoted earlier, and referring to conditions in worsted manufacture in the last quarter of the 18th century it is stated:

The hand yarn manufacture... was an anxious and laborious occupation, requiring the eyes and hands of the master in its several processes. The spinning was performed in cottage houses by the wife and children, partly in the neighborhood, and partly in distant parts of the West-Riding, in which case we employed agents, mostly shop-keepers. On these you could not depend for employing only good hands: they would not offend a shop-customer by refusing her work... and in sorting our yarns, we not only met with whole hanks clumsily spun, but, not seldom, good and bad reeled in the same hank. This rendered the sorting of yarns a vexatious process. (James, p. 311–12.)

Lipson emphasizes this problem, too:

Hand-spinning had one serious defect. The spinner often lacked the requisite technical skill; the yarn was therefore neither uniform in quality, not firm enough to stand the strain of the loom, and the cloth, as a result, was uneven in texture. The Suffolk clothiers drew attention to this evil as early as 1575: “The custom of our country is to carry our wool out to carding and spinning and put it to divers and sundry spinners who have in their houses divers and sundry children and servants that do card upon new cards, and some upon old cards, and some spin hard and some soft, by reason whereof our cloth falleth out in some places broad and some narrow, contrary to our mind and greatly to our disprofit. There were sometimes as many as ten hands engaged on one chain, and as it was spun very irregularly the thread was always breaking: a considerable portion of the weaver’s time, in fact, was spent in repairing broken threads. To remedy this it was proposed to establish spinning schools

¹ Fitton and Wadsworth found that the percentage time lost during a 21 week period in the first half of 1787 was 9.6 per cent for “home workmen”, while it was 19.2 per cent for “Out workmen” in the Strutts factories. I assume that “home workmen” were employed at the mill, while out workmen were domestic workers. (Fitton-Wadsworth, p. 239.).
where children could be taught the art of spinning by experienced teachers. (Lipson, p. 64–65.)

In the early 1780’s, before the introduction of machine-spinning in Scotland, the directors of the Chamber of Commerce in Glasgow drew up a fairly complete list of spinning faults they met with: “slack twine, ill thum’d and dry spun, hard twine, thumb knots, different colors in the same hank, slip ekes, coarse pieces, roaney, or having the shows or straw adhering, spun beyond the grist and hairy, check spales, lumpy, low spun etc.” (In G. Stewart, Progress of Glasgow, 1883, quoted by Smelser, p. 65, note 4.) Pinchbeck sums up:

Hand spinning was by no means satisfactory from the manufacturer’s point of view. In an occupation which was considered suitable for all classes, and for the young and aged alike, it is evident that the degree of skill must have varied considerably. Moreover, the yarn produced by a single household was often the work of six or eight different spinners, including servants and children, some of whom would spin “hard” and some “soft”, with the result that when the thread was all put together and woven inequalities in the cloth were only too apparent. The coarseness of much of the yarn spun was another disadvantage, although skilled spinners, some of whom still preferred to use the distaff, could produce an astonishingly fine thread by hand labour. (Pinchbeck, p. 130.)

The products turned out by domestic industry thus were not only inelastic in supply because of an inelastic supply of labour time and of effort but also uneven in quality and limited as to product differentiation (mainly coarse qualities). This unevenness of quality was conditioned by the fact that the ultimate employer did not control the selection of labour power utilized nor the quality of the means of production. Labour power was “self-owned” and consisted of mainly the members of the family with widely differing strengths and skills, and also the means of labour were usually owned and controlled by the domestic producers themselves. The consequences of this were that there were considerable costs in controlling the quality of products and in sorting out qualities of differing grades.

To some extent the ultimate employer—a merchant or a merchant-manufacturer—could handle this problem, partly by specifying qualities in ordering or by the selection of domestic producers employed and partly by himself taking care of some processes of production, mainly finishing, in his own premises. Unfortunately it seems as if no written contracts, if such existed, have been preserved and whether these contracts contained stipulations as to quality and penalties for contract obligations not fulfilled is unknown. We only know that domestic producers frequently complained of “deductions” made by merchants and putters-out for deficiencies in products delivered. Still, control of quality was costly and, in the case of yarn spun on hanks, in practice impossible. Only when yarn was used by the weaver could the ultimate test be made.
As long as demand for final output was relatively constant or only rising slowly the quality problem may have been manageable. But when markets started to expand rapidly during the latter half of the 18th century it should have been intensified. The number of out-workers employed increased substantially. Pollard gives examples of putters-out with 300–4000 out-workers employed (Pollard, 1965, p. 45). When the putting-out organization expanded, any single domestic household responding to the increased demand had to utilize more members of the family and even members of neighbouring households. Further, the number of households engaged also increased. It is reasonable to assume that the merchants and putters-out, when demand was restricted, had tried to engage households that were most productive and produced the best products from a quality point of view. When demand and production expanded they had to resort to domestic producers who were less productive and less capable of producing high-quality goods. This would have meant that the proportion of low-quality goods increased with increasing demand and production and also that the quality variations increased. At the other end of the scale—the market for final output—the demands for an even quality of products increased, partly because of increasing competition (particularly in the yarn market, where supply increased disproportionately to the cloth-market, still hampered by the hand-loom weaving technology) and partly because of the increased importance (absolutely and after 1790 also relatively) of foreign markets. At the same time product differentiation increased, particularly after the introduction of mule-spinning after 1790, and the composition of the output-mix was increasingly dictated by the market and communicated to manufacturers by their agents (Edwards, p. 157). Thus the new situation arising after the 1750’s should have made the problem of quality control of final output and, hence, of labour and means of production, more acute than before.

3. The third characteristic of domestic industries was that a very large part of the process of production consisted in transporting the product in its various stages. Also on this aspect authors of different ages and different views concur. Ashton describes the general problem:

It was obviously impossible for the merchant clothier, hosier, or ironmonger to have direct contact with all who worked for him. Intermediaries were necessary [who]…received a commission on each piece …delivered… But most large merchant manufactures employed persons to travel from place to place to give out materials, collect finished work, and pay wages, not at the cottage door but at depots set up in various parts of their industrial province. Often the putter-out was a man in an entirely different occupation… Generally the worker had to do his own fetching and carrying, to and from whether a local warehouse or the headquarters of the clothier or merchant… The distances covered were often as great as most men would care to traverse in a day. The weavers of Farnworth had to tramp eight miles to Manchester and back again: those of Gridleton made each week a ten-mile journey to Barnoldswick. In other domestic industries it was the same… As in most underdeveloped countries today, a large part of
the energies of poor men and women was given to transport. It is said that in
the hosiery trade of the east Midlands as much as two and a half days a week
might be taken up in getting orders and material, returning finished work, and
collecting wages. (Ashton p. 101–102.)

Also other authors lay great stress on this aspect (James, p. 323–325; Lipson,
p. 178; Pinchbeck, p. 123 and 137; Smelser, P. 66; Hudson, p. 9–13).

The many and interconnected transports of products under the putting-out
system, conditioned by the fact that the direct producers were independent and
spatially distributed according to the location of their small holdings, not only
made the system vulnerable for stoppages at any point in the chain, causing
delays and a wastage of time in both production and marketing. The problems
must have increased with an increased scale of production multiplying the
number and length of transactions—carrying and fetching—in the organi-
zation. Just the effect of increased distances of transport must have increased
transport costs. But since the number of domestic producers and middlemen
also increased, search costs, bargaining costs and enforcement costs must
have increased as well.

4. **Fourthly** the putting-out system was characterized by the fact that it
demanded large capital outlays for stocks of raw material, goods in process,
finished goods and customers’ debts. This followed from the organization
of production with a large number of scattered producers. Its effect was a
slow turn-over of capital invested. According to Pollard the sums of capital
employed “were large by any standards and very much larger than anything
employed in the early ‘factory’ industry in fixed equipment”. The complex or-
ganization sometimes tied up capital from £40,000 up to £100,000 or 200,000
(Pollard, 1965, p. 44). Chapman gives an example of a Leicester firm of
hosiers, Coltman & Gardiner, existing between 1766 and 1808. The number of
stocking-frames of this firm of average size increased from about ten in 1783
to almost fifty by 1800. The total capital employed by the firm increased from
about £5,000 in 1783 to £10,000 in 1800. For the whole of this period circulating
capital made up 80–86 per cent of total capital and customers’ debts alone
made up 50 per cent or more of total capital (Chapman, 1967, p. 25–26). It
was not until the fully mechanized factories were established after the 1820’s
that fixed capital started to play a more important role compared to circulating
capital, even if fixed capital increased both absolutely and relatively from the
very beginning of the factory system (Hudson, p. 6). But if we compare the
first factories with a “pure” putting-out organization (usually combined), it is
clear that the putting-out organization was very capital-intensive both from
the point of view of the merchant/putter-out (circulation capital) and from the
point of view of the combined domestic producers (fixed capital). In the latter
case the fixed capital engaged became substantial because each domestic pro-
ducer needed independent equipment (cottage, land plot) for production; the
absence of far-reaching specialization and division of labour also increased
The Transition from Domestic Industries to Factories

The Transition from Domestic Industries to Factories

total outlays for raw material and also increased wastage. Summing up this aspect of the putting-out system, we might say that the spatially widespread nature of the system, the absence of far-reaching specialization of tasks and the slow speed of through-put in the process of production implied that it was strongly capital-intensive compared even to the first primitive factories, which by means of centralization of labour, raw materials, buildings and equipment could lower the capital-output ratio and increase profit rates.

5. The four aspects of the putting-out system treated above—mainly from the point of view of the demise of the putting-out system and the rise of the factories with reference to the rapidly rising demand for textile products after the 1750’s—its inelastic supply of labour (days and/or intensity of labour) and of output, the great dispersion in skills and quality of output, the large amount of transporting in the process of production and its capital-intensive character are of course not only of a technical-organizational nature, but are also aspects of the relations of production of the putting-out system. These, however, also include other aspects related to the relation of property and the behaviour and interaction of the actors involved. The putting-out system once arose, as emphasized, as a super-structure on domestic industries because of the expansion of markets and the ensuing difficulties of domestic producers to finance the increased waiting between the starting point of the process of production and the realization of the products, as well as of the increased difficulties of the domestic producers to have access to the necessary information about these expanding markets. These circumstances gave merchants and merchant capital a strategic role as initiators, financiers and marketing agents of the putting-out system. It was from these functions that the employer function and control function of merchant capital arose. When merchants and putters-out started to take control over parts of the means of production, capitalist relations of production were also introduced into the system. In so far as merchants or putters-out lent domestic producers money for buying raw materials or for financing subsistence during the process of production and the process of realization of the products, there was also a creditor-debtor relationship between merchants/putters out and domestic producers and the former charged an interest. This specific debtor-creditor relationship was very marked in the Midlands’ hosiery industry, where the hosiers owned and rented the knitting-frames to the domestic producers charging quite substantial rents. These rents were deducted in the settlement of wages, irrespective of the price of final output or whether the frame was employed or not, or even whether the hosier owned the frame or not (Felkin, p. 454ff and Chambers, p. 133). The subletting of frames by middlemen increased rents and it is believed that the vested interests of frame-owners and middlemen in this renting system is one of the causes for the delay of the factory system in the framework knitting industry (Chambers, ibidem). Since merchants and putters-out usually owned raw materials and paid domestic producers a piece-rate wage for work performed, the capitalist relationship between employer and direct producer
was emphasized. Still this “wage” was not yet as clearly demarcated as in the coming factory system, where the employer had monopolized all requisites of production, including the premises and means of labour of production, and only bought the labour power. The merchant or putter-out strictly speaking did not buy the labour power of the domestic producer but his labour product (not \( v \) but \( v + s \) in Marxist terminology). Formally speaking, the distribution of the value added \((v + s)\) between merchant and direct producer was indeterminate and depended upon the relative strength of the two in the bargaining process. The frequency of embezzlements on the part of the direct producers and of deductions and “long pay” (payment of wages one or two month after the delivery of the final product on the part of merchants and putters-out) are signs of this indeterminateness of the distribution of value added between merchants and putters-out on the one hand and direct producers on the other hand. (On embezzlement, deductions and the long pay, see Rule, Styles and Ashton.) On the other hand, it is often emphasized that wage rates remained astonishingly stable over time and of a customary character, which points to a “fixed-wage” world. This once again applies to their appearance, since the wage systems were so varied and so complicated that nobody up to now seems to have penetrated them (Rule, p. 63).

Putting these observations together it is clear that the relationship between direct producers and merchant capital in the putting-out system was very complicated and included elements of buyer-seller of commodities, buyer-seller of labour (not labour-power), creditor-debtor of interest-bearing money and of owner-tenant relations. Merchant capital was more or less dominant and was by tradition mainly interested in “profits upon alienation”, i.e. buying cheap and selling dear, which meant that merchants and putters-out tried to press domestic producers to accept the most favourable conditions for merchant capital. This fact as indicated above was mirrored in the practices of deductions and long pay and the counter-strategies of domestic producers. Since the domestic producers to a varying extent were independent producers controlling at least their own work-situation and the process of production and, furthermore, were not obliged to enter into a monopsonistic contract with only one employer, they also had some elbow room for asserting their own interests. This fact was expressed in the practice of embezzlement (of raw material, false reeling etc.) and in working for several employers playing these out against each other and causing delays in the deliveries of products. (On embezzlement, see further below.)

6. At the same time the putting-out system may perhaps also be regarded as a risk-sharing arrangement similar to share-cropping in agriculture. In share-cropping one party—the landlord—supplies the direct producer—the tenant—with a part of the means of production, e.g. seeds and animals for traction, while the tenant puts in his labour and the product is shared between landlord and tenant. The rationale of this arrangement is probably to share risk in agriculture with strongly fluctuating crops (at least this may be observed
The Transition from Domestic Industries to Factories

Historically; in addition the direct producers are also generally too poor to afford the financing of necessary investments). What can be observed in the putting-out system is that the merchant or the putter-out minimized their risk, since they only contracted some final output without themselves investing anything but raw materials, at least in the general case. From the point of view of the merchant and with respect to fixed investments, the putting-out system thus was attractive, especially since market demand was strongly fluctuating. If the demand for final output vanished, there were no fixed costs for equipment or for labour (food and housing) to be met. For the direct producer this arrangement was possible to accept, since he, in case of vanishing demand, usually had alternative employment on his own plot or in agriculture. But if the direct producer no longer had access to alternative employment, because he had lost his plot or rights to the common, and if the market for final output became larger and more permanent, the conditions for this risk-sharing to work disappeared.

7. Above I referred to the phenomenon of embezzlement, which has been widely discussed in connection with the putting-out system. The fact that legislation on embezzlement increased in intensity during the 18th century, while punishments also became more and more harsh, has been taken as evidence for the conclusion that the embezzlement problem also became graver (Pollard, 1965, p.46) and one of the conditions for the transition to the factory system. However, as Styles has pointed out, the increased intensity in legislation can only prove that merchants and manufacturers became more concerned to fight embezzlement. Furthermore the harsher character of the punishments may also mainly have been restricted to the legislation but not applied (Styles, p. 194). Another aspect of the increased concern with the embezzlement problem was the gradual extension of the legislation to new industries (fustian cotton since 1711). The worsted industry furnishes us with the most interesting evidence on the nature and extent of the problem. The two most usual forms of embezzlement was substitution of wool or yarn of higher quality for lower quality—made possible by the fact that spinners and weavers worked for several, often 5–6 employers—and false or short reeling of yarn. “False and short reeling involved the use of a reel of a circumference shorter than the customary standard or the inclusion in each hank of a smaller number of threads than was customary. By these practices spinners were said to be able to conceal frauds involving less work than that paid for, the appropriation of the raw material and the production of yarn inferior in fineness to that demanded. It was claimed to be impractical to check all the hanks for length by unwinding and remeasuring them.” (Styles p. 176.) Rule summarizes other methods of embezzlement:

A Gloucestershire clothier giving evidence in 1774 in support of a campaign for tougher laws instanced various forms of theft and deception to which he was subject. Pickers embezzled one pound in 20 and disguised the lost weight
by throwing the wool on wet stones to impregnate it with water. Scribblers kept back wool and added oil to make up the expected weight. They could take out a pound of Spanish wool worth about 3–4 s in this way. Spinners held yarn over a boiling pot impregnating it with steam—a disguise sufficient to conceal the removal of half-a-pound in every six. Weavers could keep five or six pounds (worth 4–5 s) out of every amount put out for weaving as a 60-pound piece a time, a fraud which was difficult to detect as the wool was delivered wet. The clothiers of Minchinhampton were said in 1784 to have become so weary of the local people that they sent their wool further afield to have it spun. (Rule, p. 132.)

According to calculations concerning embezzlement in Gloucestershire, the total cost of embezzlement in the various stages of manufacturer added up to about 25 per cent (Styles, p. 175) and in the 1770’s the contribution of embezzlement to wage earnings could amount to 20 per cent (Styles, p. 181). There even was a market in embezzled yarn (e.g. among the bagmen of the Midland hosiery industry).

While we cannot take the increased intensity of legislation against embezzlement as evidence for the conclusion that the problem became more widespread or intensified, we cannot doubt the existence and seriousness of the problem, even if embezzlement very well may have been the response of the direct producers against the malpractices of merchants and putters-out, like deductions and delayed payments. We may also note that the existential condition for the problem was the decentralized character of the putting-out system and the lack of control of the employers over their property and the process of production. Hence, when the putting-organizations were extended during the second half of the 19th century, in response to the rapidly growing demand for textile products, embezzlement costs may well have increased pari passu and even in in a rising proportion to production, especially if the propensity or possibilities to embezzle was higher among the newly employed and more distantly located domestic producers. “When the numbers employed were large (and they could amount to several thousands in some putting-out concerns) detailed checking for such frauds on redelivery might be prohibitively time consuming and expensive for the employer, who was usually anxious to achieve a rapid turnover.” (Styles, p. 175.)

The putting-out system was successively abandoned from the end of the 18th century and replaced by factories with centralized production. Still it was characterized by a remarkable tenacity far into the 19th century and for a long time was frequently combined with factory production, while parasitic forms—like sweating industries—survived still longer. From the point of view of the direct producers, domestic industry remained a traditional way of life and was not easily discarded with reference only to economic incentives, and these became tangible only when the high-productivity factories of the second quarter of the 19th century could compensate for low and even decreasing wage rates. Domestic industries also offered direct producers tangible advantages
and they were mainly two: control over the work-situation with possibilities to space labour input over the day or the week according to personal preferences and habits; and the possibility to choose among employers, made easier by having some property in the back when choosing and bargaining.

From the point of view of merchants and putters-out, too, the putting-out system offered advantages: no fixed costs for means of production and labour in periods of disappearing demand and thus low risks for output decisions; possibilities to lower labour remuneration below subsistence costs because of the alternative employment sources of the direct producers and their self-exploitation as a last resort; and few and inefficient combinations of the workmen conditioned by their spatial dispersion.

But these advantages easily turned into disadvantages, when the market conditions of industry radically changed and some disadvantages were intensified. For the direct producers the successive lagging productivity of domestic industries relative to the factories became decisive in the very long run. For the employers the disadvantages accumulated still more markedly: the inelastic supply of labour, the variations of labour skill and product quality, the transportation costs, the increase of middlemen dissipating surpluses, the increasing costs of transaction and embezzling, the increasing capital requirements and slow turn-over of capital, the irregularities in the supply of output and the difficulties in introducing and generalizing innovations in processing and products. The essential problems of the domestic mode of production and the putting-out system may very well have been those pointed out by Marx: it put up a barrier toward the utilization and exploitation of labour time and effort and it precluded a sufficient control over production. To discover the essential causal factors in the transition requires first and foremost evidence, since a multitude of explanatory models may be devised, resulting in an over-determination of the solution. The problem is not to give convincing arguments for the demise of the putting-out system. The real problem to explain is why it survived so long in view of its obvious disadvantages.

As will be made clear in the following section the first factories did not arise primarily because of superior technology and/or superior energy sources.

VI. The Rise of the First Factories in the Cotton Industry

Marx in “Capital” and the manuscripts preceding this work made an impressive analysis of the necessary and sufficient conditions for the rise of the factory system, in practice = modern industrial capitalism. These consisted in two sets of structural changes in society at large and in industrial development. On the one hand the “primary accumulation” creating a proletariat dispossessed of the means of production and thus forced to sell their labour power; and a
class of capitalists having accumulated money capital on a sufficient scale to be able to invest in modern factory production. On the other hand an increasing division of labour going on inside traditional manufactures creating a class of specialized and de-skilled labourers, whereby the innovation of mechanized machines was made possible; when the number of machines had increased sufficiently much, steam-engines were introduced to supply them with continuous energy on a mass scale. Evidently there is much in this analysis that is backed up by empirical evidence. Domestic producers had to be made free from the ownership of their means of production before they could be transformed into a permanent and reliable class of factory workers. (During the period of transition, when they still had the option to choose, they fluctuated between the two modes of existence looking upon the old mode as a paradise lost, even if monetary rewards seem to have been higher even in the early—if not the earliest—factories; this changed when the high-productivity factories of the second quarter of the 19th century in combination with trade-union organization made higher real wages possible.) It is also true that the first mechanical machines, like the spinning jenny, were invented by simulating the working-process of the human hand and fingers. And it is finally true that the introduction of the steam engine was effected by the introduction of machines. But it is doubtful if particularly large accumulations of capital were necessary for investment, at least in the early factories, since fixed capital initially played a minor role, since small capital owners often joined in common projects (see further below) and since one of the points of the factory system was that it was capital saving. In this regard Ashton (and even Lenin in his “On the market question”) had a much more realistic view. This does not preclude the possibility that capital was important for the rise of the class division between owners and not-owners, since even relatively small capital requirements acted as a barrier of entry for most domestic producers. Secondly, it is difficult to believe that the mechanization of manufacturing, at least in the textile industries, should have taken off from the division of tasks in manufactures. We simply do not need this hypothesis, since all evidence points to the fact that the factories arose on the foundation of developments in domestic industries and the putting-out system. It is also striking that Marx in developing his analysis of the rise of the factory system in “Capital” lost sight of the two fundamental points he had made in the manuscripts of 1861–1863, viz. that factories arose to increase the command over labour and that they made continuous labour possible. In view of the fundamental boundary condition of the phenomenon—i.e. the rapid rise of demand for final output—and in view of the existing evidence, this hypothesis seems much more promising than the technological one for the explanation of the rise of the factory system. This does not mean that technological change was not important in connection with the rise and, still more, the further development of the factories. But technological change occurred also in domestic industries and in the putting-out system and the really important technological breakthrough occurred
The Transition from Domestic Industries to Factories

when factories already had started to arise. It remains to be noted that Marx, of course, had little or nothing to say on the detailed operation of domestic industries and the putting-out system indicated above.

1. Before mapping out the rise of the first factories, three points should be noted. Firstly, when we speak of the factory system we refer to several essential aspects of a specific mode of production. From the point of view of relations of production, the factory system is characterized by the existence of two classes, capital-owning employers and proletarianized workers. From the point of view of organization, factories are characterized by the hierarchy of employers over the workers and by a centralized work force and production. From the point of view of technology, factories are using machinery propelled by non-human power making high productivity possible. But while all these aspects should be present to define a fully developed factory system, it is not necessarily so when regarding the factory system as a process and, particularly, in its genesis. It may well be that in the process the different aspects were successively acquired. It is clear that before the introduction of mechanized technique and non-human power was possible, workers had to be centralized, organized and controlled and free workers also had to exist. If workers to begin with were centralized in factories in order to make it possible for capitalists to tap their labour-power more efficiently, as a response to the increasing demand for output, one may assume that the sustained operation of the fundamental boundary condition, i.e. the increasing demand for output, made further innovations necessary, e.g. technological change, which in the end resulted in the fully developed factory system.

2. The second point is that the putting-out system also went through several developments before its demise or transformation into sweating-systems. In response to the increasing control problem—increasing with the scale of production and demand—subcontracting was utilized in many industries. In the cotton industry subcontracting mainly appeared as putting “skilled spinners in charge of extensive machinery in the understanding that they paid and recruited their own child assistants, the ‘scavengers’ to clean the machines, and the ‘piecers’.” As long as the child assistants were children of the “subcontractor” and wages were paid out on a family basis, it is doubtful if we have to do with a subcontracting system; rather it was a survival of the domestic system inside factories. But the system persisted even when the child assistants no longer were children of the “subcontractor”. More relevant is the subcontracting system operating in the woollen and lace industries: “as late as 1815 most of the weaving (in Benjamin Gott’s large woolen mill), even on the premises, was done by independent ‘manufacturer’ contractors who were not paid by the firm, but on the contrary paid Gott a commission for the use of the factory, ‘on the cloth which they made to his order and which be bought from them’... Heathcote, developing his large lace mills within an old and tradition-bound industry, created the most astonishing mixture of direct and indirect employment in his Loughborough factory; while using foremen
Bo Gustafsson

to supervise his own workers, he allowed each foreman to employ two or three machines, and hire his own labour for them, as subcontractor.” (S. Pollard, 1965, p. 51 and 57.)

3. Thirdly, even after the rise of the factory system putting-out industries not only survived but were also combined with factory production (P. Hudson, p. 71). This was also quite rational from the point of view of the factory-owning capitalists. One of the main problems with putting-out industries was the irregularity of supply. This problem could be solved by factory production. But since demand was fluctuating, putting-out industries were convenient to utilize for top demand, while the more constant demand was supplied from the factories.

4. Turning to the problem of the genesis of factories, the evidence suggests that the process started by centralizing workers. According to S. J. Chapman “we can assert with confidence that somewhere about the beginning of the eighteenth century a strong centralising tendency revealed itself and it was assisted by the economies associated with centralised warping after the invention of the warping mill”, the cause being that “it did not pay the individual weaver to keep a warping-mill for occasional use only, and frequently the contracted space of his workroom precluded even the possibility of his doing so” but also that “warps cannot be delivered partially like weft, in quantities sufficient for each day’s work. To ensure continuous working in the industry, therefore, it was almost inevitable that the merchant should himself prepare the warps for such fabrics as he required, or possibly have them prepared” (Chapman, 1904, p. 15). Chapman goes on to quote Butterworth, the historian of Oldham, describing conditions in and around Oldham “in the latter part of the 18th century”. According to Butterworth “a large number of weavers ... possessed spacious loom shops, where they not only employed many journeyman weavers but a considerable proportion of apprentice children” and many masters both put out warps and arranged for some weaving to be done on their own premises (Chapman, p. 23–24). The foregoing observations refer to weaving long before the introduction of the power-loom. These centralising weavers were called “master weavers” and “a man working in a manufacturer’s shed was known as a ‘factory weaver’ or ‘shop-weaver’” (p. 24). Unwin has shown how Samuel Oldknow at about the same time (the 1780’s) had started to centralize weavers to his factories (Unwin, p. 110) and he quotes an offer of a factory sale of “25 pair of weavers’ looms” along with jennies and carding machinery (p. 116). While “the majority of weavers would (also) continue to work on their own looms at home”, it “was hoped that the loom house at Stockport, where some of the more skilled were working under inspection and control, would serve as the nucleus for the establishment of the factory system in weaving” (p. 128). Unwin describes these centralised workers as follows:
Sometime in May 1787 Oldknow seems to have organized the processes of warping, sizing, and muslin trimming on a factory basis. It will be noted that these operations, which required but a small outlay in the instruments of production, were the most clearly allied to the central work of weaving. The warping mill was a simple but effective device for labour saving, and had been in common use from the 17th century... [There are] incomplete records of 13 warping mills in the period 1787–94 (the maximum number being 29)... It will be realized how important it was that the entrepreneur, who alone was in touch with the market conditions, should direct this process, for the nature of the warp determined the pattern and quality of the manufactured goods.

It is not surprising to find that the developments in warping were followed by a similar step in the subsequent process of sizing... By relieving the weaver of this task the entrepreneur prevented the delay which sometimes attended the drying of the yarn and secured a greater uniformity of the final appearance of the cloth...

The finishing processes were of great importance, for the value of the weavers' work depended largely on the final appearance given to the cloth... The apparatus of this department (for the trimming of the figures of the pattern woven) was simple, consisting of 30 finishing frames and several darning frames. The staff comprised 81 girls and a foreman or forewoman. The names of the girls suggest that members of one family often worked together... The records also afford brief but clear indications of the gradual transition of the winding process from the domestic to the factory system. Towards the end of 1788 there were about 90 outside winders, who wound in their homes... and a refusal to accept [the piecework rates], coupled with a need for a quicker and more efficient service, led to the setting up of nine winding machines in the Hillgate premises, of the operation of which there is a fragmentary record for July and August 1788. The first use made of steam power three years later was for the turning of these machines. (Unwin, p. 107–110).

But even before weaving was centralized, centralization of the preparatory processes of cotton manufacture took place, well before the advent of the water-driven mechanized Arkwright factories of the 1770’s. J. de L. Mann writes:

Arkwright has so far overshadowed his contemporaries that it has not been clearly enough realized that, in the years before his patent rights ended, his were by no means the only factories in the industry, although they were the largest and the best organised, and that he did not hold the monopoly of cotton warp production at which he aimed. Besides the factories in which the carding engine and the roller spinning frame had been installed, and which were worked either by Arkwright himself or under his license, there was an increasing number of rudimentary factories, based on the carding machine, in which cotton twist was produced. It might, indeed, be argued that even had the water frame not been invented, the Lancashire industry would have made considerable progress towards factory production and the application of power to the earlier processes of manufacture...

The numerous mills which were springing up, especially in Lancashire, at the same time that his factories were being established, were more varied in character. The carding engine, which was coming rapidly into use after 1770, usually formed the nucleus of these undertakings. In its first crude forms it was capable of being employed as a domestic machine to be turned by hand...
and it found a place in the warehouse of the manufacturer, who could give out the cardings to be roved and spun by domestic workers. Then he would add to his carding engine one or two of the improved jennies which had been adapted for making rovings, and give the cotton out in that form. The great demand for cotton warps, created first by the velvet manufacture, and then by the calico manufacture, which Arkwright brought into existence, and supplied at such profit to himself, gave strong inducement for the small capitalist to add spinning-jennies, twisting and warping mills. No inconsiderable part of the cotton twist for the large production of velvets that is reflected in the export returns for the later seventies must have been furnished by these new carding and jenny mills, since at that time Arkwright’s factories were hardly numerous enough to have met the demand... These carding and jenny mills were of all sizes, from the small shop with nothing but a hand-carding engine, to the more elaborately organised factories in which all the operations from the cleaning and picking of the cotton to warping were carried on and in which horse or water power was used.

It is a point of some importance that the preparation of cotton warps, which was virtually a new industry, was accompanied almost from the beginning by some degree of factory organization... Among many instances that might be quoted, the equipment of a jenny factory at Heaton Norris in 1780 will serve to show how many of the processes that had formerly been carried on in the homes of the workers were being transferred to the employer’s premises. The factory contained an iron pot, probably used for washing cotton, a stove and 48 “flakes to dry cotton on”, and a “large willey for cleaning and opening” it. There were three carding machines and another “unfinished”; three slabling jennies of 46, 36 and 26 spindles; twenty slabbers’ wheels; and thirteen spinning jennies—three of 120 spindles each, “new with all the late improvements”; three of 100 spindles; one of 84; one of 80; two of 60; one of 59; and two of 50. For the later processes there were a fine jack and “feeders” (perhaps for twisting); three Dutch wheels; a warping mill and bobbins, and seven looms... The motive power of the factory is not stated...

The developments at Nottingham were closely parallel, and probably preceded those in Lancashire. The establishment there of Hargreaves and Arkwright had led to the establishment of a trade in the making of carding machines as early as 1773-4... mainly sold to hosiery manufacturers... Nottingham also had its jenny mills. (Wadsworth – de Mann, p. 488-494.)

It may be noted in passing that also T.S. Ashton in his book on the file master PeterStubbs of Warrington shows that centralization of workers came before systematic mechanization:

The advantages to him of the aggregation of labour are obvious enough. So long as he had to rely on the services of outworkers spread over a wide area delays in execution of orders were inevitable, specialization of labour to particular tasks was difficult, and damage might be done in carrying unhardened files from the place of manufacture to the warehouse... it is possible that supervision of work was becoming less efficient as the scale of operations increased... For these reasons, therefore, Peter Stubbs decided to construct workshops near his own home. (Ashton 1939, p. 26. Unfortunately Ashton does not quote any evidence for this statement so that we really do not know, whether it is Stubbs or Ashton who speaks in the text.)
Quoting Guest (A compendious history) Edwards suggests in conformity with J. de L. Mann that in 1780 there were only 15–20 water-frame factories and that “until the later 90’s the small carding engine, jenny and mule workshops and block printing concerns were more typical of the industry than the water-frame factories” (Edwards, p. 182). While the number of water-frame factories was to have increased rapidly after 1785 (Arkwright’s loss of patent rights), to 143 in 1787 and 155 in 1790 (Colquhoun’s disputed estimates), while investment in bleaching and printing also soared, Edwards refers to at least one remarkable instant of pure centralizing in weaving. “By April 1788, the weavers in Perth had built a ‘house’ large enough to contain 300 looms ‘which employ 600 people at a cost of £600’. But this kind of example is exceptional” (Edwards, p. 183–84). After the outbreak of the war with France in 1793 there was a standstill in factory construction which lasted until the end of the 90’s. Then came a new burst up to about 1803, featuring in part a more advanced type of factory:

By the temporary peace factory building had become more elaborate than a decade earlier. The small mills, four storeys high, about 30 ft. wide and up to 100 ft. in length, with timber frames, were gradually giving way to larger cast-iron structures, thus ensuring greater protection from fire. This type of construction, however, increased capital outlay by about 25 per cent, and was probably adopted only by the larger spinners (p. 184).

When Samuel Crompton carried out his ambitious survey of cotton factories in 1811 he found in factories equipped with mules (though not factories without mules, since they were not counted): 310,500 water-frame spindles, 156,000 jenny spindles and 4,600,000 mule spindles, these representing “only a part of what is in upwards of 650 cotton mills within 60 miles of Bolton.” Still this tremendous increase of factory buildings in the cotton trade probably mostly consisted not in newly erected buildings but in converted corn mills, barns, dwelling-houses etc., which often were rented by individuals or groups of individuals. Renting converted or newly built cotton mills became itself a flourishing business. (Edwards, p. 193.)

Edwards summarizes the development of machinery nicely:

From 1785 until the end of the period, 1815, there was a rapid development of machinery and equipment in most sections of the trade, although the spinners mechanized more fully than either the weavers or the finishers. The power loom remained a technical novelty until after 1815 and the calico printers were dominated by the wood and copper block methods until the mid ‘90’s; by 1800, however, roller printing was increasing very rapidly; in bleaching there was an increase in the amount of equipment necessary to the efficient working of a good craft in the later ‘90’s, with the introduction of a variety of chemicals, and the vats and pans in which they were stored. But it was the spinners who were confronted with the greatest range of mechanical devices. The water-frame and carding engine were adopted by an increasing number of spinners after 1785, but the most spectacular progress was seen in the progress of the mule. When
it left Crompton’s hands in 1779 it was a crude piece of wooden machinery; by 1795 it had become a most efficient cast-iron device, the number of its spindles were increasing very rapidly, and it was soon greatly to outnumber the water frame and jenny spindles at work in the industry. (p. 200.)

Since there were scale economies involved in mule-spinning—the larger the number of spindles per mule, the lower the investment cost per spindle, and the larger the factory premises, the larger the mules to be installed—increasing size of mules and factories was encouraged (Edwards, p. 200–201). According to the memoir by John Kennedy earlier referred to, the mechanization of mule-spinning and the utilization of steam-power for mule-spinning (mule-spinning being the main area for the utilization of steam-power in the cotton trade up to 1815 or later) were instrumental in the rise of the factory system in this later stage of the process:

Before the year 1790, the mules were turned by hand, and were confined chiefly to the garrets of cottages.—About that time Mr. Kelley of Lanark first turned them by machinery. The application of the steam engine to this purpose, produced another great change in this branch of the trade. The mules were removed from the cottages to factories, were constructed more substantially and upon better mechanical principles, and produced yarn of a more uniform quality and at less expense. (Kennedy, p. 129.)

When it comes to the question of motive power Edwards indicates the main course such:

Throughout these years cotton manufacturers used various forms of motive power. In carding and spinning the hand-operated machine survived until well after 1815; although from the 1770’s water was used to drive the water-frames and the larger carding-engines; the mule was worked by hand until the early 1790’s, after which it was also gradually adapted to water-wheels and steam-engines. In weaving, the hand-loom remained supreme until well after 1815, while in finishing, the bleachers and the printers did not adopt power-driven devices until the later 1790’s. The Boulton and Watt steam-engine made little impact on the structure of the trade. Lord estimated that between 1785 and 1795 about 47 of their engines, with a total of 736 horse-power, had been set up in cotton-spinning mills; only one of 12 horsepower was being used in bleaching; and one of 4 horse-power in calico printing. Between 1795 and 1800, 35 engines, with a total of 637 horse-power, were said to have been installed in the spinning section, and only two in bleaching, with 34 horse-power; none was recorded in calico printing, although one had been sold to a calenderer and glazier. (Edwards, p. 204).

Although the research by Robinson and Musson has shown that the Boulton firm was not the only supplier of steam-engines, wherefore the estimates by Lord probably underestimate the utilization of steam-engines in the cotton trade, still, the general trend is clear. Edwards thinks that the causes of this slow introduction of the steam-engine in the cotton trade were many and of
various kinds: the limited supply of engines; long delivery dates; inadequate sales representation in the north; high initial costs; the yearly premiums to be paid; the resistance of the leading Manchester spinners; the recurrent periods of idleness because of wars etc. which made water-wheels more profitable; the possibilities of getting regular power from water-wheels by utilizing reservoirs (Edwards, p. 205–209).

5. The growth of factories (mills) in the woollen and worsted industries was slower and was delayed compared to the cotton trade. Probably this was due both to the stronger traditions of handicrafts and domestic industry in woollen and worsted as well as to technical problems caused by the nature of the woollen fibres. The varieties of products in these industries were also much greater than in the cotton industries and thus mass markets and long series did not exist. Still water-driven factories multiplied according to Jenkin’s study of the West Riding wool textile industry, from one factory in 1774 to 52 in 1780. The 1790’s signified a period of great expansion also in the woollen and worsted industries: the number of factories jumped up to 257 in 1800. After this date there is a more continuous growth of factories up to 446 in 1820 with a new expansion during the 1820’s to 636 factories in 1830. While factories in the late 1790’s were small and located close to streams, there was a concentration of factories to larger centres of population and along lines of communication in the 1820’s. (Jenkins, p. 16–17 and 46–47.) This re-location of factories of the woollen and worsted factories was of course conditioned by the gradual introduction of steam-power, which made it possible to locate factories close to markets. Also in these industries the factory system did not start, as Heaton believed, with machines and power, but by the centralization of workers:

There is evidence of considerable transference from the domestic scene to specially constructed or converted buildings before the application of mechanical power. In spite of the outlay involved, many manufacturers saw advantages in having their work-people and their machinery controlled under one roof where the work could be supervised to maintain a constant standard; where perhaps a greater division of labour could be organized, the working hours of the labour force controlled and the time normally wasted in the carriage of raw materials and finished products under the domestic system eliminated. (Jenkins, p. 71).

The results of Jenkins are corroborated by Rogers for the Somerset and Wiltshire woollen industries (K.H. Rogers, p. 26f.) It should be noted, however, that “the outlay involved” in acquiring factory premises may not after all have been so extensive, neither absolutely, nor relatively. In the first place it was not necessary to construct a new building and buildings could be rented. Secondly the outlay involved in a putting-out organization was probably much larger, since what was gained in low fixed costs was lost in large variable costs caused by high transport costs and the slow circulation of capital.
6. Stanley D. Chapman has investigated the rise of cotton factories in the Midlands textile industry. It is noteworthy that the first attempts of Arkwright occurred here and it is likewise noteworthy that the continued history of the cotton industry did not take place in the Midlands but in Lancaster. Also Chapman underlines the fact that factories arose before the Arkwright factories:

Although the domestic industry and clothing industries were predominantly cottage industries, there was already a marked degree of concentration in workshops and factories by the time Arkwright and Hargreaves came to Nottingham. Hosiery frames were already being concentrated in workshops, some of them employing juvenile and female labour. In Nottingham a number of factories were opened, primarily to maintain innovations in secrecy, while in Derby and elsewhere in the hosiery districts, Lombe’s silk mill found numbers of imitators, though on a more modest scale than the prototype. All these provided important precedents for the development of the cotton and worsted-spinning.... (Chapman, 1967, p. 34.)

The evidence provided by Chapman for this statement is, however, as usually is the case, rather sketchy: framework-knitters’ workshops of the hosiery districts established by merchant hosiers with a dozen or so frames for executing special orders; larger workshops in Leicester containing a dozen or more frames built as annexes to workers’ houses and cottages; the frame-work factory of Samuel Fellows in Nottingham in the 1720’s employing more than 40 parish apprentices; some “safe-box” factories by Fellows and others in Nottingham for innovating practices; worsted stockings workshops employing “girls and women”; the Derby silk-reel factory of the 1720’s employing about 300 people as well as some Nottingham silk mills of the 1780’s; and twist-mills of unknown size in Birmingham and Lancaster (p. 34–45).

In this work Chapman makes two other observations of interest for the problem of the rise and development of factories. In the first place it seems as if costs for social infrastructure (mainly houses for workers) at the early factories were exceedingly low. Community expenditure at Oldknow, Copwpe & Co’s Pleasly Mills in the 1790’s amounted to only between 6 and 14 per cent of total capital expenditure (p. 136). Secondly, “the evidence from insurance valuations and other scattered sources gives the impression that steam-power mills like Cartwright’s [Chapman refers to Major Cartwright’s Revolution Mill at Retford in the Midlands, a modern multi-storeyed factory designed to employ only steam-power founded in 1788] cost three or four times as much to build as the early water mills...Thus most of the extra cost of establishing a factory lay in the purchase of machinery and stock.” From similar data Chapman concludes that “some seventy per cent of the capital outlay was devoted to machinery, compared with thirty per cent for the early Arkwright Mills.” (Chapman, p. 131–133.) He also notes that 50 per cent of the Midland cotton and worsted spinners introduced steam-engines between 1785 and 1815 (p. 151).
In a later work (Chapman, 1971) on fixed capital formation in the British cotton industry Chapman points out that spinning jennies and water-frames “called for different kinds of building and a different scale of investment” (p. 58). He also stresses that the first spinning factories usually were housed in already existing buildings (barns, mills etc.), often rented or shared with other entrepreneurs, the smallest ones housing 8–10 workers, the largest 2–3 storeyed buildings (p. 59). Summarizing the evidence Chapman notes three fundamental types of factories between 1770 and 1803:

A. Small factories with horse-driven carding machines and hand-operated jennies or mules, sometimes with some looms for one family and 3–4 workers. The capital value of these proto-factories may have been £1–2,000.

B. Water-powered Arkwright mills for water-frames med 1,000–2,000 spindles in 3–4 storeyed buildings. Capital value: £3–5,000.

C. Steam-powered factories from the end of the 18th century with 2,000–4,000 spindles. Capital value: at least £10,000.

Chapman also tries to estimate the number of cotton factories around 1800. In the Midlands there should have existed 121 cotton factories around 1803, but almost no jenny workshops. In Scotland in 1795 there were at least 50 cotton factories valued at £5,000–10,000 and also 1,200 jennies, valued at £6 each, and 600 mules worth £30 each. In northwestern England there were at least 70 cotton factories. The sum total of this will be about 250 cotton factories in England and Scotland (plus workshops) around 1800.

Before turning to the problem of causes of the rise of factories discussed in the relevant literature, it may be appropriate shortly to describe some basic (and well-known) structural conditions affecting cotton manufacture during the second half of the 18th century. The introduction of Kay’s flying shuttle around the middle of the century considerably increased the productivity of the weavers and upset the input-output relations between spinning and weaving. The demand for yarn increased. This increased the yarn prices. While the raw material costs of weaving should have increased (also because of the increased time spent by weavers shopping for yarn, so vividly described by Guest), to some extent off-setting the productivity increase conditioned by the shuttle, the profitability of spinning should have increased. To increase the productivity of the spinners the Hargreave spinning jenny was invented, patented in 1770. While Hargreaves patented model contained 16 spindles, their number increased to 80 already in 1784. Hence it was possible for a single spinner to produce 80 times as much yarn as on a single-spindle wheel per time unit. But still the problem of producing cotton warp was not solved: the warp still being made by linen, which was more scarce than cotton. The larger jennies could indeed produce cotton warps. But only with Arkwright’s water-frame, patented 1769, were strong cotton warps on a large scale made possible. It was the Arkwright type of factory (adapted by many others), which became the prototype of the early cotton factory. The water-frame made the first substantial inroads on the domestic mode of production, because it was
too large to be housed in the workers’ homes and also driven by water-power (the first factory of Arkwright was driven by horse-power). Thus these Arkwright factories also had to be located in the countryside. This may have been caused by the fact that the labour power was recruited among parish apprentices and women. In any case there was a mismatch between sources of energy and sources of labour power. According to another interpretation the factories were consciously built for child labour in order to reap the benefits of low wages (if not low efficiency wages, as was later held). It may also be noted that these factories became a success for capitalists because the prices of warp were considerably higher than prices for weft.

The Arkwright factories increased most rapidly after 1785, when Arkwright’s patent was cancelled.

The improvements in spinning had caused a carding problem that also was solved by Arkwright’s carding engine (to some extent at least as there were also other carding engines—see above). The patent was obtained in 1775. It was on the basis of carding machines and the larger jennies that the above-mentioned “rudimentary” factories arose and spread in the 1770’s preceding and paralleling the Arkwright factories.

But jennies and water-frames could not produce the fine yearns suitable for the manufacture of muslins. This problem was solved by Crompton’s mule after 1779. The mule made a substantial impact on the industry only from the late 1780’s.

From the 1780’s the linen spinners and weavers in Lancashire, Scotland and Ireland went over to the production of pure cottons. Jenny spinning reached its peak in the 1780’s and jennies with 80 or more spindles became fairly common. Many jenny spinners combined carding with spinning and moved into workshops parallel with the increase of the size of the machines. After 1785 water-frames were rapidly adopted but still the very large water-frame factories were exceptional.

The expansion of spinning, resulting in more and more varied qualities of yarn, may have spurred the master-weavers to increase their control over their outworkers. In part a system of foremen or “esters” were employed (sub-contracting), in part a growing number of master-weavers, like the jenny spinners, moved their workers into weaving sheds (like Oldknow—see above).

Because of the enormous expansion of spinning the number of hand-loom weavers expanded too, since it probably was a rather rewarding trade. Maybe this caused the hand-loom weaver problem encountered later, when the power-loom was introduced.

8. Of some importance for solving the problem of the rise of the factory system may also be the changed conditions of the market for final output. In the first place, cotton products were more and more diversified. While Edwards accounts for only 6 different qualities in the early 1780’s, their number increased to 12 in the late 1780’s and to 17 in the first years of the 19th century (Edwards, p. 247). Secondly, and parallel to this, production was increasingly governed
The Transition from Domestic Industries to Factories

by the preferences of final consumers so that agents and commissioners for the producers determined what should be produced and in which qualities. The implications for the governance of the production system are obvious: the need for rapid decisions, innovations and product control.

9. We should also know something about some other structural conditions of the cotton industry. What do we know about the first factory owners and how did they finance factories? What about productivity and profitability of the factories? Who were the workers, how were they recruited and from where did they come? And lastly: what do we know about labour conditions and wages, especially in comparison with domestic industries?

a) The problem of business leadership in the industrial revolution has recently been studied by Katarina Honeyman (1983). The entrepreneurs of the early cotton industry were examined in 1787 and 1811, the first survey referring to owners of Arkwright-type mills, the second to mills operating on (mainly) Crompton’s principle in Oldham and Bolton. This means that the investigation hardly gives us any information on the first small-scale factories referred to earlier. From Honeyman’s data it seems fair to conclude that many of these early manufacturers disappeared. Honeyman concludes:

The majority of the [1787] entrepreneurs had previously been engaged in the local textile trade, whose importance was being superseded by the cotton industry late in the eighteenth century. In Lancashire many of the cotton spinners were former fustian or calico manufacturers; early hosiery and silk merchants or manufacturers constituted the majority of entrepreneurs in the Midland counties of Nottinghamshire, Derbyshire and Staffordshire; in Yorkshire former wool and worsted manufacturers predominated. These men, therefore, were hereditary manufacturers, which suggests a continuity of leadership from preindustrial to industrial production.

In the early phase of the development of the cotton industry there were many techniques to minimise fixed capital requirements. The renting of buildings and machinery was commonplace, as was buying second-hand, and these practices undoubtedly helped the individual with little capital. Despite the opportunities that were available, however, the part played by the narrowly defined “self-made man” in the early cotton-spinning industry was small. It is clear, however, that a large proportion of the 1787 cotton spinners had emerged from class II [skilled craftsmen working on their own account, retail traders and yeomen] with a modest accumulation of capital. (Honeyman, p. 163.)

According to Honeyman’s table p. 61, class II made up 56 per cent of the factory owners, class I (members of the aristocracy and gentry, large businessmen, professional people such as doctors, lawyers, clergy and large farmers and landowners) made up 38 per cent and class III (skilled craftsmen working for another, very small landholders such as husbandman) and class IV (semiskilled and unskilled workers and agricultural labourers) made up 5 and 2 per cent, respectively. This seems to be a rather strong case for Marx’s “really revolutionary way” to capitalism, even if occupational terms are vague and difficult to interpret! If one uses Honeyman’s data for a regroupment into
broader categories it is found that “manufacturers” made up ca 50 per cent, merchants 35 per cent, landowners 7 per cent and the rest 8 per cent. As to the term “manufacturer” Unwin states that up to the end of the 18th century it had been “applied sometimes to the domestic weaver but more commonly to his employer. In the 19th century it was transferred to the employer in any industry under the factory system, although in Lancashire it has been appropriated by the employer in power-loom weaving as distinct from the master spinner.” (Unwin, p. 38.)

Honeyman continues her conclusions as follows:

Table 6.1. indicates that the majority of mills operating on Crompton’s principle in Oldham 1811 had been established and subsequently enlarged by men of at least moderate wealth, and the largest and most successful mills were owned by the most affluent local families, who also held extensive land and coal resources. Several former retailers and small textile manufacturers (class II) invested their limited accumulation of capital in cotton spinning, the initial fixed capital requirements for which could still be modest. Although individuals from classes III and IV were fairly well represented among the Oldham entrepreneurs, their enterprises were typically very small, and all were short-lived. (Honeyman, p. 164.)

Also in this case II (43 or 28 per cent) or class II and class III (11 or 26 per cent) together seem to be dominant, while class I (39 per cent) comes second, leaving 7 per cent for class IV. The entrepreneurs were in this case recruited from three separate groups: landowners, individuals with coal-mining connections and those previously occupied in the textile trade, typically in hatting, the local pre-cotton specialisation.

The majority of the 1811 Bolton cotton spinners belonged to families established in the textile industry, and had been involved in branches peculiar to the district, particularly fustian and muslin manufacture. A smaller group comprised men who had previously been engaged in a non-textile business and who, typically, joined in partnership with a hereditary leader for the purpose of cotton spinning. The third and smallest category consisted of individuals with no previous experience of or contacts in the textile trade but who, like similar men in Oldham, ran small-scale enterprises and did not remain long in business...the long-term failure resulted from financial weakness, which the heavy demands of frequently unexpected working capital exposed. (Honeyman, p. 106.)

In this case the dominance of class II is still more prominent, class II making up 59 or 74 per cent of the entrepreneurs, class I 21 or 6 per cent, class III 18 per cent and class IV 2 per cent. Ca. 56 per cent were “manufacturers”.

Despite the differences between the two periods in terms of technology and organisation, the pattern of entrepreneurial recruitment was remarkably similar. Upward social mobility was present in both periods, indicated by the movement of individuals from class II to class I. There were, however, very few instances of long-distance social mobility, or of new industrial leasers emerging from
class III or class IV ... Despite the transformation of the economy and of society c. 1750–1830, there appears to have been little real change in the industrial leadership ... The demands of working capital ... in the long term usually proved fatal to the survival of the small man.... (Honeyman, p. 165–166 and passim.)

b) Turning to the question of the productivity and profitability of cotton factories, there does not seem to exist systematic investigations, at least not for the early factories. That cotton factories as a rule could be both very productive and profitable seems clear. Writing in the 1830’s Baines stated that “a spinner now produces as much yarn in a day, as by the old processes he could have produced in a year; and cloth, which formerly required six or eight months to bleach, is now bleached in a few hours” (Baines, p. 7). Aiken considered in 1795 that Yorkshire manufacturers could gain as much as a threefold greater production from a centralised workforce (Hudson, p. 71). Official reports from 1840 on the hand-loom weavers suggested that “the hand-loom factories’ productivity advantages was such that they could finish a hundred webs while domestic weavers finished fifty” (Smelser, p. 143). According to an estimate made in 1779 of the costs per lb of cotton in spinning and allied activities in Arkwright factories compared to hand spinning, the cost difference should have been enormous: being 6d in the Arkwright factories and 3s in hand spinning. “This estimate of a six-fold advantage for the factory in spinning and allied activities about 1780 cannot be taken literally. In the light of Arkwright’s reported profits, however, it is probably not far off the mark.” (Smelser, p. 99). According to Howe (1984) net profit rates for three (successful?) firms between 1778 and 1809 varied between 10 and 25 per cent per year (p. 27). That at least machinery was immensely productive compared to handwork seems to emerge from Lipson’s figures comparing 1781–1796 with 1796–1805 (Lipson, p. 258–59.)

c) When it comes to the question of the recruitment of labour to the early factories it seems as if the small jenny factories often relied upon families who before had been domestic workers (see e.g. Unwin, p. 106). The Arkwright factories, of course, very much relied on children (to begin with parish apprentices) and women. In Arkwright’s Cromford mills in 1789 87 per cent of the 1,150 workers were children and women and factory owners often advertised for families with many children, their age frequently being 8–10 years (Chapman, 1967, p. 165 and 169). Parish apprentices were much in demand but according to Chapman’s investigations 1/3 run away, died or had to be sent back (Chapman, 1967, p. 170). It was generally difficult to recruit labour to the Arkwright factories and it was often necessary to give the adult men employment in agricultural pursuits in order to get access to the labour of the women and the children in families (Chapman, p. 156f.) It is, however, unclear whether children and women were demanded because of the cheapness of their labour-power or whether men were difficult to get. Ure writes:
Children of a small size, and therefore young, were much more in demand during earlier periods of the cotton trade than they are at present, reference being had to the total number of hands employed in it, and to the amount of work done. Arkwright’s water-frames were built very low in the spindle-boxes to accommodate children, and consequently sometimes caused deformity, by the frequent act of stooping to the ground. The throstle, which hardly ever requires the operative to deviate from the perpendicular posture, has for many years superseded entirely that machine. It is managed by young persons from fifteen years of age and upwards, and does not necessarily involve the employment of children... Again, in mule-spinning, the number of children is not increased, but rather diminished, in reference to the number of spindles and the quality of yarn produced, because fewer ends break upon the modern than upon the older machines. (Ure, p. 362.)

This is an interesting paragraph, because it indicates that the Arkwright water-frames were built for the utilization of child labour. But was this because of a profit calculus or because Arkwright assumed that only children could be recruited or both? Likewise Kelly, the inventor of the self-acting mule, also made his invention with a specific kind of labour power in sight. In a letter to Kennedy in 1829 he wrote: “The object then was, to spin with young people, like the water twist. For that purpose it was necessary that the carriage should be put up without the necessity of applying the hand to the wheel.” (Quoted by Baines, p. 206.)

The Hammonds thought that the utilization of child labour proceeded in two stages. To begin with apprentice children were utilized, because the (Arkwright) factories were located to the countryside (water) and the labour power thus was brought to the factories. In a second stage, free-labour children were utilized and this stage is connected with the growing utilization of the foot-loose steam-power energy. (J. L. and B. Hammond, 1928, p. 144). The same point is made by Collier, who stresses that the new (Arkwright) machinery “was adopted for the employment of women and children”:

The changes involved arose owing to the great demand for labour at certain places whereas previously the workpeople had been scattered throughout the cotton manufacturing area. Consequently, even if there had been no prejudice against entering the factories it would have been impossible for most of the people who had worked in their own homes to become millhands. To do so would have involved migration and as the early spinning mills absorbed little skilled male labour there was no great attraction for weaving families to move. Hence many of the factory masters resorted to the apprenticeship system and much of the male labour which migrated to factory towns was unskilled, or had families for whom employment in a cotton mill meant a substantial increase in income. (Collier, p. 3.)

Collier also suggests that “there can be no question as to the better position of the factory workers in times of depression compared to those still employed outside the factory”, because of higher and less fluctuating wage rates (and employment). Collier also thinks that the labour power of apprentice children
was comparatively inefficient and that this fact explains “the rapid disappearance of the apprentice system from the cotton industry once free labour could be obtained.” (p. 4 and 45.)

Also according to Pollard pauper apprentices were used as labour power in the first (Arkwright) factories, not primarily because it was cheap but because it was the only available alternative for certain tasks.² (Pollard, 1965, p. 194–95.) He characterizes labour in the first factories as “only the riff-raff, the paupers, the displaced Highlanders and discharged soldiers” and “even later many entered only as a last resort.” At the same time he underlines that “domestic workers who transferred to factory raised their earnings.” (Pollard, 1978, p. 161 and 163.) And this in a period of “a general labour surplus” (p. 100).

What conclusions may be drawn from this kind of seemingly contradictory information for the understanding of the transition from domestic industries to factories with regard to the recruitment of the labour force? The first thing to note is probably that it was a contradictory process from two points of view, at least with respect to the “second generation” of factories like the Arkwright factories. In the first place, these factories represented a quite new way of life with regard to habitat, working-habits, work control etc. Thus the complaints of contemporary capitalists that factory workers were “transient, marginal and deviant” and that the factory population was characterized by a “restless and migratory spirit” may well refer not only to Pollard’s “riff-raff” but also to regular domestic workers.

Secondly, the rise of the factories not only signified that they out-competed domestic industries, but also and especially to begin with injected a new way of life in these by increasing the demand especially for weft but also for specific qualities of yarn. This may have implied that domestic workers or any other workers were not forced to take up employment in factories but had a choice. Thus we might explain the seemingly contradictory fact that on the one hand it was difficult to recruit workers to factories and on the other hand (family) earnings in factories were higher than in (many) domestic industries. The reason are, firstly, that workers did not react only or perhaps not even mainly to economic incentives, particularly not in the period of transition when a new mode of existence and social culture clashed with the traditional ones; and, secondly, that the very rise of factories to begin with gave domestic industries a new life and even favourable conditions of existence. This would have changed at a later stage, when the competitive role of factories became more prominent because of technological progress increasing the productivity of factory labour and, as a consequence of this, the earning gap in relation to domestic industries had widened sufficiently and could be utilized by stronger

² “Recruiting to the textile factories was geared chiefly to overcome...the shortage of labour willing to work regular hours and endure factory discipline. The unfree labour...did not in most cases amount to more than one-third of the labour force and usually much less: free labour also had to be recruited and adapted.” (Pollard, 1965, p. 203). Fitton-Wadsworth noted that the employment contracts were longer in the 1770’s and 1780’s than later (Fitton-Wadsworth, p. 233).
labour organizations. One may also assume that with the passage of time, the labouring population willy-nilly became accustomed to the mode of life of factory work and its social surroundings.\(^3\)

10. Let us now at last look at some representative views, contemporary and modern, as to the causes of the rise of the factories. This is a very complicated problem of interpretation, because statements are seldom sufficiently precise as to meaning. Causes may be conditions (structural) or aims (teleological), necessary or sufficient and they may operate on different levels and apply to different areas of observation. Similarly factories, as already stressed, were of various kinds and represented a process rather than a thing. For some observers the rise of factories is simply the effect of the shortcomings of domestic industries and putting-out systems, while for others factories implied the introduction of some quite new elements not existing earlier (like technological innovations). Still it is of interest to note how different authors have approached the problem.

Edward Baines, writing from the perspectives of the 1830’s, holds that the factory system arises with the Arkwright factories housing water-frames and carding-machines propelled by water-wheels. He enumerates a great many factors responsible for the establishment and superiority of these factories: 1) The new machines were too large and too heavy to be accommodated in a cottage; 2) Their operation required non-human energy, preferably water power; 3) They made possible a more extensive division of labour; 4) There were extensive economies in manufacturing cotton in one centralized building: a) economies in energy-production (one larger water-wheel instead of several smaller, b) economies in supervision and control against wasteful or fraudulent consumption of material, c) economies in transport of the labour object from raw material to final output, d) avoidance of interruptions in the processing in domestic industries conditioned by “the failure of one class of workmen to perform their part, when several other classes of workmen were dependent upon them” and e) economies in the use of mechanics on the spot to construct and repair the machinery, since many machines made them fully employed. “All these considerations drove the cotton spinners to that important change in the economy of English manufactures, the introduction of the factory system; and when that system had once been adopted, such were its pecuniary advantages, that mercantile competition would have rendered it impossible, even if it had been desirable, to abandon it.” (Baines, p. 184–85.) Elsewhere Baines through-out his treaties on the cotton trade stresses that machine-spun yarn

\(^3\) In this process stick and carrot were used: harsh work discipline including confinement of workers within the factory premises, fines and dismissals, as well as gift-giving and arrangement of feasts. The role of wage-systems should be studied. Although domestic workers were used to piece-work, it may be that piece-rates became more incentive-oriented. “In many enterprises the ‘discovery’ of payment by result was greeted as an innovation of major significance, and at times the change-over does seem to have led to marked improvements in productivity.” (Pollard, 1965, p. 223.)
The Transition from Domestic Industries to Factories

was of a higher quality (more even and allowing finer threads to be produced) and cheaper than hand-made yarn. To the extent that machines could not be accommodated in cottages or workshops (like the Arkwright machines and very large jennies) these conditions of the superiority of factory manufacture should also be added to the list.

For Marx (as his views are expounded in Capital and the manuscripts preceding it) capitalist relations of production start before the introduction of the factories, viz. by the control of capital over free labour and the increased utilization of labour, e.g. through more continuous labour, thereby made possible. This is the “formal subsumption of labour under capital” and the increased production of absolute surplus value as it arises in pure centralized production, e.g. in traditional manufactures. This mode of production is superior to domestic industries. Even if those industries allow for some division of labour, it remains limited.

There are a lot of time-consuming improductive mediating processes, which are conditioned by the fact that the different stages of the commodity processed exist as independent commodities and their connection is mediated by the exchange of commodities, i.e. buying and selling. The mutual labour in the different branches is conditioned by various chance occurrences, stoppings etc. Only the forced connection in the workshop produces the simultaneousness, evenness and proportionality in the mechanism of these various operations and connects them as a whole to a proportionate working mechanism. (Manuskripte 1861–1863, 11:3.1., p. 245f.)

Thus, for Marx there occurs a transition from domestic industries to factories proper in two stages: from domestic industries to centralized production and from centralized production to factories. The introduction of factories implies a transition from the formal to the real subsumption of labour under capital and from the pre-dominance of absolute to relative surplus production.

The whole of part IV of Capital, I, is devoted to machinery and the factory system and its heading is “Production of relative surplus value”. The factory system with its machinery and extensive division of labour and cooperation implied first and foremost a sustained increase of labour productivity and thus made increased production of relative surplus value possible. The factory system, at the same time, also made an increase of absolute surplus value possible, generally by condensing amorphous labour time and, specifically for a period, by extending the working day.

The factory to begin with implies concentration of labour-power, which evens out product quality and saves constant capital and thus raises the rate of profit. It also makes cooperation between workers possible. This cooperation is expressed in an increased productivity of labour made possible by an improved distribution of tasks according to capabilities, a lowered time of transportation of the labour objects and an improved perception of what is going on.
The distinguishing characteristic of the factory, in contradistinction to the manufacture, is the large-scale application of machinery. In the factories the instruments of labour became converted from tools to machines: “the tool proper is taken from man and fitted into a mechanism, a machine takes the place of a mere implement”. A fully developed machinery consists of three essential parts: the motor mechanism, the transmission mechanism and the tool or the working machine. The revolution of the mode of production effected by the factories start with the machinery and it is the development and growth of the machines that calls forth the development and growth of the motor mechanism (water power and then steam engine) and of the transmission mechanism.

The development of machinery undermines the power of skilled labour—the deskilling of labour with the ensuing fall in the value of the labour power. Radical changes in machinery in one sphere of industry also creates pressure on other spheres of industry, as when spinning by machines induced the invention of weaving by machines and both together induced the mechanical and chemical revolution in the bleaching, printing and dying of cloth as well as the gin for separating seeds from the cotton fibre.

The essence of the new factory system, according to Marx, is to be found not in technology per se but in the new social and economic relations arising and growing upon the new technological basis. First, machinery enhances the productivity of labour in various ways. Machinery always enters into the labour-process as a whole and thereby it increases the physical productivity of labour. It also saves labour by replacing human labour power. It makes possible the utilization of cheap labour power (women and children). It prolongs, at least to begin with, the working-day because machinery is a perpetuum mobile. It increases relative surplus value by depreciating the value of labour power, cheapens the commodities entering into the reproduction of labour power and creates extra surplus value for the capitalists first introducing machinery at the pre-determined value of commodities (determined by the old technology). Further, machinery, at least to begin with, creates an incentive for increased absolute surplus value, when the increased relative surplus value effected by the introduction of machines is more than off-set by the loss of surplus value effected by the decreasing number of workers. It creates the industrial reserve army, depressing wages, and it intensifies labour by making labour time less porous than before, through increases of the speed of the machines and by giving workmen more machines to tend.

The factories also, as Marx suggests in the manuscripts, increase the physical productivity of capital (lowers the capital/output ratio) and hence raises the profitability of capital. (Thus even with unchanged profit shares the profitability of invested capital is increased, since \( R/K = R/Y \times Y/K \).) This occurs through economizing on the common conditions of labour and on the use of these conditions. In the first place, economizing on premises (Gebäcllichkeit), heating, lighting etc., on power motors, since the cost of a power motor does not increase in the same proportion as its effect (incidentally, this
The Transition from Domestic Industries to Factories

is confirmed by late eighteenth century business correspondence quoted by Edwards, p. 204), by economizing through the buying of raw materials on a larger scale, by economizing on transmission machinery and on management and lastly by economizing on waste products to be re-used in production or transformed into by-products. This economizing on the conditions of production “wholly depend on the common utilization of these by the concentrated cooperating labour.” (Manuskripte, 11:3.6., p. 2163ff.)

Most other authorities do not supply so extensive and reasoned explanations as Baines, not to speak of Marx. To James factories were introduced because of the defects of the domestic industries as to economy, regularity of supply and quality of products but also because of an inability to expand when demand expanded. Machinery and spinning in the worsted manufacture in Bradford came about in the late 18th century because of

the impossibility of obtaining from the common wheel the necessary supply of yarn to meet the continuously increasing demand led to the introduction in Bradford of spinning machines, which were first used there about the year 1794, by Mr. James Garnett, who set them up in the Paper Hall High Street. Soon after Mr Garnett’s spinning machines were set up, the late Mr. Robert Ramsbotham worked several of them by means of a gin horse on his premises in Kirkgate... Nearly contemporaneous with the first use of spinning machinery in Bradford an effort was made to build a factory here [it succeeded in 1800]. (James, p. 591).

The first carpet factory in Halifax, erected after 1780, is to have come about also because of increasing demand: “The spinning of both weft was accomplished by hand, in various parts of the country, at cottages and arm houses. Mr. Currie found his trade increased so much as to require more extended premises, and he built a large factory at Luddenden Foot (about four miles from Halifax), where he carried on the carpet manufacture until his death in 1816.” (James, p. 621.)

Unwin suggests several different causes. In the first place, he mentions the increasing size of machines: “Whilst the invention of the billy prolonged the usefulness of the jenny, and the smaller jennies and mules continued to be used by cottage spinners, the prevailing tendency was towards the increase in size of both jennies and mules and towards the collection of them in small factories where they were operated in conjunction with carding and roving machinery by workers who did not own them.” (Unwin, p. 32). Winding was transferred to a factory in Stockport because it was to have made lower wages possible and have increased the efficiency of work:

Towards the end of 1788 there were about 90 outside winders, who wound in their homes about 70,000 hanks a month. Winding had always been done by children or old people, who earned one or two shillings a week by it. The piecework rates were very low and a refusal to accept them, coupled with a need for a quicker and more efficient service, led to the setting up of nine
winding machines in the Hillgate premises, of the operation of which there is a fragmentary record for July and August 1788. The first use made of steam power three years later was for turning these machines. (Unwin, p. 110.)

The motivations of Oldknow to set up a spinning factory in Stockport in 1791 is described thus by Unwin:

The chief problem of his business from the first had been that of ensuring adequate and regular supplies of yarn of increasing fineness at prices that would enable him to compete successfully with other muslin makers whether of India, Scotland or Lancashire. As early as 1784 he had been recommended by Arkwright to start a spinning mill. The factory system in lesser or greater degree was becoming universal in spinning. Oldknow’s neighbors, the calico manufacturers of Stockport, were solving the problem of the yarn supply by setting up as factory spinners and were running a race with each other to secure water-power of the Mersey and the Goyt... That manufacturers should seek to invest their surplus capital in spinning mills was inevitable. The prices of the yarn, which constituted half the cost of their fabrics, had been reduced 25 per cent in a few years by the new machinery, and experience was to show that by the application of power and organization of labour it could soon be further reduced by a like amount.... (p. 124–126.)

This is an interesting statement, since it not only relates the costs of machine spinning to those of hand-spinning but also the cost of factory machine spinning to machine spinning per se.

To E. Lipson the centralization of cloth weaving in the West Country and in Yorkshire in the 18th century creating miniature factories was effected because of three causes: “The advantages of the system were threefold. It enabled the employer to supervise in person the processes of manufacture; it prevented delay in return of the work, which was wont to occur when a weaver wove in his own home for different masters; and it rendered more difficult any embezzlement of the raw material.” (Lipson, p. 50–51.)

Sidney J. Chapman (1904) indicated many various factors behind the rise of the factory system in the cotton industry. In weaving three different causes were operating: 1) “the need of water or steam for driving heavy machinery”, 2) “the increasing complexity of machinery, which magnified its cost” and 3) “the increasing complexity of business (the outcome on the one side of constant additions being made to the variety of cotton goods and the rapid changes that took place in patterns), which augmented greatly the economies to be derived from a through-going organisation” (p. 18). Thus a need for new energy sources, expensive machinery out of the reach of domestic producers and changes in the market for final output are pointed out as conditioning factories for the transition in weaving. He also shows that looms successively became more expensive (looms with “draw-boys” separate or affixed as in “harness looms” plus extra appliances like reeds, healds and gaiters). These changes took place already during the 18th century. During the 19th century “the hiring of looms from those who let lodgings, or others, became so usual as
to excite no comment.” (p. 25). The power-loom which definitely could not be housed in a cottage was superior to the hand-loom because “it not only worked faster than the hand-loom … but also produced a cloth of a more even texture, because of the uniform strength of the blows administered mechanically to the shuttle, a uniformity which no human agent could hope to rival.” (p. 27.)

Also in spinning, according to Chapman, two distinct factory systems arose. Spinning by rollers (Arkwright factories) initiated a real revolution, while jenny and mule spinning implied an evolution to the factory system (p. 53). While the jenny multiplied human hands, the water-frame was a substitute for human hands. Thus the water-frame recruited unskilled labour, children and women, but it did not appreciably displace skilled cotton spinners, since it was confined chiefly to warps, previously made of linen or wool. The jennies, on the contrary, put a premium on skilled and male labour, since greater strength was required to use them than the one-spindle wheel, and this meant that it increased employment opportunities for men while decreasing those of women and children. The mule, still more, required great skill. Thus jenny and mule spinning factories could be of varying size and quite small, while the water-frame factories were large and could rely on economies with respect to power, buildings, managing, marketing and the division of labour (p. 57–58).

Of some importance was probably also that Crompton’s mule was unprotected by patent besides being small and cheap. (According to Stanley D. Chapman, 1967, the cost of a mule amounted to about £ 30.) The mule was generally employed for fine spinning (muslins) and mules were installed bit by bit in garrets, lofts or barns. Quoting French, Chapman writes: “Many industrious men commenced business with a single mule worked by their own hands, who as their means increased, added to their machinery and progressively extended their business until they rose to honorable eminence as the most useful and extensive manufacturers of the Kingdom.” (p. 59–60.)

But also jennies and mules grew in size and complexity like the hand-loom with effects for the competition between domestic industry and factories. This occurred already before the introduction of the self-acting mule. Chapman describes this development thus:

In course of time, however, the enlarged number of spindles on the jenny, and the increase in subsidiary machinery and in its complexity, called for a more economical source of power than the gin-horse, and, in addition necessitated larger business. By the invention of the self-actor mule spinning was ultimately to be rendered almost as automatic as weaving; but some time before the self-actor appeared power was used to drive out the mule-carriage. Further, changes in machinery led to changes in the arrangement of hands “tending” it.

When the mule was altogether a hand-machine one spinner was required for each machine; but when the carriage driven out by power and needed only to be put back by hand, it was possible, if somewhat exhausting, for the spinner after putting up one carriage to turn his heel and thrust back the carriage behind him, which had been driven out by power into the wheel-gate while he was tending the other. The arrangement whereby one man controlled the pair soon
became almost universal, and as the mules increased in weight, owing to the additions made to the number of spindles carried by them, power began to be applied also for driving the carriage back.

But spinning still involved the exercise of no inconsiderable skill, for the winding had to carefully regulated by the operative, who guided “the faller” (or wire which by rising and falling determined the part of the spindle upon which the thread should by wound) with one hand and varied the speed of the revolving spindles by turning a screw with the other. The need for skill of this kind—which meant the specialisation of the operative’s organism for delicate actions to be rapidly repeated, and was therefore wholly mechanical in character—was removed ultimately by the self-acting mule... Among the medium and coarse counts the self-actor was finishing its conquests from about 1850 to 1860. (Chapman, 1904, p. 69–70.)

Neil J. Smelser (1959), who from the point of view of the historical sociologist, has made a very systematic investigation of the Lancashire cotton industry 1770–1840, based upon an extensive reading of both contemporary printed sources and relevant literature before 1959, considers very many aspects of the transitional problem. On the one hand the increasing problems of domestic industries under the pressure of increasing demand and production, like increased quality variations of products, increasing carrying and fetching, the low elasticity of the supply of labour and the low mobility of labour because of its attachment to the cottage and the soil. (Smelser, p. 65–77.) On the other hand the increasing size of jennies and carding machines leading to the establishment of the first primitive factories and workshops, a process repeated with the introduction of the mule. At the same time he does not accept a purely technological explanation, since also organizational aspects, like authority and control, were involved (p. 90). While increasing size and increasing need for power generation evidently explains the rise of the Arkwright factories as well as the mule-spinning factories after Kelley’s application of water-power to mule-spinning from 1790, factories survived as a new mode of production because they turned out better and more varied products and were more productive and more profitable. (Even if the new work organization and the new technology per se were more productive and more profitable than the old modes, the factories would not have been successful if they had not been able to turn out products which equalled or surpassed the products of domestic industries.) In the final analysis the superiority of the factories was, so Smelser seems to suggest, based on a more efficient organizational rationality than that of the domestic industries and putting-out systems, because they implied a higher degree of control over resource use (capital and labour), over the decision to produce or not produce and over the process of production. Leaning on Weber (and ultimately Marx) the three decisive aspects of this increased organizational rationality were that 1) the capitalists succeeded in monopolizing control over the means of production, 2) absence of appropriation of jobs by workers and conversely absence of appropriation of workers by owners
The above does not represent a complete list of views on the problem of the causes of the rise of the factory system in cotton manufacture in England. But it is doubtful whether an extension of the number of authors would give much additional information. Two things stand out quite clearly. In the first place, there evidently existed factories of different kinds and of different complexity and there was a development over time, from the primitive jenny-, carding- and mule factories mainly centralizing workers to the Arkwright factories and, after 1800, the mule-spinning factories up to the fully developed factories of the 1830’s and 1840’s with self-actor mules and power-loods. Likewise there was a development of the sources of power, from primitive factories relying on human power and horses to water-wheels and steam engines and the way there were combinations of those sources. The labour power of the factories consisted to begin with of families or members of families in domestic industries in the case of the first jenny and carding workshops and mills. The Arkwright mills relied primarily on children, women and marginal workers as the main staff. Women and children remained a substantial proportion of the labour force for a long time. But the proportion of men may have increased over time in certain branches of cotton manufacture. The scale of investment differed between different kinds of factories. While a jenny- or mule-spinning mill, allowing for a flexible scale of operation, did not require substantial capital investments, the Arkwright mills did. But given the right social connections it was always possible to raise capital from capital owners of different kinds. Still, the first cotton factory owners arose from manufacturers and merchants within the industry in the general case. Over time the scale of investment rose with more expensive machinery and larger factories. To operate a cotton factory the most important problem, however, concerned the circulating capital. Therefore factory owners were seldom self-made men but were recruited from the higher middle and the upper class with some additions from average middle class people.

Secondly, the problem of causation has been attacked on different levels and from different angles. No really systematic investigation seems to have been undertaken meeting the rigorous requirements of strict causal analysis, although Marx is the one who comes closest to the ideal. But not even Marx, although handling the most complex explanatory model, seems to take all relevant factors into account. He gives material for a fairly systematic explanation. But sufficient evidence is lacking, the interrelations of different explanatory variables are not wholly clear and he seems to underestimate the importance of social and cultural factors.

Provisionally it seems as if a full-fledged causal explanation for the rise of the factories should take many different aspects into account. In the first place, we should devote attention to the proper definition of factories, since there is a vast difference between the first primitive factories and the later
“proper” factories and the explanations of their respective origins will differ to some extent. The second area of study and reflection concerns the domestic industries and the putting-out system and their operation under the impact of the rapidly increasing demand for final output. If the problem of quality of products, transportation, inelasticity of supply, embezzlement etc. were as great as is indicated in the relevant literature, it seems clear that some kind of re-organization of the industry became imperative. Maybe, the first relevant step, then, was to centralize production under the control of the capitalist as evidently occurred in the first primitive factories.

Assuming that centralized production pure and simple was the first step towards a full-fledged factory system, one may assume that the sustained increase of demand and production led to an increasing size and complexity of machines, given competition and thereby induced innovative activity. Thereby an important factor differentiating factory production from domestic industries is introduced, since the scale of investment increases continuously. Even if some domestic producers may develop stepwise to factory owners through the accumulation of savings (the case of the proverbial mule-spinners quoted above), the minimum capital requirements are increasing all the time and put up a barrier for an increasing number of domestic producers. Existing class differences are deepened and factory owners emerge as a distinct and superior class. This development takes a jump with the Arkwright factories with expensive machines, large factory premises and water-wheels. The same thing occurs when mule-spinning after 1790 starts to utilize steam-power.

At this stage, the factories become firmly established in the main lines of cotton manufacture and domestic industries are more or less reduced to a secondary or complementary role (serving factories or producing specific qualities of products). The superiority of factories is to begin with conditioned by their use of more advanced machinery and powerful energy sources conditioning higher productivity and higher profitability than in the domestic industries. This state is also conditioned by the fact that the factories are able to pump out labour from labour power more efficiently and by the fact that they turn out products of higher and more even quality and, further, can produce new qualities. Of importance is also the fact that the factory owners by their command over the process of production can serve and utilize markets and market changes quicker and more efficiently and also can introduce necessary innovations with less effort.

But there was one problem which it took considerable time for the factory owners to solve: to discipline the work force and, still more, to engage the motivation of workers in the process of production. The factories were to begin with, and rightly so, looked upon as work-houses. The new factory labour is handled by the factory owners with stick and carrot. But the decisive victory over the factory workers occurs when new incentive systems of payment are introduced linking work effort with productivity. From then on the victory of the factory system is definitive.
VII. Suggestions for future research

The preceding preliminary overview of the problem concerning the transition from domestic industries to factories points out some problems to be further researched:

1. To begin with it seems necessary to canvas the research situation of today in order to know from where to depart. Probably such an investigation would not give too much additional information on the general problem of the project, especially not the conceptual ones. But since much has been written during the last years or so on proto-industrialization, industrialization and factories, an investigation of research already made would probably cast light on partial aspects of the project. A new project should not preferably solve problems already solved!⁴

2. A second area concerns problems of explanation and modelling. The primary purpose of the project should not be to describe the main outline of the transition from domestic industries to factories—although good and relevant description is a necessary condition for explanation—but to furnish an explanation. But what do we exactly mean by an explanation? Traditionally explanation implies answers to the question “why?” by pointing out causes or conditions, sufficient and necessary. But what are causes of a phenomenon which is an historical process, wherein the object to be explained undergoes a transformation and shows different aspects at different points of time? To put it concretely: are we out to explain the rise of the first jenny and carding factories, the Arkwright factories, the power-loom factories or all of them? One set of modelling may be appropriate for one category of factories, another set for another. The problem is complicated by the fact that the transition had somewhat different characteristics in different industries and different countries. Further, how do we define necessary and sufficient conditions and how do we define initial and boundary conditions in an explanation of the transition and how do we delimit them from each other?⁵

My suggestion is, firstly, that we start by trying to explain the rise of factories for certain well-defined types of factories before we try to generalise to find out essences. Secondly, as I have argued above, market conditions may be treated as boundary conditions of the phenomenon to be explained. But what about the problems encountered by domestic industries in view of

⁴ Gustafsson is referring here to the research project “From Verlag to Factory” (1986–1994). See Klas Nyberg’s article above.—Eds.

⁵ Two other problems in modelling explanations may also be mentioned. 1) Since it is possible to point out so very many independent conditioning factors, one may run the danger of presenting over-determined solutions (vide the many deficiencies of the putting-out system confronted by expanding demand). 2) Since causal factors were operating on several different levels it seems important to pin down, at least to begin with, some “prime mover” of the transition parallel with the efforts to define and connect the causes operating on different levels. Such a “prime mover” could be, in the case of capitalists, strivings for maximum profits (accumulation), and, in the case of workers, strivings for maximum real income or welfare. At least, there must be some force or forces propelling the model!
the rising demand for final output? Are these sets of problems also part of the boundary (or initial conditions) or do they belong to the necessary conditions for the rise of factories? The developing capitalist relations of production in the putting-out system? The concentration of workers and production before large-scale technological change? Those large-scale technological changes? Which are, really, the sufficient conditions for the rise of the factories? One may continue to add questions. But the point is that thinking and working on the conceptual problems is important for avoiding muddling-along.

3. One of the most crucial problems encountered is, I suggest, the proper definition of factory. Granted that factories are developing entities, one should at least start by defining some point of departure. To put it concretely: is it possible to regard the first primitive factories like the jenny and carding factories in cotton manufacture as factories in view of the fact that they implied capitalist relations of production, implied concentration of labour and implied at least some important organizational aspects of the capitalist factory (like hierarchy, control etc.)—but did not imply integrated machinery system and—often—not non-human energy sources? How should such difficulties be handled properly?

4. Lastly, there is the problem of finding sufficient facts or evidence. Of course this problem to some extent depends upon the level of abstraction we choose to apply. But in my overview I have found this problem embarrassing. To take some examples. Is it possible to know something more concretely of the organization and operation of domestic industries and putting-out systems? I find this question important to the extent that it influences the conditions of the rise of the factories. Are there figures on costs, productivity and earnings? What kind of changes really did occur prior to and parallel with the rise of factories? Can we dig out some concrete information about behaviour as to supply of labour etc.? To me it also seems important to know more about the early factories and I would be prepared to do research on this, since I suspect it would tell us much on how it all started and why. We also need more information about the wages, productivity and profitability of the factories compared to domestic industries, since such information is evidently very relevant.

Literature
Bowden, Witt: Industrial society in England toward the end of the eighteenth century (1925).
The Transition from Domestic Industries to Factories

Crouzet, F. (ed.): Capital formation in the industrial revolution (1972).
Daniels, George W.: The early English factory system (1920).
Hammond, J.L. and B.: The village labourer 1760–1832 (1911).
Hudson, Pat: The genesis of industrial capital (1986).
Kennedy, J.: Observations on the rise and progress of the cotton trade in Great Britain (1819).
Lipson, E.: The history of the woollen and worsted industries (1920, reprint 1965).
Mantoux, P.: The industrial revolution in the eighteenth century (1928).
Marx, Karl: Capital, I (1867 and later).
Bo Gustafsson

Pinchbeck, Ivy: Women workers and the industrial revolution (1930).
Rimmer, W.G.: Marshalls of Leeds. Flax-Spinners 1788–1886 (1960). (Rare for its extensive series on employment, production, costs, wages, profits, capital stock, fixed and circulating capital etc.)
Tupling, G.H.: The economic history of Rossendale (1927).
Unwin, George: Samuel Oldknow and the Arkwrights (1924).
Appendix 1: Some suggestions as to how the problem of the transition from putting-out industries to factories may be approached

1. Since the factory system conquered the industrial world between 1750 and 1900, originating in England, the rise and multiplication of factories in different countries must have been determined by some common, very general, powerful and, historically speaking, newly introduced causes. It is the task of the project to track down, define and analyse the mode of operation of those causes and bring forth convincing empirical evidence for the truth of the explanation presented.

2. How to begin? Since even economic history according to my opinion is essentially a discipline of cumulative knowledge, we should take as the point of departure the present state of research on the problem. a) Which are the most promising avenues of research? b) Can we define a reasonably secured store of generally acknowledged general facts? c) Which are the main gaps in our knowledge and understanding of the problem? d) Do the main explanations advanced really have identical aims, scope and level of generality? Are they competing and/or supplementary and if so to what extent? Some examples. Sometimes debate is confused because the participants move on different levels of generality. As a consequence arguments may be advanced which are not to the point, because they may be relevant for a concrete case but not for a more general phenomenon. Sometimes conditions of the existence of factories are confused with conditions of the timing of their introduction (early in one industry, late in another). Such differences may be important for the understanding of the phenomenon studies but are of a different nature. Sometimes necessary and sufficient conditions are not accounted for. E.g. Marglin seems to regard control of labour as a sufficient condition for the existence of factories, although it is rather a necessary condition or an effect of other conditions. There existed centralized workplaces before the factories proper. The differentia specifica of factories was that they combined centralized production with new energy machines and new working machines. Why should capitalists have utilized e.g. steam engines and lathes to control labour?

3. I have the impression that different positions as to the fundamental causality in regard to the transition from putting-out to the factory system are to a considerable extent determined by the value orientation, the research tradition and/or the temporary accepted research trend of the researchers involved. Observers of the 18th century were impressed by the marvels of the
division of labour. In the early 19th century observers took it as a matter of fact that the rise of factories was conditioned by steam-power and machines because of the cost-reducing effects. Ricardian socialists and Marx introduced the conditioning effects of class power. The early practitioners of economic history—from Mantoux to Ashton—upheld and deepened the early 19th century notions. Some re-discoverers of Marxism revived one-sided interpretations of the Marxian standpoint. Contemporary transaction costs economists have similarly one-sidedly applied a Coasean approach. And today it is à la mode to engulf economic structure and processes into more or less vaguely defined social and cultural processes. Depending upon the choice of standpoint and research tradition, problem formulation, questions asked, hypotheses advanced and demands on what constitutes a scientific explanation, various aspects of the problem have been investigated and various results have poured down like fall-out.

I think it is important that the participants of the project try to lay bare the respective underlying meta-scientific notions in order to make an orderly and rational communication possible. Let me squarely state my own fundamental point of departure. 1) In progressive modes of production like those which have dominated the West European scene since the introduction of generalized commodity production (the three historical bursts coming around the 12th, the 16th and—most important—the 18th centuries) concomitant upon likewise increasing levels of division of labour and productivity of labour, the two fundamental laws of economic behaviour are, on the one hand, the law of the progressive development of human needs and, on the other hand, the law of economizing of time (first propounded by Marx in his Grundrisse). These laws operate in different conditions of relations of production and class power, as well as in different cultural and national contexts, which determine the concrete modes of operation. But in contradistinction to e. g. Asiatic societies, the growth of productive powers and of human needs, although halted and twisted for considerable time periods, are never ultimately blocked by entrenched relations of production and of class power cemented by likewise entrenched cultural values and traditions. It is precisely this difference which gives the clue to the differentia specifica of the so-called Western Industrial Society. The implications of the above-mentioned two fundamental laws are, first, that more is preferred to less, more useful to less useful and the cheaper to the more expensive. (Vide the success of barchent cloth in the late Middle Ages to the despair of traditional woollen cloth producers or the success of cotton cloth of different qualities in the late 18th century so vividly described by Pinchbeck.) Secondly, a premium is put on cost-reductions in general and cost-reducing inventions in particular, leading to ruthless exploitation of labour as well as to technological progress. Thus we have to keep in mind the utility as well as the value aspect of economic processes. To be sure, the advent of the factory system was conditioned upon and extended the power of one class over another. But it did so because the new relations of production
were based upon the fact that the new mode of production served human needs more efficiently than the preceding ones. If we do not accept this standpoint we are in for serious trouble in the research process and I do not know how the conceptual apparatus should look which is not based upon some fundamental assumption about the rationality of the economic agents; or which assumes that economic behaviour and change is mainly determined by cultural values and/or traditions.

4. Since the factory system arose in several countries and regions at different intervals and under different economic, social and cultural conditions we should try to give some attention to the diversity of the change, the more so since our group is internationally constituted and a comparative approach can give insights into the general problematic. Still I think we have to lay bare the essence of the putting-out and factory system, respectively, in order to be able to handle the enormous analytical and empirical problems involved:

a) Probably we should not forget to concentrate on “classical cases” as when Marx chose England as the locus classicus for the analysis of the genesis, structure and behaviour of industrial capitalism, although from a purely empirical point of view this system was an exception in his day; or, as when analysing the rise and behaviour of the craft guilds, those of northern Italy in the Medieval Ages probably should be selected. Should not, from this point of view, the English textile industry (cotton, worsted, wool) be an appropriate main object of study, the more so as this industry is better researched than any other comparable branch?

b) Should we not also prefer to study some cases in depth rather than try to canvas the whole field evenly? Besides textile industries we should probably investigate some “heavy” industries (e.g. iron?), where centralized production existed already before the advent of the factory system. By taking these early instances of centralized production into account we might get an understanding of what centralization per se implied and presupposed. (It occurs to me that Aiken sometime in the late 18th century suggested that centralization per se in the Yorkshire textile manufacture increased productivity by a third—see Pat Hudson, Genesis, p. 71).

c) We should, likewise, try to isolate representative “progressive” historical cases of the transition from secondary or “parasitic” cases. The choice between centralized and decentralized modes of production seems to be a permanent one in many different historical conditions and societies depending upon a multitude of concrete circumstances like type of product produced and of the process of production, constraints on organizational capacities, scale effects, existence of surplus pockets of labour power, relative wage levels, varying customs and traditions (vide the English hand-loom weaver who out of pride preferred to starve rather than go—or let his children go—to the factories). We should probably find some such general a-historical conditions in our historical problem but we should first of all not lose sight of the specific historical circumstances in our project.
d) One of the most difficult points is to start from a convenient and relevant definition of “putting-out system” and “factory” respectively. I am no friend of long discussions of definitions isolated from empirical examples and we will probably find that our definitions have to be reworked during the course of our studies so that the proper definition will be a result rather than the starting point of research. Here I suspect that our greatest problem will be associated with the putting-out system. In the first place we have the agricultural connection. Dobb following Marx suggested in his “Studies”—if I do not err—that the putting-out workers represented a barrier to capitalist factory production, since they possessed some means of production and hence represented an inelastic supply of labour-power resulting in a smaller surplus for the employer, a higher relative rate of wages and the well-known backward-bending supply curve of labour-power. Hence capitalist factories presupposed free labour-power and an ensuing elastic supply of labour-power and a lower rate of wages. There seems to be a good case for this standpoint. Many have stressed the high rate of growth of free labour-power in the British case from the end of the 18th century and the enormous consequences of the enclosures and the dissolution of the commons.

But on the other hand, precisely these things have also been played down by other researchers, who also have stressed that the wage rates of putting-out workers were lower than those of factory workers and that many putting-out workers before the advent of the factories were proletarians with very limited plots of land rather than agricultural producers with industry as a side-line occupation. These putting-out workers were rather locked-in in their occupations—by force or by choice—and the existence of a side-line occupation did not increase their bargaining power but rather made them prepared to accept very low wages. In some cases the putting-out workers seem, indeed, to have been very poor, in other cases they seem to have been comparatively prosperous. How do we handle this problem, which seems to be very central to a relevant definition of the structure and characteristics of a putting-out system? Our understanding of the transition to the factory system obviously to a great extent depends upon our knowledge of the relative profitability of the two systems and whether labour power was forced to take up factory employment or preferred to do so. Sometimes when studying cursory data on the wages of putting-out workers—which usually seem to be lower than those of factory workers—one may wonder what wage rates quoted, e.g. weekly wages, really represented. Maybe putting-out workers received lower monetary weekly wages, because they worked fewer hours per week? On the other hand, since data also often show enormous rates of increase of productivity by transitions from e.g. handcraft processes to machine processes it would be natural to assume that machine workers (here = factory workers) were paid higher wage rates, still leaving a higher rate of surplus value and profits to the factory owner (the essence of factory production being a higher rate of relative sur-
plus value). To sum up: how should we model the typical putting-out system preceding the transition to factories?

When it comes to the proper definition of “factory” we should devote attention to the classic problem of the difference between manufacture and factory. Would it be possible to state squarely that a factory is a) a centralized locus of production, where b) the energy input is mechanical (not restricted by the vagaries of water supplies or animal traction) plus c) machines which to a considerable extent have replaced the movements of the human hand?

5. After having determined our object of analysis (our “ideal type”) and our objects of research (the ideal type with suitable concrete qualities) we should, I suggest, start by describing and analysing the states of organizational structure and behaviour at certain points of time, e.g. 1750, 1800, 1850 and 1900 and make preliminary hypothetical linkages between on the one hand the prevailing organizational structures and, on the other hand, certain variables—to begin with perhaps intuitively selected—like utilized technology, type of products, type of production processes, organization of work, origins and character of labour, marketing and demand, profitability, relative costs, industry structure, financing and growth. Is it possible to relate empirically, on the one hand, changes in organizational structure to changes in some of the variables in an essential way? Such a description would furnish us with some kind of empirical framework suitable for sorting out real from possible worlds.

6. When describing structure and change in our representative industries we should also try to connect these changes to the broad macro-economic changes of the period. In the ideal case the changes in our industries should be related to and part of the following broader changes:

a) the rise of a free and mobile labour power, as a mass phenomenon, seeking employment, being one condition of centralized production.

b) another condition being the existence of investible funds necessitated by the larger investments in mechanical centralized loci of production (if factories were not capital saving!).

c) further, the introduction of new sources of energy—primarily coal-fuelled steam engines—requiring centralized production, requesting larger outlays of investment and allowing larger and more continuous energy input. (Vide the decentralization of industrial units around 1900 consequent upon the introduction of electric energy machines!).

d) also, the continuous introduction of inter-related mechanical machines into the process of production allowing increased specialization and division of tasks and effecting increased productivity, decreased value of labour power, continuous mass production and improved and more even quality of products.

e) the saving of labour and the intensification of the utilization of labour-power by means of d) and by the increased possibilities of control of labour.
f) mass production and mass marketing for the general public of cheap consumption goods making continuous production more important than before and thereby also more closely linking production and marketing.

g) increased competition between producers making continuous technological change more important and necessary for survival.

h) an increased profitability of capital.

i) the increasing importance of fixed capital (at least in the long run).

j) an increased rate of growth of production and of consumption.

7. How are these—or maybe other—structural traits of the period essentially linked to the great organizational transition from putting-out systems to factories? Granted that the catalogue of factors indicated above are relevant, should we not expect some kind of causal links between those general phenomena on the one hand and, on the other hand, the equally general phenomenon of the transition to the factory system? The problem will be how to establish the linkages. I think they are very complicated. Take for example the Smithian hypothesis of widening markets as the most fundamental condition. It seems to be fairly well-established by much research that domestic production in general and putting-out production in particular expanded from the 16th century on (with interruptions) because of widening markets, not the least international markets. But what does “widening markets” mean? Increasing demand originating from an increasing per capita product? Or increased demand spatially because of decreased transportation costs? Or increasing demand because of substitution effects in consequence of lowered production costs? Or because of the introduction of new more useful products? When cotton industries expanded from the late 18th century the basic reason seems to have been the qualities of the products meeting mass needs of at least the middle classes (to begin with). But later on, when the new product had been widely accepted, further expansion was propelled by improved quality, cost reductions and intensified competition. What is now cause and what is effect? Maybe technological change becomes the most important cause of the widening of markets?

With these remarks I will just point out that the explanation searched for simply cannot be one pointing to technological change, control of labour or transaction costs pure and simple. It must rather, after having isolated the most important conditions and causes, attempt to show how the different causal forces were interrelated. Only by doing this, I think, can our project advance the state of research on the problem of the transition from putting-out industries to factories.

8. What is needed with respect to evidence and empirical proof? What should be requested in this respect? As always in historical research we will have to move on a modest level. We will find that some questions cannot be answered. Probably this applies to the most interesting questions—as always. I would suggest three things. First, that we devote attention to the formulation of testable implications of our hypothesis. Suppose that we make the hypothesis
that putting-out industries were abandoned and factories established because of increased cost-differentials and that these cost-differentials were caused by transaction costs of different kinds in putting-out (distribution and collecting of products, embezzlement and what not) as a consequences of an increased scale of operation. This hypothesis would generate a series of testable hypotheses:

1) that transaction costs were lower in industries with a smaller scale of operation, 2) that firms with a larger scale of operation, ceteris paribus, had larger transaction costs than firms with more restricted scales of operation, 3) that a given firm which increases its scale of operations experiences larger transaction costs etc. I give this simple example just to indicate the idea. If we are lucky we may perhaps be able to formulate at least some weak form of testable hypotheses which may make some weak form of testing possible on the basis of an empirical material. Second, that we try to find some cases with good sources where there is a concrete link between a former putting-out organization and a factory. If this is a good and fairly representative case, we may take it as an example of some more general trend. Thirdly, that we combine micro and macro studies in order to be able to arrive at an explanation that may capture the concrete as well as the abstract and the internal mechanisms as well as the broad conditioning factors.

9. When we approach the problem of “stylized facts” we have to find some common norm of evaluation. Given a specific industry—and I am aware of the fact that organizational forms vary between different industries—it seems to me that “a stylized fact” must capture both quantitative and quantitative aspects even if they are contradictory. If we find that at a given point in time 2/3 of the workers in an industry were employed in some kind of putting-out industries, it would still be possible to state—that the remaining 1/3 of the workers in the industry are employed in factories—that the factory system is dominating, if we were to find, e.g., that a) the share of employed workers in the factories is rapidly increasing, while the share of putting-out workers rapidly decreases, b) that the capital invested in factories surpasses the capital invested in putting-out industries, c) that factories rapidly wring market shares from putting-out industries, and/or putting-out industries in various ways are dependent upon factories. In this example the qualitative aspects are that you judge the situation at a specific point of time also from the point of view of the future and that aspects of dominance and/or power (capital, markets) are taken into account. If we only judge a situation from the point of view of qualitative aspects I think we may misjudge a situation (as I think Clapham once did in the first volume of his magnum opus on the industrial revolution in Britain).

10. How are we going to tackle the aspects of economic factors versus cultural (broadly speaking) factors, markets and technology versus class struggle and efficiency versus distribution issues? When it comes to the first mentioned aspect, i.e. economic versus cultural factors, it seems reasonable to me, first, that cultural traditions had a greater impact on behaviour in the beginning.
of our period than later, the simple(-minded) assumption being that cultural traditions are progressively broken down in the course of industrialization; secondly, that cultural factors may modify (advance or block) the operation of the economic factors for some time but not perpetually. I am afraid that this will sound like vulgar marxism at its worst. Therefore, I would appreciate some convincing counter-arguments. Maybe the technology-markets versus class struggle issue is a sub-set of the afore-mentioned problem. It is plain that industrial change broadly speaking was influenced by the class struggle, as Maxine Berg convincingly has shown. But how and to what extent and how should we assess the results in our approach? I hope that Amit Bhaduri, who has thought much about this problem in other contexts, will be able to sharpen our thoughts. The class struggle is important not primarily because of machine-breaking activity but because successful organization and mobilization influence the distribution of the net product and, hence, profitability and accumulation.

11. This brings me to the efficiency/distribution issue. Broadly speaking the learned opinion seems to be divided on the question of whether the main emphasis should be placed on productivity or on profitability when explaining the success of the factory system. I think we must think deeply on this issue. To begin with, what do we know about objective functions? Should we assume that putters-out and factory owners tried to maximize profits or what? And, if profits, was it total profits, profit shares or profit rates? And what about the putting-out workers? Should we assume that they tried to earn some kind of a customary standard of living, did they try to maximize the average income of the households or what? Clearly the choice of assumption will influence the analysis and results. Secondly, should we analyse the issue from the point of view of the putter-out/capitalist as the main actor, or, should we look upon the decisions made also from the point of view of the workers? (See the class struggle issue above.) Thirdly, what are the appropriate assumptions on the relationship between profitability and productivity? In a fully developed capitalist system with a reasonably high degree of competition and technical and organizational progress we should assume, at least for the long run, a positive association between profitability and productivity: given a certain average level of profitability at a specific point of time, the introduction of a more productive technical or organizational process increases the profitability of the firm that makes the innovation. But under other assumptions this positive association is not obvious. Suppose that the degree of monopoly in input and/or output markets is high and that technological progress is slow. In such a situation the association between profitability and productivity need not be positive. I suppose that the sweating industries are a case in point. Furthermore, in putting-out industries where the direct producers could influence the work-process, one can imagine that they reacted against an increasing rate of exploitation by lowering labour input, deteriorating product quality and/or by embezzling raw materials and final output. Maybe, we could in this case re-
The Transition from Domestic Industries to Factories

The Transition from Domestic Industries to Factories

present the issues as in the following figure, where \((s/Y)\) is the rate of surplus value of the putter-out/capitalist and \((Y/L)\) is the productivity of labour. At high rates of surplus value the productivity of the putting-out workers is low and vice versa, while there is a positive relationship between the rate of surplus value and productivity in the case of factory workers. (Furthermore, the direction of causality is different in the two modes of production: an increased rate of surplus value leading to lower real wages is assumed to cause a lower level of labour productivity in the case of the putting-out workers, while an increased rate of surplus value is an effect of an increased productivity in the case of the factory workers).

Comment to the figure: (1) At given levels of productivity, putting-out is superior to factories as a system of exploitation when productivity is low \((Y/L)\); while factories are superior as a system of exploitation, when the level of productivity is high \((Y/L)\). (2) At given rates of exploitation, the productivity of putting-out is higher than that of factories when the rate of exploitation is low \((s/Y)\); while the productivity of factories is superior to that of putting-out, when the rate of exploitation is high \((s/Y)\). At \((Y/L)\) the two systems are in equilibrium (equally competitive). To the left of \((Y/L)\) putting-out is superior to factories as a system of exploitation, while the opposite holds for levels of productivity to the right of \((Y/L)\). The argument may be primitive. But the point I want to make is that we should strive to capture both efficiency and power aspects in (integrate them into) our analysis.

Maybe it would be possible to list “merits” and “drawbacks” of the putting-out system and the factory system respectively, from the point of view of surplus production and/or productivity. Would a systematic investigation of such a balance and its development over time, industry for industry, be a worth-while approach?
### Characteristics Putting-out Factories

<table>
<thead>
<tr>
<th></th>
<th>Merits</th>
<th>Draw-backs</th>
<th>Merits</th>
<th>Draw-backs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective function:</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Risk of investment</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Level of investment:</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Labour costs:</td>
<td>X(?)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital costs:</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of stocks:</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Assembling costs:</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of production period:</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of specialization:</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality control:</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transaction costs:</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security of property rights:</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical progress:</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficiency of decision-making:</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regularity of production:</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnover time of capital:</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In passing one may note that Sombart thought that the putting-out system had a disadvantage vis-à-vis factories, since factories made collective action possible.

But this presupposes on the one hand, that labour in fact was organized in the early factories while not organized in domestic industries. And should not on the other hand the existence of some property-owning have increased the bargaining power of domestic workers compared to factory proletarians?
The Transition from Domestic Industries to Factories

Widening markets

Increasing division of labour

Mechanization (of the labour process and of energy input)

Saving on capital

Factory system

Deskilling of labour (Saving on human capital)

More rapid turn-over of capital (time of production & sales decreased)

Decreased costs of transportation of material inputs, though-puts and out-puts

Increased possibilities of control and utilization of labour power

Declining wage share

Redistribution of net-product from labour to capital (higher profitability of capital)

A higher rate of investment

A higher rate of growth of production

Note: This picture is intended as a simplistic piece of provocation and disregards wholly any possible merits of the putting-out system. Further, it has nothing to say on all those cases when putting-out systems lingered on or arose in industries with stagnant demand.
Appendix 2: A note on the concept of factory and on factory employment in England 1840.

1. Firstly, is it suitable to define “factory” preliminarily as I have done in my paper (as a relation of production; as a specific form of organization; and as a technological entity with the main emphasis on the first mentioned aspect); and also to see the factory as a process successively taking on its attributes until we are met with the full-fledged factory? If so it should be possible to define certain stages in the rise of the factories (forms of proto-factories). But how do we treat those centralized forms of production, which existed very early, e.g. iron-works. When does an iron-work become a factory? It starts out as a unit with centralized production and wage-labour (in paternalistic forms). Do the iron-works become factories, when machinery replacing hand labour enters? Does this also apply to potteries, which in England utilized mainly hand labour as late as in the 1840’s?

2. Secondly, if you consider that the factories were superior in productivity and profitability compared to domestic industries (with or without a putting-out superstructure) in so many respects (labour utilization, labour costs, capital costs, capital turnover, control of labour, product quality and what not) it seems to be that we are confronted with two problems: a) the explanation on efficiency considerations becomes over-determined (we have more explanatory variables than we really need) and b) how should we relate the different explanatory variables to each other?

3. Thirdly, an early empirical work on the factory system in England by Hsien-Ting Fang, “The triumph of the factory system in England” (1930, reprint Porcupine Press Philadelphia 1978), has canvassed an enormous material mainly pertaining to the 1840’s.

Fang divides manufacturing industry into Factory System (FS), Merchant Employment System (MES, equivalent to Putting-Out System) and Craftsman System (CS). I have tried to systematize his findings on a separate sheet (see below). He also makes a number of different interesting points, for example:

1) In cotton factories profitability was more influenced by capital/output ratios than by profit shares, i.e. while profit shares did not vary much, capital/output ratios did. 2) Hand-loom factories actually increased in numbers around 1840. 3) Centralization + supervision in hand-loom manufacturing could increase the productivity of labour by 100–300 per cent. 4) The causes of the late mechanization in the woollen industries were: a) the resistance of the weavers, b) rapid changes in demand and in fashion, c) the necessity of
having loosely spun yarn in fulling, and d) the acceptance of wage cutting on the part of the weavers. 5) Hand-loom factories in woollen manufacture were concentrated to the West Countries (especially Gloustershire), where the merchant employer system was strongly entrenched, in contradistinction to Yorkshire, were the craftsman system was strong. The craftsmen in Yorkshire responded to the advent of factories by founding cooperative joint-stock mills. 6) Embezzlement is always the other side of the system of short wages and was frequent in the West Counties but not in Yorkshire. That is, the weaker the position of the workers, the more frequent was embezzlement. This was a powerful incentive for manufacturers to centralize labour, since this made it possible for them to control the labour share! It was precisely because of this that piece rate wages were practiced in the merchant employer system. Possibly, piece rates in factories were a complement (working on incentives) to direct control. 7) In iron and some other heavy industries the factory system is conditioned by the scale of minimum investments and technological considerations. 8) In consumer goods industries factory production presupposes standardization of products making large-scale production possible. This is just a sample of interesting observations in Fang’s book, which of course is not theoretical at all.
The State of the Factory System in England around 1840

Covering 50 per cent of manufacturing. Source: Fang (1930)
By-employment not accounted for.
Factory System (FS), Merchant Employer System (MES) and Craftsman System (CS)

I. FACTORY EMPLOYMENT OF PRIMARY IMPORTANCE

<table>
<thead>
<tr>
<th>Industries</th>
<th>Total Employment</th>
<th>Factory Employment</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton, Flax, Hemp, Silk, Worsted, Woollen, Paper, Pottery, Glass, Iron, Engine &amp; Machines, Buttons, pins, screw etc.</td>
<td>Ca. 610 000</td>
<td>Ca. 432 000</td>
<td>70%</td>
</tr>
</tbody>
</table>

II. FACTORY EMPLOYMENT SECONDARY IN IMPORTANCE

<table>
<thead>
<tr>
<th>Industries</th>
<th>Total Employment</th>
<th>Factory Employment</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutlery, Anchor &amp; Chain, Ribbon, Hosiery, Hat, Glove</td>
<td>Ca. 100 000</td>
<td>Ca. 10 000</td>
<td>10%</td>
</tr>
</tbody>
</table>

III. FACTORY EMPLOYMENT OF TERTIARY IMPORTANCE

<table>
<thead>
<tr>
<th>Industries</th>
<th>Total Employment</th>
<th>Factory Employment</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clock &amp; Watch, Gun, Wearing apparel, Lace, Lock &amp; Key, Straw Plate</td>
<td>Ca. 275 000</td>
<td>Ca. 15 000</td>
<td>5%</td>
</tr>
</tbody>
</table>

TOTALS | Ca. 985 000 | Ca. 457 000 | 45% |

Comment: 1) In Group I, the MES is in most cases the second most important form of organization in all textiles except woollens, while the CS is next in importance in pottery, glass, engines & machines and button etc. 2) In Group II, where factories are second in importance, there is no CS except in cutlery, i.e. the MES dominates all branches, from cutlery to glove. 3) In Group III, where factories are less developed, the CS seems to dominate. The MES is the most important form of organization in clock & watch and in guns (with the craftsman system second), while the craftsman system (partly family craftsman system) dominates in wearing apparel, lace, lock & key and straw plate.

Thus there seems to be some structure in the evolution: 1) The factory system develops on the basis of putting-out systems, while factories arrive latest where the craftsman system still exists. 2) Further, factories are more developed the more mass markets in standardized products (mass demand) develop, while craftsman production mainly caters for local or non-mass demand. 3) Lastly, it is evident, if we like Fang define factories mainly by concentration of employment, that also “heavy industries” are characterized by the early arrival of factories.
Appendix 3: Why were wages lower in domestic industries than in factories?

It is generally assumed that the wage rates of factory labour were higher than in domestic industries during the industrial revolution, at least from the late 18th century (for evidence, see above). I am aware of the fact that this proposition is debatable on various grounds: difficulties of defining wages, lack of sufficient evidence etc.

From the point of view of neoclassical economics the proposition should perhaps be unproblematic: wage rates were higher in factories simply because the (marginal) productivity of labour was higher. The marginal and average productivity of labour were probably higher in factories than in domestic industries. But wage rates are also influenced by supply conditions.

Now, labour was difficult to recruit—in spite of the higher wage rates—and this should also have contributed to the higher wage rates. But this also indicates that the efficiency wage rates in factory employment, even if they were higher than in domestic industries, were not high enough after all to compensate for more intensive labour, for worse labour conditions and for the authoritarian discipline of factory labour. At least, the difference in wage rates, according to this view, is formal rather than real. Others think that the important aspect of factory wages, from the point of view of the employees, was not wage rates but family income. Since factory labour did not always imply the employment of whole families in factories, factory wage rates had to be higher than wage rates in domestic industries and, still, factory family income may have been lower than in domestic industries.6

From the point of view of traditional Marxian political economy, the proposition that wage rates in the factory were higher than in domestic industries presents a problem. This is because of the following circumstance. The existence of some means of existence (property) besides industrial labour (side-line activities, plots, gardens, commons, cattle etc.) should have made the supply of labour of domestic industrialists rather inelastic compared to factory labourers, who more or less were pure proletarians. Thus, from the point of view of supply conditions the wage rates of factory labour should have been lower than in domestic industries. But they were not.

6 On the other hand, some observers believe that factory labour, in spite of lower wage rates, offered more regular employment than domestic of industries and, thus, higher wage incomes. Bill Lazonick emphasizes that the higher productivity of factory labour in combination with more intensive labour (increased labour effort) made possible higher wage income (and larger profits, too), (in spite of the fact that wage rates were lowered?).
Here I will submit the assertion that the lower wage rates in domestic industries might partially be explained by the fact that labour in domestic industries was an intermittently free good. The fact that labour is an intermittently free good in primary production (agriculture etc.), where labour during the year is utilized mainly during spring, summer and autumn, as in Western Europe, was pointed out long ago by Eli F. Heckscher, the Swedish economic historian. In Sweden, at least, winter time was the period of “winter sleep”. In the absence of complementary productive activities like wood-cutting, hunting etc. labour had no economic value.

Probably, this fact (guild control in the cities is another) may explain why domestic industries arose as side-line activities in the countryside. But it also made very low wage rates possible in domestic industries, especially where primary production gave insufficient subsistence. If we to begin with assume that producers of all sorts were satisfiers, i.e. that they wanted to attain a certain level of real income, e.g. traditional subsistence, only those primary producers who were too poor to reach that level were candidates for domestic industries (assuming that rich primary producers did not choose to specialize in domestic industries because their labour was more productive there). If we assume that producers of all sorts were maximisers of real income, also those primary producers who in fact gained their subsistence would have been interested in supplementing this income by devoting some part of their free labour to domestic industries, up to the point where the additional utility of additional real income balanced the additional disutility of effort and reduced leisure.

In any case the result would have been that primary producers, thanks to the fact that their labour was an intermittently free good, were prepared to supply labour during the periods when their labour was a free good to wage rates that were inferior to the wage rates of those workers who were forced to make a living only on industrial labour. As suggested above the propensity to accept very low wage rates must have been especially strong for poor primary producers unable to earn minimum subsistence. For them leisure was of zero value and any additional real income from additional labour should have been a net addition to utility. The more well-off the primary producers were, the higher was the value they put on leisure and the higher the wage rates in domestic industry had to be to induce an increased labour supply.

If this conception is true, several consequences follow. In the first place, domestic industries as side-line activities in primary production would not be found in primary production, which is more or less continuous during the year, granted that domestic industries are not a result of comparative advantage. Secondly, we should expect a rough correlation between on the one hand the length of the periods of “winter sleep” in primary production and the extension of domestic industrial pursuits (once again granted that the existence of domestic industries is not conditioned by comparative advantage). Thirdly, wage rates in domestic industries should, ceteris paribus, roughly vary with the conditions of existence of primary producers, i.e. the poorer they were, the
lower wage rates they would accept and vice versa. A corollary of the last two propositions is that domestic industries should be most extensive the longer the periods of “winter sleep” and the poorer the primary producers (demand condition aside).

Perhaps this mechanism may also cast light on the problem of sweating industries during the 19th century, i.e. the fact that certain branches of domestic industry could survive in spite of paying very low wages and offering very bad conditions of work. Without possessing special knowledge about sweating industries in general, I have the impression that one of its condition of existence might have been the existence of labour, e.g. married women partially “employed” in households, who accepted out-work in sweating industries because it signified additional income to the households of poor male labourers and who were thus prepared to work for very low rates. Also in this case labour was, in a sense, an intermittently free good, if household chores and child care—given the prevailing gender system—intermittently tied women to the households. Maybe this also explains why domestic industries could survive so long, side by side with factories.

Lastly, one may ask how and why this mechanism stopped operating on a general scale and in an historical perspective. We have seen that domestic industries were given basic conditions of existence as long as primary producers could not earn a sufficient income in primary production and other sources of rewarding employment did not exist aside from domestic industries. With the growth and development of the factory system, based on continuously rising productivity and the growing strength of organized labour, real wages in factory production more and more left domestic industries behind. Further, the on-going industrialization increased the social division of labour and multiplied employment opportunities outside primary production. Even primary production itself underwent a process of industrialization. Thereby the conditions of existence of low wage domestic industries eroded.

P.S. The discussion above has, of course, several limitations. In the first place, it does not refer to domestic industries, wherein the producers were mainly occupied by industrial production and had primary production as a sideline activity, although even those categories would have been prepared to accept low wage rates in view of the existence of supplementary income from the sidelines. Secondly, wage rates may have been lower in domestic industries because labour skills usually were lower. Thirdly and most important, the concept of wage rate should be defined more precisely (per unit of output or per unit of time unit?) As suggested above, the distinction between wages as rates and as income is also important—the former being crucial for employers’ output decisions and the second crucial for workers’ employment decisions. While “wages” may have been higher in factories, “wage rates” may have been lower!
Appendix 4: Notes on Marx and the transition to the factory system

In his paper on “Theory and History in Marx’s Economics” (published in Alexander J. Field, The future of economic history (1987)) William Lazonick contrasts Marx’s construction of the transition to the factory system with some very important empirical facts from British historical industrial reality. Lazonick has certainly a very good point in emphasizing that Marx, firstly, overestimated the importance of manufactures and underestimated the importance of domestic industries as precursors of the factory system. Likewise, that Marx probably put a too strong emphasis on technological change in the same transition. There are, however, two major points to be elucidated somewhat more than was possible in a short article like Lazonick’s. In the first place, I think, Marx put such a strong emphasis on technical change because this was qualitatively new in the late 18th and the early 19th centuries compared to what existed before. It is a fact that Watt’s second edition of the new steam-engine was of revolutionary importance with its separate condenser, its double-acting working and its rotary motion. Thereby was born that universal prime-mover of machinery which made the generalization of the factory principle a technical and economic possibility. The steam engine was a symbolic representation of a very general phenomenon. There was a qualitative new stage in technological development occurring at this time in very many fields and in many countries and this new qualitative stage should by no means be underestimated. A reading of Marx’s manuscripts from 1861–63 (written between Grundrisse and Capital, I) makes it clear that Marx had studied 18th and 19th technological history very carefully (as also Nathan Rosenberg noted on the basis only of Capital, I). Secondly I am not wholly convinced that Marx did not understand that the traditional manufactures were not the real point of departure for the factory system. After all he explicitly states that the manufactures furnished a too slim basis for the factory system. So why were the manufactures important? Because the division of labour and the concentration of labour-power in the manufactures from an analytical point of view were a precondition for the factory system. This way of looking at development problems is perhaps conditioned by Marx’s theory of science. He insisted on analysing history from both an abstract—logical—and a concrete—historical—point of view. The logical and the historical aspects are both necessary for a full understanding of change and development. The historical aspect shows us history in all its complexity, bifurcations and
twisted turns, while the logical aspect abstracts from all this and shows us the basic mechanics and stages of change. Since manufactures possessed two characteristics of the later factory system in undeveloped form (division of labour and concentration of workers) manufactures were logical and thus in a sense historical development forms preceding and conditioning the factories. Furthermore, even if manufacturers usually were not the empirical point of departure for factories in England they frequently were in continental and northern Europe.

II

Before I started to read Lazonick’s paper, I re-read Marx myself (Capital, I), in addition to his manuscripts from 1861–1863 (Zur Kritik der politischen Oekonomie (Manuskript 1861–63). Gesamtausgabe II:3.1 and II:3.6 (Berlin 1976 and 1982, respectively when they were published for the first time). These manuscripts contain Theories of Surplus Value (previously published), but the two volumes I refer to sandwich the Theories (to Marx the Theories were a parenthesis in his works on the next last version of Capital.) They are interesting reading because in them we may follow Marx’s way of researching in contradistinction to his way of presentation. In the following I will first summarize the analytical back-bone of what Marx has to say on the transition mechanisms (often implicit) in Capital I, since there are some subtle notions there which Lazonick probably had no space to deal with. After this I will add some material from the manuscripts. The aim is to try to reconstruct the logic of Marx’s reasoning.

Production of relative surplus value the essence of the factory system

Before Marx starts with the chapter on Cooperation (chapter 13) in Capital, I, he has elucidated the concept of relative surplus value in the preceding chapter and the entire part IV on machinery and the factory system has as its heading “Production of relative surplus value”. Relative surplus value—this is what modern capitalism is about according to Marx. Why? Because modern capitalism implies and effects that continuous rise of productivity that the factory system, built on machine technology, brought forth. The factory system with its machinery, according to Marx, also increased absolute surplus value, generally by condensing earlier amorphous labour time and specifically, for a period, by extending the working day. But the essence was a qualitatively new emphasis on the production of relative surplus value because of a new stage of technology.

In chapter 13 on Cooperation Marx stresses the following points. 1) Since concentration of labour-power is the starting point of capitalist production one should start by analysing cooperation. Concentration of labour-power implies to begin with an evening out of product quality and also effecting economies
of constant capital. Per se this cheapens commodities and thus lowers the value of labour power but it also raises the profit rate. 2) Concentration of labour power implies also cooperation, which raises the productivity of labour by the same mechanisms which make it possible for, e.g., three persons together to perform what they cannot perform individually (Umschlag von Quantität zur Qualität) but also because of “the animal spirits” that increase the efficiency of labour. I think anybody who has worked in a factory can confirm the correctness of this observation. When several people work together they stimulate each other to performances which they do not make individually and this irrespective of other circumstances. (By the way, the same mechanism operates in a working group of intellectuals, e.g. in a seminar. If it were not for this, intellectuals would never consider working together!) Concretely Marx refers to three factors operating in this: a) a lowered time of transportation when moving objects, b) an improved perception of what is going on and c) an allocation of tasks according to capabilities. Concentration of labour, thus, implies cooperation and is, at least, a necessary condition of cooperation. (As Lazonick points out, Marx later perceived that cooperation is possible without concentration of labour—as e.g. in putting-out industries or in other forms of organization. But we may agree that far-reaching cooperation in operations tied to a specific place, e.g. with a stationary steam-engine, necessitates concentration of labour. This before the advent of the communication industries!) 3) From these observations Marx goes on and inquires about the effects of cooperation. These are: a) any single capitalist must mobilize a larger minimum sum of capital for variable as well as for constant capital, ceteris paribus; b) the concentration and cooperation of labour further makes supervision necessary. Some supervision (monitoring) would be necessary in collective work irrespective of the prevailing relations of production, e.g. by mutual supervision against shirking (before men have become angels). But the antagonistic capital-labour relationship reinforces this necessity. Thus it is cooperation that leads to supervision, not the other way round. (That is: given the factory. If we start from decentralized domestic workers, capitalists may want to improve supervision by centralizing workers, independently of gains from cooperation). The role of the capitalist relations of production is that they increase the necessity of supervision (capital aiming at pumping out maximum surplus value from the labour power). In this respect, Marx carefully observes that the resistance (and possibilities of resistance) of labour increases with an increasing number of cooperating labourers, and the more this number increases, the more the counter-pressure of capital increases.

Division of labour and manufacture

In the following chapter 14 on the division of labour and manufacture Marx makes the two points about the origins of manufacture, which Lazonick describes so neatly in his paper (via vertical and horizontal integration, re-
The Transition from Domestic Industries to Factories

spectively.) Here—in the manufacture—cooperation based on the division of labour assumes its first, simple form. After having explained the two-fold origins of the manufacture Marx goes on in the next section (2) to investigate the effects of cooperation on labour productivity in the process of labour in the manufacture. They are a) saving on time, b) perfection of methods (given effect with a minimum of exertion), c) saving on time because of less movements of the workman’s tools. The ensuing increased productivity of labour is conditioned either by an increased intensity of labour or a decreased amount of time unproductively consumed. But, careful as always, Marx notes that this specialization also “disturbs the intensity and flow of man’s animal spirits” which works in the contrary direction.

After these preliminary observations Marx goes into the really interesting things—interesting for the logical connection between manufacture and factory because the increased productivity of the labour in the manufacture not only depends upon the increased efficiency of the labourer per se but also on “the perfection of his tools”. The characteristic feature of the manufacture in this respect is the differentiation of the instruments of labour. Through this specialization of tools, the productivity of the labourer is increased. But more important: the differentiation of knives, drills, hammers etc. (Marx mentions the 500 varieties of hammers produced in Birmingham) into very specialized and simple tools paves the way for the introduction of machinery. Each specialized implement is adapted to a particular process but several together are also used for different operations in one and the same process. “The manufacturing period simplifies, improves and multiplies the implements of labour, by adapting them to the exclusively special functions of each detail labourer. It thus creates at the same time one of the material conditions for the existence of machinery, which consists of a combination of simple instruments.” This is a crucial step and a condition for the transformation to machinery. At this point one may make the following comment: Even if the manufacture as a business organization is not to be regarded as the general historical predecessor of the factory, it is clear that the technology and implements utilized and developed in manufactures historically were points of departure for the technological development from the late 18th century (or one of them). The numerous technicians, artisans, mechanics and inventors of the late 18th century did not fall down from heaven but made their contributions on the basis of the preceding era (Maxine Berg, The Age of Manufactures (1985), p. 235; A.P. Wadsworth – J. de Lacy Mann, The Cotton Trade and Industrial Lancashire (1931), chapter 5.)

After having isolated “the detail labourer” and his implements as “the simplest elements of manufacture” Marx makes a characterization of manufacture as a whole. 1. To begin with he distinguishes “two fundamental forms of manufacture”, often mixed in practice but necessary to distinguish with regard to the origins of machinery: a) Heterogeneous manufacture characterized by processes that fit together independently made components (like parts for
watches put together in a watch manufacture) and b) Serial manufacture like needle manufacture which transforms wires in a continuous process handled by 70–90 different detail labourers. Marx notes (and Sombart emphasized this point still more) that heterogeneous manufacture is rare, since the splitting up of work in a number of heterogeneous processes (30–40 in e.g. watchmaking) permits little use of common instruments of labour and the work thus may very well be performed as domestic or artisan industry. Serial manufacture—like in needle, paper or glass manufacture—is more important. Its economic rationale is that it saves constant capital (reduces the multiplication of small premises) and shortens the time of transport for through-puts by a considerable extent, although not as much as in the future mechanical factory, where through-puts incessantly flow from station to station.

In a sense the manufacture is a kind of factory without machines, the collective labour and its parts making up the inter-connected living machines. Compared to the isolated artisan or the domestic worker there has arisen a certain interdependence in the direct labour process and this fact compels each detail worker “to spend on his work no more than the necessary time and thus a continuity, uniformity, regularity, order and even intensity of labour of quite a different kind”. (The manufacture also introduces what 20th century economists like Jansen and Schneider called “the law of harmony”. This law fixes certain technical relations between sets of machines in a work-shop and this necessitates a discontinuous (non-marginal) extension of scale when the scale of production must be extended).

After having noted that manufactures sometimes develop into combinations of various manufactures through backward or forward vertical integration (as when, in glass manufacture, the manufacture of earthenware melting-pots is integrated backward and the manufacture of glass-cutting or brass-founding is integrated forward), Marx sums up his characterization of the manufacture as follows: “The collective labourer, formed by the combination of a number of detail labourers, is the machinery specially characteristic of the manufacturing period.”

One consequence of the manufacture is, lastly, the emergence of “a class of so-called unskilled labourers”, since any manufacturing process requires “certain simple manipulations, which every man is capable in doing” resulting in a fall in the value of labour-power—mainly as a consequence of the disappearance or the diminution of the expenses of apprenticeship—and thus an increase of surplus value.

In this analysis Marx has considered a) the origin of the manufacture, b) its simple elements, c) the detail labourer and his implements and d) the totality of the mechanism. Now he proceeds to link up the analysis of the micro-organism, i.e. the division of labour in the manufacture, with the division of labour in society, “which forms the foundation of all production of commodities”. In this section he points out that the division of labour in society develops on the one hand from within and on the other hand from without (contacts between
The Transition from Domestic Industries to Factories

regions, nations etc.) and he explores the importance of the division between branches of production, between town and county, population aggregations etc. Two things are emphasized: a) the degree of division of labour in any micro-unit is conditioned by the degree of division of labour in society as a whole and vice versa; b) the Colonial system and the emergence of the world market also develop the division of labour in society.

After having once again re-iterated that “division of labour in the workshop, as practised by the manufacture, is a special creation of the capitalist mode of production alone”, Marx in the concluding section of the chapter on the division of labour and manufacture—“the capitalist character of manufacture”—once more emphasizes that “an increased number of labourers under the control of one capitalist is the natural starting point, as well of co-operation generally, as of manufacture in particular”. He states that “the collective working mechanism is a form of existence of capital” in so far as the splitting-up of interconnected labour processes has been transformed to an appendage of capital converting the labourer “into a crippled monstrosity”. This has occurred through the “decomposition of handicrafts, by specialisation of the instruments of labour, by the formation of detail labourers and by grouping and combining the latter into a single mechanism” and in its specific capitalist form “manufacture is but a particular method of begetting relative surplus value”.

Still—and this is important—Marx clearly realizes the very limited importance of the manufactures as the concrete point of departure for the factory system and he devotes two pages to explain this: a) the number of unskilled labourers remained “very limited”, b) the attempt to assign women and children to specific tasks “as a whole is wrecked on the resistance of the male labourers”, c) the de-skilling of labour is met by the efforts of workers to uphold rules of apprenticeship, d) the workers refuse to be disciplined, e) capital failed to become the master of the whole disposable working-time of the manufacturing labourers, f) manufactures were short-lived and changed their locality all the time. So Marx concluded:

At the same time manufacture was unable, either to seize upon the production of society to its full extent, or to revolutionise that production to its very core. It towered up as an economical work or art, on the broad foundation of the town handicrafts, and of the rural domestic industries. At a given stage in its development, the narrow technical basis on which manufacture rested came into conflict with requirements of production that were created by manufacture itself.

These are very strong words and Marx seems to be aware of the fact that the manufactures cannot be constructed as some general development stage before the factories. What, then, is the link between manufactures and factories justifying this exhaustive treatment of manufactures? One thing is clear: Marx
ends the chapter (and the whole of part III of Capital, I) by pointing out: The manufactures created

the workshop for the production of the instruments of labour themselves, including especially the complicated mechanical apparatus then already employed... This workshop, the product of the division of labour in manufacture, produced in its turn—machines. It is they that sweep away the handicraftsman’s work as the regulating principle of social production and this cuts loose, on the one hand, the workmen from a detail function, and, on the other hand, the technical fetter for the domination of capital.

Thus, it seems that according to Marx there was a factual link between manufactures and factories in so far as the manufacture, first, by developing very simplified implements (tools), laid a technical basis for the development of the tools of the machines in the factories. Secondly, in so far as these implements were a product of the division of labour in the manufactures there is also an indirect link between manufactories and factories. But how to explain the other aspects of manufactories emphasized by Marx: That they were the starting point of capitalist factories in so far as they a) concentrated workers, b) condensed and intensified labour, c) cheapened constant capital (scale effects), d) introduced cooperation of labour in a systematic way, e) developed the division of labour inside manufactories, f) created a collective and interdependent labour mechanism akin to that in the future factories, although the “machines” in the factories were the labourers themselves and g) started the process of the final subordination of labour to capital? How could these elements of the manufacturers be transferred to the factories, although the manufactories, as Marx himself emphasized, usually were not transformed into factories? At this point we have to refer to Marx’s conception of history as a process combining concrete (the historical) and abstract (logical) aspects. Even if the concrete links between manufactures and factories are weak and manufactures mainly represented a dead end in industrial development, manufactures did acquire several characteristics that later emerged in the factory system. The characteristics of manufactures pointed out by Marx (a-g above) existed in fact in manufactures as well as in factories and manufactures preceded factories. The difference was that manufactures mainly produced luxuries while factories arose and developed by adapting to the mass markets associated with domestic industries. Thus there was a connection between manufactures and factories, in some but not in all aspects.

But what then becomes of the transition from domestic industries to factories? The first thing to note here is that Marx was aware of the fact that factories rose on the foundations of domestic industries. He writes in the manuscripts mentioned above (II:3.1, p. 245f.) that the domestic industries (häuslichländische Nebenarbeit) “lack the absolute subsumtion of the worker under a wholly one-sided and simple operation. This is not his exclusive work. But then the main condition is missing. These workers work with their own
means of production. This very mode of production is in fact not capitalist, but the capitalist only steps in as a middle-man, as a merchant between these independent workers and the ultimate buyer of the commodities. This form, wherein capital has not yet taken hold of production (sich noch nicht der Produktion selbst bemächtigt hat), always constitutes the transition from agrarian side-line production (ländlichen Nebenindustrien) to the capitalist mode of production. The capitalist appears here for the worker, who is an owner of commodities, a producer and a seller, as buyer of the commodities (als Käufer der Waaren), not of labour. The fundamental condition of capitalist production is as yet lacking. (Es fehlt also noch die Grundlage der capitalistischen Production.)

Where that division of labour in the form of independent branches of production exists (as in the example of Blanqui) there are a lot of time-consuming unproductive mediating processes, which are conditioned by the fact that the commodities in their consecutive stages exist as independent commodities and their connection in the total production is mediated by the exchange of commodities, by buying and selling. The cooperative labour (das Füreinander Arbeiten) in the different branches is conditioned by various chance occurrences, stoppings (Zufälligkeiten, Unregelmässigkeiten) etc. Only the forced connection in the workshop produces the simultaneousness, evenness and proportionality (Gleichzeitigkeit, Gleichmässigkeit and Proportionalität) in the mechanism of these various operations and connects them as a whole to a proportionate (gleichförmig) working mechanism.

Machinery and modern industry

Marx had finished his treatment in Capital, I. of the manufacture by stating that the detailed implement created by the specialization of tools in the manufactories became the point of departure for the machines of the factories. While the revolution of the mode of production in the manufacture started with the labour-power, the corresponding revolution of the mode of production in the factories started with the instruments of labour, which in the factories became converted from tools to machines.

Marx starts his analysis by defining “a fully developed machinery as consisting of three essential parts, the motor mechanism, the transmitting mechanism and finally the tool or the working machine.” The main point here is that “the tool or the working machine is that part of the machinery with which the industrial revolution of the 18th century starts... Either the entire machine is only a more or less altered mechanical edition of the old handcraft tool, as for instance, the power-loom; or the working parts fitted in the frame of the machine are old acquaintances, as spindles are in a mule, needles in a stocking-loom, saws in a sawing-machine, and knives in a chopping-machine.” The main point is: “From the moment that the tool proper is taken from man, and fitted into a mechanism, a machine takes the place of a mere implement.”
The test of this assertion is, according to Marx, the fact that long before the advent of the factories and even the manufactures the motor mechanism (the motive power) is transformed into machines of pumping or pounding “without creating any revolution of the mode of production”. Not even the steam-engine per se had such consequences. “The steam-engine itself, such as it was at its invention during the manufacturing period at the close of the 17th century and such as it continued to be down to 1780 (Marx refers to Watt’s first so-called simple acting engine incapable of rotation), did not give rise to any industrial revolution. It was, on the contrary, the invention of machines that made a revolution in the form of steam-engines necessary.” Our interpretation of this last assertion must hence be that technological development according to Marx is primarily endogenous to the technical economic processes: steam-engines being perfected and applied only when the need for them—dictated by the mass application of working-machines—emerges. “Increases in the size of the machine, and in the number of its working tools, call for a more massive mechanism to drive it; and this mechanism requires, in order to overcome its resistance, a mightier moving power than that of man, apart from the fact that man is a very imperfect instrument for producing uniform continuous motion.”

Horse-power was the most unreliable motive power, costly and of restricted applicability in factories; wind was too inconstant and uncontrollable and the attempts to increase its effects resulted in problems with the gearing (in its turn stimulating research into the laws of friction). The problems connected with the repetitive movements of a lever (pushing and pulling) led to the application of the fly-wheel. Thus Arkwright’s throstlespinning mill was originally turned by water. But the limitations of water power were, first, that it could not be increased at will, secondly that it failed at certain seasons of the year and, thirdly and most important, it was essentially local (only overcome with the future turbines). Now enters Watt’s double-acting steam-engine:

Not till the invention of Watt’s second and so-called double-acting steam-engine, was a prime mover found, that begot its own force by the consumption of coal and water; whose power was entirely under man’s control; that was mobile and a means of locomotion; that was urban and not, like the water-wheel, rural; that permitted production to be concentrated in towns instead of, like the water-wheels, being scattered up and down the country (the steam-engine is the parent of the manufacturing towns); that was of universal technical application, and, relatively speaking, little affected in its choice of residence by local circumstances. The greatness of Watt’s genius showed itself in the specification of the patent that he took out in April, 1784. In that the specification of his steam-engine is described, not as an invention for a specific purpose, but as an agent universally applicable in Mechanical industry… One motive mechanism was now able to drive many machines at once. The motive mechanism grows with the number of the machines that are turned simultaneously, and the transmitting mechanism becomes a wide-spreading apparatus.
In the following Marx discusses different aspects of machinery, such as the emergence of an automatic system of machinery as, e.g. (in textile industries) the apparatus that stops a drawing frame, whenever a silver breaks; or the self-acting device, which stops the power-loom as soon as the shuttle bobbin is emptied of web.

He stresses that this development of machines undermines the power of skilled labour as well as the detailed workmen in manufactures; that radical changes in one sphere of industry creates pressures on other spheres, as when spinning by machines made weaving by machines a necessity and both together conditioned the mechanical and chemical revolution that took place in bleaching, printing and dyeing, or mechanized cotton-spinning creating the gin for separating the seeds from the cotton fibre etc.

On a still more general level, mechanized industry calls forth the revolution in the means of communication and transport (railways, ocean steamers, telegraphs). The crowning achievement of all this was when man was able to let machines produce machines by means of mechanical lathes, planing machines, iron cutting and shearing machines.

But however important technical change and machinery are for the advent of the factory system, creating new conditions for the operation of economic and social forces and directing these in specific directions, while cutting off other possible directions, Marx is no adherer of a technological interpretation of the transition. The essence of the new factory system is the new economic and social relations arising and growing upon the new technological basis. Thereby, he first observes that machinery enhances the productive power of labour in various ways. Machinery like other physical conditions of production are appropriated costless by capital and he specifically notes: a) that machinery, while always entering as a whole into the labour-process, enters into the value-begetting process only by bits; b) that “in the product of machinery, the value due to the instruments of labour increases relatively but decreases absolutely, its absolute amount decreases but its amount relatively to the total value of the product increases” and c) “that the productiveness of a machine is measured by the human labour-power it replaces”.

Of special importance in understanding the victory of the machine-operated factory are the effects of machinery on the workmen. These are: a) employment of labour without specific muscular power like children and women, i.e. making the employment of cheaper labour power possible; b) depreciating the value of labour-power because machinery “by throwing every member of the family on to the labour-market spreads the value of the man’s labour-power over his whole family”; c) thereby changing the contract between capitalist and worker transforming the worker to “a slave dealer” morally degrading the whole working-class; d) prolonging the working-day because machinery is a perpetuum mobile; e) increasing relative surplus value by i) depreciating the value of labour power, ii) cheapening the commodities entering into the reproduction of labour-power and iii) creating extra surplus value for the
capitalists first introducing machinery and thereby making it possible for them
to reap the difference between the value of commodities determined by the
socially necessary labour-time of the existing technology and the value of
commodities produced by superior technology; f) lengthening the working-
day because of the contradiction created by the fact that an increased relative
surplus value per worker in consequence of the introduction of machines is
off-set by a decreasing number of workers, forcing the capitalist to pump
out more labour of the remaining workers; g) creating a surplus working
population; and h) intensifying labour after the introduction of the compulsory
shortening of the hours of labour by i) making labour time less porous than
before, ii) by increasing the speed of the machines and iii) giving the workmen
more machinery to tend.

Some points in the manuscripts of 1861–1863
Much of the material contained in the 1861/63 manuscripts returns in Capital
in transformed or unchanged form. Sometimes, however, Marx is more spe-
cific and precise in the manuscripts than in Capital. For example he defines
here the division of labour as “a particular, specified, further developed form
of cooperation” and while in “simple cooperation many making the same
kind of labour are working together, in the division of labour many workers
work together under the command of capital producing separate parts of the
same commodity, whereby every specific part gives rise to a specific labour,
a specific operation in the production of one commodity, which represents the
totality of these specific moments of labour”.

In his further discussion of the division of labour he explains the concen-
tration of labour under the command of a capitalist partly by a) the fact that
surplus value is determined not only by its rate but also by the absolute num-
ber of workers, and partly by b) a wish to effect economies of economizing on
constant capital (Oekonomie der Arbeitsbedingungen). It is on this basis that
the element of force is introduced, granted the rule of capital: “Die Arbeiter
werden (become) der Disciplin des Kapitals unterworfen.”

Discussing the rationale of the introduction of machinery Marx holds that
the general aim (Zweck) of machinery is to decrease necessary labour and
increase surplus labour. Here he also stresses that the direct lowering of wages
in connection with the introduction of machinery only applies to “singular cas-
es” (einzelne Fälle), the employment of women and children being a special
case. The wage may very well be increased; still the operation pays because of
the lowering of the necessary labour time. (All this from II:3.1.)

Discussing machinery in II:3.6 he holds that the main effects of machin-
ery are: 1) an increase of the absolute working time in factories, because of
the contradictory effects of labour-saving (increased rate of surplus value and
decreased number of workers), 2) the substitution of working tools for ma-
chinery, 3) conglomeration of workers, 4) condensation of labour.
Appendix 5: Three reviews

In the following pages I will review three very different books related to the problem of the transition from domestic industries to factories.

I

The first one is really a minor classic, P. Gaskell, “The manufacturing population of England” (1833, reprint Arno Press, New York 1972). I first met his name when reading Engels’ Condition. Ure does not like Gaskell at all and I must admit that his repeated moralistic strictures, mainly aimed at the sexual habits of the new manufacturing population, are somewhat tiresome to read. But in the introduction to the book he sketches an analytical history of the rise of cotton industries in England, which is rather interesting. Below I will try to summarize his arguments:

1. It all starts with the increasing demand for cloth at the middle of the eighteenth century leading to mechanization of spinning. Before this “one half of the weaver’s time had generally to be spent in waiting for work” (p. 34).

2. When weaving could expand thanks to the increased supply of yarn “one of the first effects... was the gradual abandonment of farming as an accessory which had been very common with the more respectable portion of weavers. His labour, when employed on his loom, was more profitable, and more immediate in its return, than when devoted to agricultural pursuits.” (p. 35). This indicates that the value productivity as well as real incomes of the domestic textile industry was higher than in agriculture and caused a shift of labour power from agriculture to industry.

3. As long as productivity in agriculture did not increase pari passu with the drain of labour, the ex-farming weavers had to be replaced by other people specializing in agriculture. “This necessarily led to the introduction of a new order of farm tenants, men who exclusively devoted themselves to the cultivation of the soil...and who in nine cases out of ten were mere holders at will.”

4. But also the status of weavers declined in spite of an increased standard of comfort, because they no longer held or possessed land.

5. Traditionally there had existed two categories of weavers. On the one hand, the above mentioned land-holding weavers, and, on the other hand, the landless weavers, “who had all along depended upon” the demand for cloth. The increase in demand for cloth brought these two categories of weavers closer to each other, since the land-holding weavers severed the connection
to the land, while the poorer proletarian weavers shared in the increased real income of the whole weaver population. Both became proletarians; the poorer ones were this before but become better paid, while the ex-land-possessing weavers were transformed to proletarians because it paid.

6. The winner of this transformation was the poor weaver. And in this connection Gaskell makes some observation on the privations of this class under the old system when demand was irregular:

The second, or inferior class of artisans, had at all times been great sufferers from the impossibility of supplying themselves with materials for their labour. Considerable vacations were frequently occurring in this respect, and at these periods they underwent very severe privations. This irregularity had produced its usual effects upon their industrial character rendering them improvident, devoid of forethought, and careless in their expenditure. Not being able to calculate, had they been so disposed, upon the certainty that their exertions would be invariably called for, they became indifferent, enjoyed the good whilst it lasted, and starved through the interval as they best might be. It is an indisputable fact, that irregularity in the demand for labour, from whatever cause it may arise, by occasionally throwing the workmen out of employ, and generating idle habits, is one of the most disorganizing and degrading influences which can be brought to bear upon their character. (p. 37.)

Granted that Gaskell does not only echo common prejudices, this observation is really interesting, since he deduces the behaviour of poor domestic producers as to labour and leisure from the conditions of production. Since demand was so irregular, it was impossible to form rational expectations (sic!) concerning the future. The only rational behaviour was to live and work from day to day in a fatalistic way.

Gaskell continues:

The class of poor weavers were thus instantaneously elevated very considerably in world consideration. They were freed from one great cause of depression, which had hitherto prevented all improvement. They now took their stand upon the same ground with the weaver, who had hitherto been a great farmer, and who had come down one degree on the social scale, in consequence of his giving up his land for the purpose of devoting himself to the more profitable business of weaving. (This amalgamation of the two divisions...gave them a community of interests and feelings which bound them together.)

7. And now Gaskell reiterates his main point, that the increased level of comfort essentially was an effect of more continuous employment over the year:

A very material improvement, therefore, had been gradually operating in both classes of weavers, during the half century immediately preceding the application of steam power. This improvement had not arisen so much from any increase in the rate of payment for labour [although we in fact know that the rate of wages increased faster in the industrial north during the second half
8. As to spinners—“the aristocracy of manufacturers”—their condition “was undergoing changes still greater and more rapid than that of the weavers” (p. 40):
   a) originally weaving and spinning were performed in the families possessing a loom and a distaff.
   b) as a consequence of improved and more bulky and expensive spinning machines a social differentiation and a new division of labour took place. Firstly, the more well-off weavers deserted the loom and took up mechanical spinning. Secondly, the earlier spinners who could not afford to buy the more expensive spinning machines left spinning and took up weaving.

9. Parallel to this the spinners “were joined by another class of persons…and this was the yeoman—the male freeholder now nearly extinct as a part of the social confederacy” (p. 41). Why? Because the yeoman had hitherto been surrounded by petty farmers—who had generally eked out their bad management as cultivators by being weavers, and who had served him as bulwarks or breakwaters against impending storm. These were one by one removed [because of their specialization on industrial pursuits—BG note], and their places immediately occupied by a race of men who gave a considerably increased rent, and who by improved modes of husbandry…soon drove the small proprietor from the markets which he had so long supplied. Thus…the yeoman was driven to embark some portion of his means in the purchase of spinning machines, and before very long, great quantities of yarn were produced by the inmates of old farm-houses…five-seventh of those who purchased these machines were obliged to have recourse to a loan, generally a mortgage to raise the money.” (p. 42.)

10. Gaskell, thus, puts great emphasis on the importance of the growth of new and more expensive technology as a factor differentiating social classes. “The price of the more complicated spinning machines was very considerable, and as has been seen removed them out of reach of the inferior class of weavers. This, aided by other causes already noted, brought the small freeholder into the field.” (p. 42). But still more important was the intervention of “monied men who began to turn their attention to a branch of trade, the returns from which were very rapid. This brought a farther accession of capital into it, and led to the erection of mills containing a greater or less number of spinning machines propelled by water power, with the assistance of human labour….” These mills were exclusively devoted to the first processes of manufacture, namely, carding and spinning. These mills—so Gaskell seems to imply—were vastly more productive than domestic carding and spinning production and even if the wages of the factory workers were “high, it is true”, the efficiency wages of factory workers were lower than the remuneration of
domestic labour (“yet comparatively much lower than the estimated value of home labour”).

11. The rise of the mills presented the domestic spinner and carder with a keen competition (“his profits fell”). The domestic spinner who had bought himself a jenny machine “of the best and most approved make” had to repay the debt out of the proceeds of his spinning. But these proceeds were lowered because of the competition from the spinning mills, which because of their higher productivity lowered yarn prices. This forced jenny spinners to sell off their jennies. “The number of machines which at this period were thrown back into the market, gave a strong impulse to the growth of the mills; a machine that was not sufficiently perfect for the purpose of domestic manufacture, doing well enough in a mill in conjunction with others, worked a less rate of wages, and assisted by water power…” (p. 44). This led to the proletarianization of those ex-weavers and freeholders who had earlier invested in improved jennies in domestic industry, although some of them succeeded in establishing themselves as mill-owners.

12. The continuous improvement of spinning, while weaving technology remained unchanged in the main, led to an increased disproportion between the supply of yarn and cloth respectively. Some of the yarn was sent to foreign markets to ease the pressure on domestic yarn prices. But it also induced an expansion of handloom-weaving, the lack of technological improvement being balanced by lower input prices (of yarn). Now came the mass immigration to the manufacturing districts. “Now, however, when the outcry for cloth continued, and yarn was abundant, a large body of weavers immigrated into the manufacturing districts—almost the entire mass of agricultural labourers deserted their occupations, and a new race of hand-loom weavers, which had undergone none of the transitions of the primitive manufacturers, were the product of the existing state of things.”

13. This class of hand-loom weaver “was of a still lower grade in the social scale than the original weavers…. This at once led to a great depreciation in the price of hand-loom labour, and was the beginning of that train of disasters, which has finally terminated in reducing those who have clung to it to a state of starvation.” (p. 46–47.)

So far P. Gaskell. The interesting points of his “stylized history” of the transition problem seems to me to be many and quite important, viz. the following ones:

1. It all started with the increasing demand for textiles.
2. Labour was transferred from agricultural to industry partly because industry provided higher earnings (points 2, 6, 7 and 12) and partly because labour was outcompeted and proletarianized in earlier occupations (points 8, 9, 10, 11 and even 12). To some extent push and pull worked together, as when transformations within agriculture first created (more) landless workers and new employment opportunities for these opened up with the great expansion of hand-loom weaving in the wake of the advance of factory spinning. I find
The Transition from Domestic Industries to Factories

this view highly realistic and it avoids the simplicity of the two extreme positions according to which industry arose only because of worsening or only because of improving conditions.

3. Two other fundamental points in Gaskell’s conceptions seems to be these: 1) Life was miserable for that class of domestic workers which was mainly dependent upon the irregular demand for their output and to this class the first phase of expansion of domestic industry implied a real advance. 2) When analysing the transformation of domestic industries it may be appropriate to assume that domestic workers—for analytical purposes—can be divided into two main categories: those equipped with considerable land holdings and those without considerable land holdings. The first mentioned group was “lured” into whole-time industrial pursuits by the higher income to be earned but undermined thereby the security of their future position (and their status declined). For the second group the expansion of domestic industries represented a pure case of material progress, since their employment became more stable and their real incomes rose considerably.

4. The increasing size and cost of spinning machines acted as a factor of economic and social differentiation but had very complicated effects. To begin with the more well-off weavers took to spinning, while their former jobs were occupied by the common ex-spinners. Also farmers (“yeomen”) took up the new mechanized spinning in domestic industries, partly because they could afford to buy the new but relatively expensive spinning machines and partly because the on-going technical and commercial transformation of agriculture gave rise to a new and more ambitious class of farmers specialising in rationalized forms of agriculture being able to pay the higher land rents demanded (point 9). Still more important in this regard was the introduction of factory spinning, which outcompeted the just mentioned class of more well-to-do domestic spinners and, on the one hand, increased the number of proletarianized domestic spinners, and, on the other hand, increased the supply of modernized spinning jennies etc. on the market which were bought up by the increasing section of mill owners so that these profited on both counts.

5. The great expansion of factory spinning in the last quarter of the 18th century was very important for recruiting proletarianized labour from agriculture into hand-loom weaving in the manufacturing districts. This resulted in an over-establishment of hand-loom weaving, which made for the future disaster of this class of workmen, when mechanized weaving started to expand from the 1820’s. But for its time and for a period it was—and was experienced as—a blessing for the workers involved.

6. In all this I find in Gaskell two points of great interest to the conceptualization of the transition problematic. 1) Domestic industries develop partly in complementarity and partly in conflict with each other up to the final victory of the factory. 2) The transition period can only be understood as a sequence of sub-stages wherein the characteristics and interrelationships of one sub-stage sets the course for the ensuing sub-stage. Some kind of period analysis,
thus, seems to be appropriate. The alternative approach, viz. to start with the
construction of one general model containing only information on initial and
boundary conditions for the explanation of the terminal results may be highly
misleading as to the causal mechanisms of the change. Such a general model
should be the result rather than the starting point, I think.

II

and agrarian England 1660–1900” (CUP paperback 1987). As far as I can
understand this book is an important contribution revising the traditional con-
servative assessment of the consequences of the enclosures upon employment
initiated by J. Chambers in the early 1950’s. According to this view enclo-
sures were not important in creating agrarian unemployment in England as
historians had long believed, especially those in the radical tradition. On the
contrary enclosures rather created new employment opportunities because of
the agrarian improvements. Snell’s main points are as follows.

1. Whereas the radical tradition (e.g. the Hammonds) had concluded that
enclosures were fatal to three agrarian classes, the small farmer, the cottager
and the squatter, the conservative revision has almost exclusively concentrat-
ed on the small farmer.

2. The revision has completely relied on the tax assessment—and this
explains the first point—but even Chambers in his article (Enclosure and la-
bour supply in the Industrial Revolution. EHR 1953) wrote that this source is
so deficient in different respects that “detailed investigation…is simply not
worthwhile.” This because the country quotas have no relation to acreage;
many owners did not became chargeable after 1798; the irregular use of titles;
tax avoidance; defective accuracy of the returns etc. This has had as an effect
that investigations of different authors into identical parishes have produced
wildly different results (Davies versus Chambers, 300 per cent variation! with-
out anybody understanding why….)

3. Snell’s use of settlement examinations indicates growing seasonal fluc-
tuations in agrarian employment and he—to me wholly convincingly—interprets this as an indication of a less full and regular demand for labour after
enclosure. More important, enclosure, Snell argues as many before him, hit
women’s employment hard since they were cut off from their former part-time
employment on the commons and the open fields.

4. Snell also notes that Chambers had taken a quite different position in
his 1932 book on Nottinghamshire in the eighteenth century, emphasizing
that enclosure had “disastrous” effects on the employment of labour in the
Midlands and that vagabondage increased vastly.

5. Relying on Sturt’s and Davies’ “Change in the Village” (1912), Snell
stresses the fact that since enclosure took away the means of subsistence for
cottagers and squatters, these now had to get hold of money in order to survive
and this forced them to increase their labour supply on the market. In this connection Snell quotes the opinion of Arthur Young, according to whom the value of a cow to a family was equivalent to 5–6 shilling a week, close to the wages of a fully employed labourer. Further the labouring poor lost their rights to collect fuel and furze from the commons, wastes and nearby woods and also the right of gleaning after harvest, earlier supporting a family with bread during a third of or even for the whole year. Lastly also they lost rights to cut turves for fuel, wood for fuel, housing and fencing, rights to cut hay in common meadows, rights of finishing etc.

6. The positive employment effects of enclosure are also dubious. Hedging and ditching did not provide continuous, but rather once-and-for-all employment effects. Differences in technological change before and after enclosure were often marginal or non-existent (Havinden’s research). Enclosure increased rents, they were costly and thereby they diminished resources for improvement. Productivity increased before rather than after enclosure.

7. There is a strong correlation between enclosure and the rise of poor rates.

8. The increase of population may be explained by the fact that the proletarianization of labour in the countryside eroded the motive for the postponement of marriage, since no saving motive any longer existed.

These, very shortly, are Snell’s arguments for a return to the standpoint that contemporaries of enclosure as well as many later historians took. But if this is true, it has important consequences for the problem of the transition to the factories, since a rural proletariat was created that had to seek employment outside agriculture. Maybe this proletariat turns up among the many rural workers who emigrated to the manufacturing districts in the last quarter of the 18th century (see Bowden quoted in my paper, as well Gaskell quoted above). This means that while in the first stage of the industrial revolution industrial employment represented a better option, it represented more of a forced one when the spinning mills started to multiply, accompanied by the increase in hand-loom weaving.

III

The third book of interest is Gay L. Gullickson’s “Spinners and Weavers of Auffay” (CUP 1986) on the rise and development of domestic industry in a French village in Normandy 1750–1850. The main point of Gullickson is that it is not poor land per se but seasonal unemployment and landlessness that were the distinguishing features of proto-industrial regions. In her case study the cottage textile industry expanded in a region of markedly commercial agriculture. Owners or leaseholders of very small plots (peasants or artisans) provided one of the major labour sources for the cottage textile industry. Gullickson further stresses that putting work out in the countryside saved the merchants money, since rural spinners and weavers were paid less than their urban counterparts. This was accepted by the rural spinners and weavers, be-
cause harvest wages and the products from garden plots in combination with the income from domestic industry supplied them with a higher standard of living.

The importance of Gullickson’s work is, so it seems, that it takes us out of the frame of earlier discussions concentrating on the physical characteristics of the land and focuses on the social characteristics of the domestic industry countryside.
Part II

Preliminary steps towards modelling of the transition
I. Introduction
In the preceding part of this paper I presented a plausible story of how and why factories arose within the cotton industry during the second part of the 18th century in Britain (see abstract of part I). The story is, however, to a large extent intuitive and implicit. In this part I try to take some steps towards making the story more formal and explicit by defining concepts more precisely, delimiting the problem, developing explicit hypotheses and indicating some possible testable implications of the hypotheses.

II. Definitions
By “transition” I refer to a structural change as to the composition of the elements that make up the industrial structure during this period (domestic industries, putting-out systems and factories) from an initial state to a terminal state in space and time. The precise meaning of this structural change is difficult to capture. First, it contains an element of novelty and emergence (the rise of factories) and secondly it refers to the frequency and/or “dominance” of the elements involved. The number of factories, the number of people employed in factories as well as output of factory production did increase between initial and terminal states both absolutely and relatively. Still, there were probably more people employed in domestic and putting-out industries than in factories as late as in the 1830’s (according to one estimate 300,000 versus 220,000). Nonetheless we regard the 1,200 cotton mills in Britain and Ireland at this time as the element that “dominates”, because of the “weight” we—or at least contemporary observers—assign to factories. Without being quantitatively dominating (at least with respect to employment) factories represented the new, more dynamic and growing element in the industrial structure, which pointed to the future and therefore was perceived as the key element. The transition from domestic industries to factories in the cotton industries, thus, means that domestic industries were in this loose sense “dominating” at the initial state, while factories were “dominating” at the terminal state.

In this study the focus will not be on the whole period between the 1750’s and the 1830’s, when the full-fledged factory had been established. By “full-fledged factory” I refer to the classical definition first suggested by Andrew Ure (“Philosophy of Manufacture”) in the 1830’s emphasizing capitalist ownership, centralization of labour, hierarchy and supervision of the process of production by the owner or his representatives and, lastly but not least, the utilization of machinery (machines replacing manual operation, transmission machines and energy machines) in interrelated series of sub-divided processes of production. This full-fledged factory is however the end product of an historical process starting with the Arkwright factories for spinning cotton twist (warp yarn) in the 1770’s, in their turn superseded by the mule-spinning factories in
the early 19th century. As I have tried to show in part I the transition to factories occurs in two distinct stages, whereby the first stage is characterized by the centralization of workers under the command and supervision of the manufacturer. This stage originates in the early 18th century in the small ware cotton industry and silk throwing and gains momentum from the 1750’s, when various processes of cotton manufacture (preparatory like slubbing, roving and carding, but also spinning, weaving and finishing) are centralized. This first stage, when the process of production is still not much mechanized, continues in weaving up to the introduction of the power-loom from the 1820’s. The factory system according to the definition of Ure starts with the Arkwright factories in spinning and also factories for printing cotton. My concern will be with the first stage of factory production from c. 1750 to c. 1770/80. The rationale for this is the assumption that centralization of labour and hierarchy/supervision were necessary conditions for the introduction of machinery replacing manual labour and acting as energy machines.

By “factory” I, thus, refer to a centralized workshop with a number of workers surpassing the number of workers in a normal household (extended or not), where the workers are performing their tasks under the command and supervision of a manufacturer, who usually owns most or all of the means of production (premises, raw materials and at least larger or more expensive equipment). Since we know from e.g. fragmentary evidence on hand-loom weaving in Manchester around 1750 (Wadsworth – de Mann) that a household could have 5–10 looms worked by household members and journeymen, we may provisionally define a factory with the above characteristics as a workshop with at least 10–20 workers. The usefulness of this definition will show up in light of empirical evidence.

This definition of factory delimits this specific organization for producing cotton products in three respects: it is a centralized workshop, its number of workers and the character of the agent of production, who is not the head of a household but a person with only a contractual relation to the workers (although with paternalistic aspects).

By “domestic industry” I refer to an economic organization based on or consisting of household members under the command and supervision of the household head, who owns his means of production, organises production, buys his raw material, works it up into final output, sells the output and receives money income from this. In this case the direct producer makes the output and marketing decision, he controls the labour process and input resources as well as output and he can make a choice between labour and leisure. I call this organization “decentralized” because of the smallness of the labour force and the narrow limits for increasing it. In order to increase output above certain limits it is not possible to augment the number of workers. Instead the number of organizations (i.e. households) must be augmented. Usually (as was the case in the Lancashire cotton industry) the domestic producers own or rent a piece of land for subsistence production (some grain, milk, butter, cheese).
The implication of this was that the domestic producers could diversify their supply of labour—which factory workers could not—make a choice between manufacturing work and agricultural work and also use the income from agriculture as a reservation wage in their output decisions.

By “putting-out system” I refer to an economic organization based on domestic production. But in this system the domestic producer (our outworker) only controls his own labour process and he is usually owner only of a limited part of the means of production, namely his working-tools. The principal is a merchant, who employs domestic workers, owns the raw materials, puts out these either directly from his warehouse or indirectly through his own salaried agents to be worked up into finished or partly finished products by the domestic producers for sale to consumers or other merchants. In this system the domestic producer is already a wage worker. This delimits the putting-out system from domestic industry, while on the other hand the out-worker in the putting-out system has not been centralized to a workshop under the command of the employer.

This is a very idealized description of the three economic organizations involved and in practice the limits between them were fuzzy and combinations also very frequent. In respect to the British cotton industry, which at this time was mainly concentrated to northwest England (Lancashire, Cheshire and West Riding), the putting-out system was already dominant, which means that the transition occurred from the putting-out system to factories. In the Lancashire cotton industry the limits between producing and trading are also difficult to draw. Most merchants were also manufacturers, especially with respect to preparatory and/or finishing processes (roving and carding as well as dyeing, bleaching and printing).

III. Properties of the Economic Organizations

In order to be able to analyse the question why factories successively arose and expanded, while putting-out industries relatively speaking stagnated, we need to make certain assumptions about the behavioural characteristics of those organizations, as well as about their environment. In point of fact the evidence at hand for making those assumptions is deficient and contradictory. As indicated in part I there is a common assumption, backed up by contemporary sources, that e.g. domestic producers (inside or outside the putting-out system) were not maximizers but rather satisficers as to income, which should have implied that rising wage rates would have reduced labour effort and vice versa above (or below) a specific wage rate (the backward sloping supply curve of labour). But this behaviour does not mean that they were not maximizers. It only means that income was not the only argument of their utility function, the other being leisure. (This behaviour was judged as perfectly rational by one contemporary observer with reference to the shortness of life.
of the working people, making maximization of only income for saving for old age irrational.)

We shall assume that all agents involved were maximising some utility function (wages-leisure or profits). The implication of this is that if agents may choose between economic organizations they prefer an organization A before an organization B, if the result or the reward of activities in A are higher than in B. In practice agents may be forced by circumstances to develop their activities within B rather than A. But then the choice space includes another set of activities, which is still worse than B (e.g. C, which ultimately may be death from starvation). Another implication of the maximizing assumption is that more rewarding organizations tend to expand compared to less rewarding organizations in terms of employment, profits, wages and/or investments. This expansion may be regarded as a measure of the comparative efficiency of an organization. If we, thus, observe that one organization A grows compared to another organization B, we may infer that A is a more efficient organization than B.

Each of the set of agents involved (domestic workers—merchants and factory workers—capitalists, respectively) are further assumed, from efficiency considerations, to adhere to the maximizing behaviour also within a given organization, i.e. with given resources maximize reward or with given rewards minimize resource use. An implication of this is that the agents are striving to enforce efficient property rights to their resources. This means that each set of agents strives to capture as many results as possible from resources used, prevent “leakages” and internalize possible externalities of activities. This mechanism works of course also across organizations, when preferring and choosing more efficient before less efficient organizations.

The above assumptions may seem trivial but they have far-reaching consequences for the mode of explanation of the problem of transition from domestic industries (or rather putting-out industries) to factories. If we can show that one organization was more efficient than the other one with respect to specific properties, the transfer of the activities of the economic agents from one organization to the other is justified by the assumptions concerning the objective functions of these agents.

A much more complicated problem is presented by the fact that the outcome of the activities of the agents depends upon the assumptions we make concerning their respective strategies. What kind of games did domestic workers and merchants and workers and capitalists, respectively, play? Much evidence points in the direction that the game situation in the putting-out system was reminiscent of non-cooperative zero-sum games giving rise to endless bargaining and cheating and high transaction costs (search costs, bargaining costs and enforcement costs). This should be further pursued. But what about the game situation in the early factories? The workers in the factories were more “nested” and much easier to control than domestic workers. On the other hand they could combine collectively more easily. If we assume that cen-
The Transition from Domestic Industries to Factories

Centralization of workers led to higher productivity—an assumption for which there is evidence—it might have occurred to both workers and capitalists that they both were situated in a game making cooperation and mutual benefits possible. It is interesting to note that both Andrew Ure and William Lazonick (the first-mentioned baptized “the Pindaros of the British factory owners” by Marx, the latter a Marxist economic historian) explain the victory and success of the full-fledged mechanized factory with reference to its profit- and wage-enhancing properties based on fixed capital and high productivity. Wage income (at least over the year) from factory work was probably higher than wage income from out-working in putting-out industries. On the other hand for a long time workers despised factory work, which to begin with had to rely on casual and migrant workers.

IV. Putting-out and Factory Organization Compared

An economic organization may be represented as consisting of a set, E, of environment properties, e; of a set, A, of activities, a, in this case production; a set, R, of results, r, and a function, f, mapping E and A into R, so that E x A = R. This structure refers to any organization. With reference to an economic organization working in a market system, we may represent it as in figure 1 (below). The economic organization is made up of the activities taking place in production (P). The environment is made up on the one hand of the input market and on the other hand the output market. The general elements of the input market are money (M), input commodities (C) consisting of labour power (L) and physical means of production (P) and technology (T). The output market is made of a manufactured product (C + dC), which through sale is transformed into money (M + dM). An economic agent starts out with a sum of money (M), buys means of production and labour (P and L), combines them together with technology (T) in the process of production (P) and turns out manufactured products enhanced in value by the labour process (C + dC), which are sold in the market giving rise to a sum of money (a result) that exceeds the value of the original input resources (the difference being dM). This is a simple model of a successful organization, which is growing in terms of monetary rewards. If the result only equals inputs in value, the organization is stationary and if the result is less than inputs in value, it is declining. A successful organization is dependent upon productivity growth conditioned by improved technology (human and non-human capital) or higher labour intensity or both. An economic organization may survive even without productivity growth, if all economic organizations are stationary. But if at least one organization is growing and economic agents adhere to a maximising behaviour, only growing organizations survive. A special case is represented by predatory organizations, which may be inherently stationary or declining but which may
Figure 1. Economic organization in a market economy and its environment

Note: For an explanation of symbols, see text above. Input markets, output markets and production organization partly overlap, since inputs bought are transferred from input markets to production organization and, correspondingly, outputs produced within the production organization are transferred to output markets.

survive by continuously choosing new environments. The so-called sweating industries during the 19th century may be an example of this.

In the first part of my paper I have suggested that the factory system in cotton industries arose and expanded primarily because of the strongly growing demand for cotton products from the middle of the 18th century. To begin with this demand was met by the putting-out system. But due to various constraints of this organization (low elasticity of labour supply, problems with quality of products, embezzlement of inputs and outputs, weak incentives for innovation, high transaction costs, long turnover time of capital etc.), the strong growth of demand working against these constraints led to increasing costs of production within the putting out system. In order to master this problem some putters-out centralized labour to workshops and/or factories under their command. They were thereby rewarded since the productivity of labour and profitability of capital increased. When this transition had been initiated other putters-out followed suit. This would explain the transition from putting-out industries to factories.

I also discussed that part of the environment which is made up of the input market, i.e. the availability of free labour, money capital sufficient for investment, the existence of barriers of entry due to expensive machinery (e.g. big spinning jennies or carding machines). But these conditions were assigned
The Transition from Domestic Industries to Factories

The role of necessary prerequisites of capitalist production in factories and no attempt was made to link those changes in the input market to the choice of organization (except noting that free labour may have been forced to take up factory employment in order to survive and that only merchants and manufacturers with sufficient capital could afford to buy the expensive machinery) at least not systematically. The explanation suggested was to deduce effects of demand growth in the output market on the putting-out organization and since these effects were negative a new organizational solution was searched for and found, namely factory organization. Neither was any attempt made to assign critical values for the process of getting started (the initial conditions) nor did I try to explain why the putting-out organization in fact did expand in specific sections of the cotton industry (e.g. in weaving). Since both organizations co-existed for so long a time period and centralized and decentralized modes of production usually co-exist in modern economic history, it could not be so simple that factories were superior to putting-out industries with respect to all properties or to all kinds of environment. Rather we should expect some kind of trade-off in results between those two kinds of organization with respect to given kinds of environment.

In conclusion I will shortly discuss these three aspects: 1) How did changes in the input market work on the two kind of organizations and their behavioural characteristics? 2) Is it possible to assign critical values for the changes in the demand for final output leading to factory organization? 3) Which were the merits and demerits, respectively, of putting-out industries and factories in adapting to the changes in their environment?

In part I of this paper I have suggested two propositions as to the relationship between on the one hand changes in the input market and on the other hand changes in the organization of the cotton industry: 1) The increasing supply of labour flowing into the industrial north in general and into the cotton industry in particular was mainly an effect of an increasing demand for final output; and this applies to free (proletarianized) as well as to land-attached labour. It was suggested that this shift from agricultural to industrial employment was mainly caused by increasing wages in industry relative to income from agriculture. 2) The increase in the supply of free labour due to population growth and enclosures of land may have been a necessary but not a sufficient condition for the centralization of workers to workshops and primitive factories. The rationale for this proposition was the assumption that, on the one hand, centralization of labour was necessary for the organization of factory production and, on the other hand, was easier to perform for manufacturers if labour was no longer attached to land. But it was also suggested that this condition by itself was not sufficient for the explanation of the rise of factories, since some other change in the environment must also have occurred in order to create motives for the centralization of labour. I conjectured that this “some other change” was the increasing problems in the putting-out organization caused by the increasing demand for final output. Still, there was a loophole in
the argument. I suggested that free labour in contradistinction to out-workers attached to land were characterized by a higher elasticity of labour supply and that this circumstance per se should lead to a higher surplus generation for the centralizing manufacturers compared to the utilization of out-workers. If this is the case, manufacturers should always prefer free labour to out-workers. Thus, the assumed increase of free labour during the latter part of the 18th century might have created new and not earlier existing motives for manufacturers to centralize labour to factories and this change might be taken as not only a necessary but also a sufficient condition for the rise of factories, (granted that also other conditions, like capital for premises and machines etc., also were fulfilled). But if this proposition is valid, it should also be possible to show, firstly, that the amount of free labour existing before the rapid rise of population and the enclosures would not have been sufficient for the centralization of labour; secondly that either wage rates in the early factories were lower than among out-workers or that (in the absence of an unlimited supply of labour and hence a perfectly elastic supply of labour) the increase of the marginal productivity of labour due to centralization did not offset the lower elasticity of the supply of free labour. I am not aware of evidence that could confirm the first of these two deductions. On the one hand there existed centralized workshops in cotton manufacture already during the first part of the 18th century; on the other hand there was an increase of such workshops or factories from the middle of the century. But the question is whether this change could be said to be sufficiently large in order to connect it with the seemingly dramatic increase of free labour during the second part of the century. As to the second deduction I am not aware of evidence that could confirm that wage rates were lower in the early factories, rather it was the other way around; as to the relationship between the marginal productivity of labour and its elasticity of supply, there is no evidence that could test this relationship. We can only safely conclude that the elasticity of the supply of labour was not perfect, since the expansion of cotton industries to begin with mainly benefitted putting-out industries and created a shortage of labour. From this it seems reasonable to conclude that the creation of free labour during the 18th century was a necessary but not a sufficient condition for the rise of the factory system.

Another change in the input market that has been discussed is the fact that the size and cost of machinery for carding, spinning (and probably also printing) increased during the second part of the 18th century to an extent that made factory organization necessary, since this new larger and expensive machinery could either not be technically accommodated in a household (too large and/or in need of mechanical motive power like horses or water) or was too expensive for out-workers to buy. The increasing cost of machinery could explain why some (rich) and not all agents engaged in cotton manufacture switched over to factory production and, thus, contribute to the explanation of the differentiation of the cotton producers into factory owners and not-factory owners. The increasing size of machines could indeed explain the emergence
of factories but this change could not alone be responsible for the phenomenon, since, first, workers seem to have been centralized to factories also when machines were not so large (this has to be investigated more closely); secondly, since the increasing size of machines was itself a response to increasing demand for final output.

From this we provisionally conclude that the changes occurring in the input markets may have been necessary but not sufficient conditions for the rise of factories and, further, that these changes probably were induced by changes in the markets for final output.

When it comes to the second question raised above, namely to what extent it is possible to assign critical values for changes in demand for final output leading to factory organization, it seems as if we totally lack evidence for the task. We know that demand for cotton products increased very fast during the latter part of the 18th century (calicoes, muslins, velveret and earlier fustians, check and velvet); that the principal demand seems to have come from the working and middle classes thereby creating the first mass market for consumer goods; that this was due to the qualities of cotton as a textile, its cheapness and its ability to conquer markets for linen and wool products. We also know that this strong increase in demand put the putting-out organization under severe pressure, leading to increasing carrying and fetching; to an increasing variation of product quality and increasing control problems; to—probably—an increasing rate of embezzlement of inputs and outputs; and to increasing labour costs due to leisure preferences among out-workers when wages rose because of the increasing demand for labour. We know this because contemporary observers have made such observations. But in order to prove it we need more and more quantitative data making it possible to compare variations in demand on the one hand and variations in choice of industry organization on the other hand; alternatively a number of phase studies where the transition from putting-out organization to factory organization could be studied at the firm level. In the absence of such data it might be possible to construct a conjectural history by making certain reasonable assumptions about specific variables. Assume e.g. that we could find the amount of carrying and fetching of products in the putting-out organization in a specific cotton industry district at two points in time and also data on demand, cost of production and profit margins. Then we might construct a schedule connecting variations in demand on the one hand and variations in carrying and fetching costs and profitability on the other hand; assume further that we might construct similar schedules for e.g. degree of embezzlement and its costs on the one hand and demand and output variations on the other hand etc. Then it would be possible to construct a model on the basis of such relationships and their interrelations. The emergent results would depend upon the assumptions made but they would, at least, show us one possible world with empirical fragments.

The third question we raised above was about the merits and de-merits, respectively, of factory and putting-out organization in adapting to the obser-
Bo Gustafsson

...ved changes in their environment. We raised this question because, first, the increasing demand for cotton products not only gave incentives to starting factory production but also expanded the putting-out organization; secondly, because the putting-out organization survived for a long time and still exists in other forms; thirdly, because factory organization and putting-out organization were frequently combined even during the time period investigated as well as later. This problem concerns in a sense the boundary conditions of these two organizations and the shape of the profitability trade-off between them and its conditions. The general observation to make is, first, that putting-out organizations in the cotton industry were more flexible than factory organization; could cater more easily for local or specific demand in contradistinction to foreign and mass demand; that there were no fixed costs for investments or labour; that inventory costs could be held low; and that risks connected with output decisions were wholly or mainly borne by the out-workers. In addition one may mention that the out-workers could not combine for common interests as easily as factory workers. All this may explain why putting-out industries survived far into the 19th century, why they complement factory production at peak demand and for specific products in cotton manufacturing.
En vetenskapsmans verksamhet framgår helt opartiskt ur hans arbeten. Denna bibliografi har sammanstälts av en människa som tagit del i Bo Gustafssons liv under hans sista år och som sörjer över hans för tidiga död. Jag har försökt att med hjälp av denna bibliografi följa hans väg som vetenskapsman och publicist.

Den vägen avbröts i förtid. Många vetenskapliga seminarier fick förgäves vänta på hans deltagande. Detta gäller i synnerhet det vitnesseminarium i april 2004 som tillägnades upplägningen av Kommunismens svarta bok. Boken kom att framkalla en våg av diskussioner. Ett annat seminarium, som Bo Gustafsson själv hade förberett och som handlade om Östeuropas ekonomiska utveckling under den föränderliga turbulent tiden, fick hållas utan hans medverkan. Det ägde rum i juni 2000 på Kollegiet för samhällsforskning (SCASSS) i Uppsala. Vad Bo Gustafsson skulle ha kunnat säga, blev aldrig sagt i de publikationer som var menade att fortsätta denna bibliografi. Även hans memoarer ”Jag flög med att rött hallon i näbben” förblev oavslutade. Memoarskrivandet höll han på med så länge den plågsamma sjukdomen ännu gav honom kraft att skriva. Och just under dessa dagar föddes de dikter, med vilka Bo Gustafssons själ så småningom tog avsked av detta liv:

Solen glider ned i djupet. Jungfru Maria
Havets skålar vävs till duk.
Måsar breder vita vingar,
skymning sveper allt till ro.

Jungfru Maria Heliga Guds moder
tag mig i famnen vagga mig till ro.
Bär mig i drömmen, för mig till hamnen
red mig mitt hem där änglarna bo.

Måsar breder vita vingar,
skymning sveper allt till ro.

Dessa poetiska rader, som vittnar om själens ljusa uppenbarelser under sjukdomens svåra tid, föregår nu Bo Gustafssons vetenskapliga bibliografi. Han var en människa som hade en sällsynt begåvning och sällsynta själska egenskaper.

Larisa Oldireva Gustafsson
Hösten 2005
Bibliografi

1955

"Synpunkter på Sovjetekonomin". *Vår tid* 1955, häfte 11, s. 312–315.

1956


"En klassiker." Rec. av Marx, Karl, *Till kritiken av den politiska ekonomin*. *Clarté* 1956, häfte 2, s. 21


1957

"Idéer inför rätta." *Clarté* 1957, häfte 1, s. 8–9.

"Marxismen omvärderar." *Clarté* 1957, häfte 2, s. 2–3.


1958

"Dessa de mycket fattiga.” *Clarté* 1958, häfte 3, s. 2–4.


Teateranmälningar:


1959

"Från marxism till marginalism." *Clarté* 1959, häfte 3, s. 26–27.

"Socialism i USA?” *Clarté* 1959, häfte 4, s. 22–23.

"Samuel Johnsons liv.” *Ny Dag* 1959-02-06.


Rec. av Tolstoj, Leo, *Den andra epilogen till Krig och fred*. Arbetartidningen 1959-12-01, Ny Dag 1959-12-01.

Teateranmälningar:


1960

"SAP:s programförslag och socialismen.” *Clarté* 1960, häfte 1, s. 24–26.


"Sjustatsmarknaden och svenska näringslivets framtid.” *Värld* 1960, häfte 16, s. 41–51.


"Den kinesiska linjen.” *Arbetartidningen* 1960-08-06, *Ny Dag* 1960-08-06.


Larisa Oldireva Gustafsson

Teateranmälningar:


1961


1962


"Kalvstek i himlens höjd?" *Clarté* 1962, häfte 1, s. 12–15.

"Från kapitalism till socialism: (1). Gammal kapitalism som ny." *Clarté* 1962, häfte 4, s. 8–10.
"Från kapitalism till socialism: (2). Kapitalistisk ändalykt.” Clarté 1962, häfte 6, s. 26–28.


1963


"Det spanska eländet i siffror.” Clarté 1963, häfte 3, s. 7–10.

"Sprickan i den socialistiska världen.” Clarté 1963, häfte 4, s. 10–12, 14.

Andersson, Ingemar, "Sprickan mellan Andersson och Gustafsson.” Clarté 1963, häfte 5, s. 8–10.

"Andersson och sprickan.” Clarté 1963, häfte 6, s. 18–21.

"Förhållandet mellan löner och priser.” Vårt tid 1963, häfte 1, s. 7–11.

"I stället för EEC.” Vår tid 1963, häfte 4, s. 113–122.


"Gamla och nya perspektiv.” Arbetartidningen 1963-08-08, Ny Dag 1963-08-08.


1964


"Den besvärlige Mr. Blackett.” Clarté 1964, häfte 1, s. 21–22.

"Sprickan tätas.” Clarté 1964, häfte 1, s. 27–28.

"Den portugisiska imperialismens nedgång och snara fall.” Clarté 1964, häfte 3, s. 25, 27, 29.


"Lokaliseringspolitik m/64.” Clarté 1964, häfte 6, s. 17–18.


1965


Rec. av Ågren, Kurt (Upsala Nya Tidning 1966-08-27; Dagens Nyheter 1966-12-30), Sägvall, Kersti (Upsala Nya Tidning 1966-08-27), Svensson, Bengt (Historisk tidskrift 1966, häfte 4). Furhoff, Lars (The Scandinavian Economic History Review 1969, 17 (2)).


"Vad kan vi lära av den kinesiska revolutionen?” Marxistiskt forum 1965, häfte 1, s. 15–17.

184
"Radions censur.” *Clarté* 1965, häfte 2, s. 21.

"Inflationen [i Latinamerika].” *Clarté* 1965, häfte 3, s. 19.


**1966**


"SKP:s stadgeförslag: en kritisk granskning.” *Marxistiskt forum* 1966, häfte 1, s. 50–68.

"Är detta socialism?” *Marxistiskt forum* 1966, häfte 2, s. 19–23.

"Det nya avtalet om företagsdemokrati.” *Marxistiskt forum* 1966, häfte 3, s. 20–24.

"Internationell politik.” *Marxistiskt forum* 1966, häfte 3, s. 56–57.

"En viktig seger för de verkliga Fredsvännerna i Svenska Freds- och Skiljedomsföreningen.” *Marxistiskt forum* 1966, häfte 4, s. 21–23.

"SÄPO och det svenska klassamhället.” *Marxistiskt forum* 1966, häfte 4, s. 50–57.


"Nywänstern slår till.” *Clarté* 1966, häfte 5/6, s. 33–39.

"Varför Vietnam? Samhällsekonomiska orsaker till de kapitalistiska ländernas intervention i ‘tredje världen’.” *Clarté* 1966, häfte 5/6, s. 46–49.


Larisa Oldireva Gustafsson

1967


"Arbete och kapital.” Clarté 1967, häfte 3, s. 26–40.

"När Lenin talade för döva öron.” Clarté 1967, häfte 5, s. 10–12.


"Leder förstatliganden till socialismen?” Marxistiskt forum 1967, häfte 1, s. 45–55.

"Gammalt vin i nya läglar.” Marxistiskt forum 1967, häfte 2, s. 48–50.

"Som i Frankrike före revolutionen.” Marxistiskt forum 1967, häfte 4, s. 46–49.

1968

Från kolonialism till socialism. En essä om ekonomisk utveckling. Med Sara Lidman

"Klassicism, marxism och marginalism.” Häftet för kritiska studier 1968, häfte 1/2, s. 3–15.


"USA, Dollarn och Vietnamkriget. Tal vid opinionsmöte i Uppsala 1 februari.” Clarté 1968, häfte 2, s. 34–41.

"Sovjetrevisionismen och ockupationen av Tjeckoslovakien.” Clarté 1968, häfte 5/6, s. 20–29.

"Röd front första maj.” Marxistiskt forum 1968, häfte 2, s. 37–44.

"Rösträtten under kapitalismen.” Marxistiskt forum 1968, häfte 3, s. 57–67.
1969


"Varför är vänstern splittrad." (osign.) Clarté 1969, häfte 2, s. 2.


1970


"Gunnarson, Bernstein och marxismen." Tiden 1970, häfte 10, s. 610–615.

Gunnarsson, Gunnar, "Replik till papperstiger." Tiden 1971, häfte 1, s. 55–56.


"Till minnet av Ivan Bohman." Gnistan 1970, nr 8, s. 4.

Diskussionsinlägg i debatten med anledning av Printz-Påhlson, Göran, "Fem punkter om den nya vänstern." Dagens Nyheter 1970-08-07.
Larisa Oldireva Gustafsson

Intervju av Uisk, Ahto med Bo Gustafsson, ”KFML – sann socialism eller kineseri?” *Arbetaren* 1970, nr 37, s. 5, 11.

Intervju av Kleberg, Lars med Bo Gustafsson, ”Bönder och herrar”. *Ord och bild* 1970, häfte 5, s. 344–349.

1971


”Marxistisk teori och idéhistorisk metod. En fallstudie.” *Scandia* 1971, band 37, nr 2, s. 340–397.


1972


"Den marxistiska teorin för samhällsförändringar.” Studier i historisk metod, 1972, häfte 8, s. 48–64.

"VPK:s nya programförslag.” Marxistiskt forum 1972, häfte 2, s. 13–19.

"Röd front, VPK och KFML.” Marxistiskt forum 1972, häfte 4, s. 34–36.


"KFML 5 år?” (medförfattare Nils Holmberg) Gnistan 1972, nr 6/7, s. 18.


1973


"Det nya ekonomiska systemet i Ungern.” Marxistiskt forum 1973, häfte 4, s. 8–16.


"Centern på arbetsplatsen.” Marxistiskt forum 1973, häfte 6, s. 5–9.

"Rösträtten under kapitalismen.” Marxistiskt forum 1973, häfte 6, s. 28–33.


"Så föddes VPK: Socialism via ‘strukturreformer’.” Gnistan 1973, nr 12, s. 10.


"VPKs nya program oduglig vägledning till socialismen.” Gnistan 1973, nr 18, s. 10.

"Revolutionen som kom bort.” Gnistan 1973, nr 19, s. 10.


"Klasstriderna i Chile.” Gnistan 1973, nr 38, s. 10.

"Klasstriderna i Chile II. Folkfronten: programmet, valsegern och reformerna.” Gnistan 1973, nr 39, s. 10.

"Klasstriderna i Chile III. Vägen till nederlaget.” Gnistan 1973, nr 40, s. 10.
"Klasstriderna i Chile IV. Några lärdomar.” Gnistan 1973, nr 41, s. 10.

Rec. av Therborn, Göran, Klasser och ekonomiska system. Sociologisk forskning 1973, band 10, nr 3, s. 60–62.


1974


Sydow, Björn von, ”Perspektiv på källor.” Historisk tidskrift 1975, häfte 3, s. 289–304.


"Idéer inför rätta.” Clarté 1974, häfte 1, s. 16–17.


"Fakta om socialimperialismen: Politisk opposition i Sovjetunionen, 1.” Marxistiskt Forum 1974, häfte 1, s. 28–35.

"Fakta om socialimperialismen. Den politiska oppositionen i Sovjetunionen.” Marxistiskt forum 1974, häfte 4, s. 6–14.


"För ett nytt komunistiskt partiprogram.” Marxistiskt forum 1974, häfte 7/8, s. 4–12.

"Demokratin och socialismen: Infanteri, artilleri, kavalleri!” Gnistan 1974, nr 10, s. 10.

"Demokratin och socialismen: Proletariatets diktatur förutsättningar för folkets demokrati.” Gnistan 1974, nr 13, s. 10.

"Kapitalexporten skapar arbetslöshet i Sverige.” Gnistan 1974, nr 13, s. 10.

Intervju av Lindgren, Stefan med Bo Gustafsson, ”Kapitalismen kan inte dräpas i köket”. Gnistan 1974, nr 33, s. 10.

1975


"C. H. Hermansons politiska testamente." Marxistiskt forum 1975, häfte 1, s. 2–7.

"Hur mogen måste tiden bli?" Marxistiskt forum 1975, häfte 2, s. 18–22.

"Hur mogen måste tiden bli? II." Marxistiskt forum 1975, häfte 3, s. 11–16.

"Vad är kommunistisk kommunalpolitik?" Marxistiskt forum 1975, häfte 6, s. 12–14.

"De tyska kommunisterna, huvudmotsättningen och fascismens seger 1933." Marxistiskt forum 1975, häfte 8, s. 15–19.

"Inflationen – är den nödvändig?" Förr och nu 1975, häfte 1, s. 33–48.


"Handen på hjärtat. Rudolf Meidner: Är det makten det gäller?" Gnistan 1975, nr 34, s. 14.

Furhoff, Lars, "Bo Gustafsson är kommunist." Dagens Nyheter 1975-02-05. Diskussion: Karl-Gustaf Hildebrand, Dagens Nyheter 1975-02-12; Lars Furhoff, Dagens Nyheter 1975-02-14; Per Sörbom, Dagens Nyheter 1975-02-20 [lärartillsättningar].

1976


"Hur fysiokratisk var den svenska fysiokratismen?" Scandia 1976, band 42, nr 1, s. 60–91.


"Trotskismen som socialimperialismens försvarare.” (I) Marxistiskt forum 1976, häfte 1, s. 6–9.


"Huvudmotsättning? (II).” Marxistiskt forum 1976, häfte 3, s. 9–11.

"Är KPD:s historia ‘främst en fråga om negativa erfarenheter’?” Marxistiskt forum, 1976, häfte 3, s. 12–17.
Larisa Oldireva Gustafsson


"Lenin om klasser och partier." Marxistiskt forum 1976, häfte 7/8, s. 66–72.


"Behöver arbetarklassen bundsförvanter?" Gnistan 1976, nr 4, s. 18.


1977


"Vänstern måste delta i kampen för löntagarfonder.” Socialistisk debatt 1977, häfte 5, s. 20–29.


"Tre sätt att rädda Sverige.” Aftonbladet 1977-09-04.

Bogården, Greger, ”Bo Gustafsson löper över till klassfienden: I SKP har hans idéer besegrats i öppen åsiktskamp.” Gnistan 1977, nr 26, s. 18.

Lansman, Arvid, ”Bo Gustafsson rycker ut för att rädda kapitalismen.” Gnistan 1977, nr 35, s. 11.

1978


"Imperialismen, tredje världen och historiens list.” Ekonomisk debatt 1978, häfte 5, s. 333–340; Aktuellt om historia 1979, häfte 1/2, s. 63–71.

"Den offentliga sektorns historia.” Arkivet för folkets historia 6, 1978, häfte 4, s. 10–21.


Intervju av Norlin, Bo och Sahlén, Tom med Bo Gustafsson, "Som helhet är SKP ett parti som går på tomgång och lever huvudsakligen för sin egen skull." *Zenit* 1978, nr 58, s. 41–51. Replik av Borell, Klas i *Zenit* 1979, nr 59, s. 55–56.

**1979**


"Missvisande om mirakelperioder." *Ekonomisk debatt* 1979, häfte 2, s. 85–94.

Diskussion: Rydenfelt, Sven. *Ekonomisk debatt* 1979, häfte 4, s. 297–299.


"80-talets Sverige som jag vill se det.” *Dagens Industri* 1979-05-08.

"Möte med marxismens världsbild. En sommar i lejonets kula.” *Dagens Nyheter* 1979-08-17


Höög, Victoria, ”Bo Gustafsson, vetenskap & politik.” Tekla 1979, häfte 7, s. 4–23.

1980


"Finns det ekonomiska drivkrafter för Sovjetunionens expansionism?” Ekonomisk debatt 1980, häfte 7, s. 512–521.


"Som självmord i rädsla för döden.” Folket i bild 1980, häfte 3, s. 6.

"Vilket program kan få fart på Sverige?” SAF-tidningen 1980, nr 34, s. 16–17.

"Vägen ut ur krisen.” Tiden 1980, häfte 8, s. 531–541.


Diskussion med anledning av ”3 x 300 olika sektorer!” (LO-tidningen 1980, nr 37, s. 1–12). LO-tidningen 1980, nr 38, s. 8–9.


Intervju av Bernhardsson, Bo med Bo Gustafsson, ”I det här samhället är det faktiskt socialdemokraterna som representerar arbetarklassen.” Socialistiskt forum 1980, häfte 1, s. 16–19.

Intervju av Köll, Anu Mai med Bo Gustafsson, ”Vart tog marxismen vägen? Kring den svenska universitetsvänstern.” Ord och bild 1980, häfte 5, s. 3–27.
1981


Diskussion: Liljestrand, Lars-Gunnar i *Clarté* 1981, häfte 2, s. 32–35.


Diskussion: Grassman, Sven, *LO-tidningen* 1981, nr 46, s. 12.


Intervju av Svensson, Tommy med Bo Gustafsson, "SKPs grundare som blev socialdemokrat: respekten för människor viktigare än tolkningen av Marx.” *Metallarbetaren* 1981, nr 35, s. 20–22.
1982


"Forskarutbildningens mål.” Tiden 1982, häfte 10, s. 609–620.


"Löntagarfonder och marknadsekonomi: Jämför fondsystemet med verkligheten – inte med läroböckernas värld.” LO-tidningen 1982, nr 17, s. 16; nr 18, s. 16; nr 19, s. 16.


"Fondmotståndet är taktiskt betingat.” Dagens Nyheter 1982-08-20.

Diskussionsinlägg ”Välfrädsforskning och industriell återhämtning.” Tiden 1982, häfte 4, s. 244–248.

Diskussion med anledning av Ingelstam, Lars, ”Varför har vi inte råd med tjänster?” (Stockholms Tidningen 1982-06-02). Stockholms Tidningen 1982-06-09.


Intervju av Zetterberg, Leif med Bo Gustafsson och Håkan Arvidson, ”Leninismens kris…syndikalismens möjlighet?” Arbetaren 1982, nr 5, s. 6–7.

1983


"Vi kan inte spara oss ur krisen om vi inte ökar investeringarna." *LO-tidningen* 1983, nr 11, s. 10–11.


Intervju av Silverberg, Bo med Bo Gustafsson, "Utan löneföljsamhet: risk för sämre resultat i offentliga sektorn." *Facklärraren* 1983, nr 6, s. 8–9.

1984


"Keynesianismen vidareutvecklad." *Tiden* 1984, häfte 2, s. 100–110.


"Feldts felaktiga funderingar: Samtal med Feldt.” *LO-tidningen* 1984, nr 35, s. 8–9.

Intervju av Sten, Göran med Bo Gustafsson och Gunnar Heckscher, "Bo Gustafsson och Gunnar Heckscher: självständiga ämbetsmän problem för demokratin." SACO/SR tidningen, 1984, nr 3, s. 4–5.

1985


"Det antika slaveriets nedgång: En ekonomisk teori." Aktuellt om historia 1985, häfte 1/2, s. 70–88.


"Industrin kan producera 5 proc mer utan kostnader!” LO-tidningen 1985, nr 9, s. 8–9.

"Skyll inte bara på lönerna – inflationen är en onyttighet som antingen tillverkas eller importeras”. LO-tidningen 1985, nr 27/33, s. 6–7.


1986


"Mellan socialistiskt ideal och kapitalistisk verklig”. Arbetshistoria. Meddelanden från Arbetarrörelsen arkiv och bibliotek 1986, häfte 1/2, s. 16–27.

"Öppet brev till kulturministern: dynga i TV.” Dagens Nyheter 1986-08-12.

"Sociologiprofessuren i Lund.” Sydsvenska Dagbladet 1986-09-12.


Intervju av Sundling, Janne med Bo Gustafsson, "Högre löner är bra ekonomisk politik". Kommunalarbeitaren 1986, nr 27, s. 12–14.

1987


Intervju av Andersson, Mats J. med Bo Gustafsson, "Professor i Uppsala: offentliga sektorn kan visst växa! Men den måste bli bättre.” Statsanställd 1987, nr 2, s. 12–13.


"Risk för på-stället-marsch (Bo Gustafsson svarar Feldt)." Med anledning av en intervju med Bo Gustafsson om SAP:s ekonomiska politik. Kommunalarbeitaren 1987, nr 1, s. 15.

1988


"Höj landstingsskatten!" *Upsala Nya Tidning* 1988-09-09.

1989


"Socialism och kapitalism i samexistens." *Arbetarihöstoria* 1989, häfte 4, s. 6–8.

"Karl Marx återupplivad." *LO-tidningen* 1989, nr 34, s. 22–23.


1990


1991


1992

Intervju av Bratt, Peter med Bo Gustafsson, ”Politiken offrad för marknaden.” Dagens Nyheter 1992-09-05.


1993


"Sverige och EG: Anmärkningar.” Häften för kritiska studier 1993, häfte 1/2, s. 130–134.

"Marknad och sjukvård.” Upsala Nya Tidning 1993-02-03.


1994


1995


1996


202
"Ekonomisk effektivitet och rättvisa.” Årskrok för kristen humanism 1996, s. 8–34.


"Mannen som gick till historien medan han levde.” Rec. av Forser, Tomas, Jag har speglat århundradet. LO-tidningen 1996, nr 31, s. 15.


1997


1998


1999


Volumes 1–9 are part of the series *Ekonomisk-historiska studier*, Scandinavian University Books, which were published in 1965–1973 by Esselte Studium, Stockholm.

Under its new title, the series is included in the publication group *Acta Universitatis Upsaliensis* and is distributed in the same way as the other series of that group.

20. Lars Magnusson, *Ty som ingenting angelägnare är än mina bönders conserva-
tion ... – Godsekonomi i östra Mellansverige vid mitten av 1700-talet*. 1980.
24. Jan-Erik Pettersson, *Kristidsekonomi och företagsutveckling. Industrin i Upps-
27. Bob Engelbertsson, *Industriarbete i förindustriell arbetsmiljö. Sala gruva och
29. Mats Morell, *Studier i den svenska livsmedelskonsumtionens historia. Hospital-
1989.*
31. Une Sahlgren, *Från mekanisk verkstad till internationell industrikoncern. AB
och SIFs arbetsmarknadspolitik och behandling av principen lika lön för lika
arbete*. 1990.
33. Kersti Ullenhag (ed.), *“Hundred Flowers Bloom”, Essays in Honour of Bo
34. Paulina de los Reyes, *The Rural Poor. Agrarian Changes and Survival Strategi-
36. Bo Hännestrand, *Människan, samhälle och ledarhunden. Studier i ledar-
37. Torbjörn Lundqvist, *Den stora olkartellen. Branschorganisering och kartell-
38. Ulf Magnusson, *Från arbetare till arbetarklass. Klassformerings- och klass-
Dalarna*. 1996.
40. Juan Bergdahl, *Den gemensamma transportpolitiken. Elimineringen av hinder
för gränsöverskridande vägtransporter inom den Europeiska Gemenskapen
41. Göran Salmonsson, *Den förståndiga viljan. Svenska Järn- och metall-
43. Annika Åkerblom, *Arbetarskydd för kvinnor. Kvinnlig yrkesinspektion i