I I Foreword and Introduction

I.1 Some more general remarks

Dear students of all ages, the following booklets introduce into elementary bookkeeping and algebra. Bookkeeping is one of the most important tools to develop consciousness of economic processes. Algebra is a still more general and important tool for many kinds of problem solving. Modern life with machines for the production of textile, road construction, electric equipment, cars, cell phones, etc. would not be possible without it. Maybe you ask yourself or others- in which areas of human life are mathematics needed in the background and where it is not.

As mentioned this series of booklets gives an introduction into elementary economics and algebra. What we wanted to give is not just a set of rules but to make things really understandable: *Why* is something done as it is done? What is the meaning of a concept? You will find that this is not always an easy way to learn but it gives sense to what you learn.

We address classes und their teachers as well as individuals that want to improve their mathematical understanding and their skills. Every chapter or booklet starts with a short introduction: What can be learned in this chapter? Why is it worth to learn this? What are the special difficulties? As often as possible we start with special problems. Then we develop more general ideas. To develop skills we need sometimes a lot of exercises. As in learning an instrument exercises (etudes) are not always very interesting. But we need them to transition from knowledge to ability. It is interesting – in some cases the amount of solved problems is important, in other cases the thorough understanding of a set of problems is more important. At the end of a subject we will look back and forward – what did we learn and which new questions arise?

I.2 Some Special Remarks for Booklet I

I.2.1 Individual Learners

When you work as an individual read first the booklet paragraph by paragraph and try to understand what the main ideas are. It is not yet necessary to follow each single step of the bookkeeping. Get an overview. Start again with the introducing questions and find your own answers. They may be different from the printed answers. If you think something important is missed or wrong send me or to one of the other authors an email.

The most difficult part is the bookkeeping. It is worth to work on it again and again until you can understand each step. Don’t give up too easily. You have to tame your brain that always endangers you only to think what you already thought. By struggling with your brain you create new connections of the nerve cells. Isn’t that interesting? Once you understood a new idea or a new concept next time it will be easier to think the same thought again – even if you forgot it in between.

Meanwhile you are struggling with the bookkeeping you may also read the more general remarks in chapter I and II on economy. Note your own thoughts that will come up.

The next step depends on you. Do you want to start your own business - what is recommended - or is it enough for you to understand the given example with the book production? Of course, you will become much more familiar with the ideas and methods of bookkeeping when you make use of them on your own.

The given example has at least two different levels – the first level shows how to book the different events, the second level includes the end of our business. I wonder how many of the readers will grasp all steps.

Don't forget that this beginning of bookkeeping is not yet what a bookkeeper has to learn. We don't deal with taxes, insurances and other things that are important in real economy. But, once you understood the meaning and technique of double entry bookkeeping you will much easier include more detailed knowledge.

Please, individual learners be aware that the description of the book project is given for classroom learners. You will surely be able to adapt this to your own situation.

I.2.2 Classroom Learners

For classroom learners we address in the first line 7th and 8th graders. It is great if they got a first introduction into economics in the 6th grade following more or less the course of my book *Algebra for the 6th Grade*[1]. There are many elementary questions related to economy asked as

- What is economy? We distinguish between self-sufficient economy, barter economy, and money economy.
- What is money? We distinguished three kinds of money according to their function in social life- consume money, loan money, and gift money (xxx check these expressions)
- How can in group of cooperating people the work of them be balanced in a proper way? This leads to time accounts and the first use of double entry bookkeeping.

Many more economical and more general social ideas are discussed in this small book that may prepare the more sophisticated methods here. In a classroom you have to organize the practical work that is done together. It means that supposingly you will prefer a division of labor – not everybody is doing the same, but the different steps of production are split up for different classmates. Beside physical production some people are needed for control and bookkeeping. They do not produce books but help us to know what will be used up soon, what do we owe to other people, what do other people owe to us, what is the outcome of our production, what should we produce next, etc, etc?

But the most important advantage of classroom learners is: You may ask your classmates or your teacher if you did not understand a step.

I.3 Themes for General Discussion about Economy

During general discussions about economy, themes that were already mentioned above can be put as: What is money? What is money for purchases, for borrowing, or purposes of donating? Using the balance sheet that is developed below, it can be shown how the borrowed money was spent on tools and materials but its value did not disappear because it remains in the form of assets and working capital. In this way the difference between borrowed money and money for consumption can be made clear.

One should always be conscious of the fact that bookkeeping is only *a mirror* of real economic relationships and processes. Just as when using a mirror one gets a second picture of a banana, but can eat only one banana, so are images of capital and contracts put into terms of numbers an important help in knowledge and decision-making; but it is not the value-creating process itself. An important theme is the different ways of building value. Among the value-creating economic activities are those that are close to nature, in which the products are created by nature, for the most part, without much human input. When we take raw materials from the earth we have usually not contributed to their creation. Cutting lumber,

[1] See xxx

gathering wild herbs, etc., up to oil extraction, and mining operations, are examples of value creation using products of nature. The difference between cutting lumber and extracting oil is how much human thought and infusion of capital is necessary to complete the task. Cutting lumber is made possible by an ax, a chainsaw, or a complete tree-harvesting machine, but oil extraction requires highly developed technologies. *Together*, the initial product is only slightly changed from the raw material.

In *agriculture* we are also still dealing with a product that is close to nature. However, in this case the farmer can increase productivity by working the ground and applying fertilizer, thereby increasing a grain harvest by many times. An example of this would be burning the stubble in the fields as was done in Central Europe in the middle ages.

Artisans (craftsmen? xxx) are usually not involved with getting the raw materials from nature. A cabinetmaker produces tables, chairs, and other furniture, or window frames and doors from the lumber that is delivered. In this case the creative work is at the forefront. The material can be different in many ways. It can be observed how, incrementally, value-creating human work removes itself from nature, and craftsmanship and artistic design become the focus.

If we compare tables and chairs, or shoes and clothing, with a watch, or a microchip, we find a much stronger emphasis on human activity as opposed to the raw material; the material one starts with.

In the classroom we see mostly things that are man-made. With every single object we can determine what was created by a natural process and what humans changed through conscious activity. It is often only our human bodies and the flowers in the window box that are not made by conscious effort and are normally referred to as *natural.* Economic life ends with nature. She gives to us without requiring anything in return, as is normal in economic systems.

Production stands in the area of conflict between the raw materials given by nature and human creation with its accompanying skills and thoughts that are impressed upon the material to a greater or lesser degree.

Even though it may not apply in every single instance, it can be said: An economy that achieves a high percentage of "refined" production is better off than one where mainly raw materials are supplied. Therefore, poorer nations sell according to what they have in the way of wood, coal, or steel and richer nations sell electronics, airplanes, automobiles, and the like.

An increasingly important variation of human work lies in the so-called *service industry.* Essentially, there is no material production that can be traded and used, but rather it is the action itself that is the desired product. When another person writes down dictated text for us, or does our taxes, or some other task, then we speak of a *service.*

Most things we find in our environment come to us through the work of *many* people. Just think about the production of automobiles from their many thousands of parts. Today, when an automobile can be built from all its components in less than twenty xxx hours, then it requires enormous efforts of planning, human work, and use of machines. This work is done by many people in engineering offices and responsible management positions. They do not use a single screwdriver in their work, but they *think* what must be done later in every single detail. It is their job to think ~~out~~ ?xxx beforehand what will be the future work of people and machines. This organizing of work can be thought of as the second kind of value creation.[8]

One can easily picture what happens when such mental work can not sufficiently determine the practical work. Let us assume that a high rise building is planned and, before the foundation is poured, the windows are already delivered, or the sinks arrive before the

8 Rudolf Steiner, ibid. 2nd Lecture from July 25, 1922 and later.

plumbing work is complete. Much value would be destroyed, or not be created in the first place. For this reason the significance of mental work, when it is based in reality and able to successfully organize physical labor, can not be too highly estimated. Admittedly, it stands in an interesting complimentary relationship to physical work: When an architect has planned a house and its construction well, then it can be quickly built by the masons, electricians, drywall installers, and others. Once it is built, the work of the architect is no longer of very great interest. Perhaps later the plan will be needed for repairs or remodeling, but its original purpose is fulfilled when the mentally created plan is physically realized brick by brick. Every completed detail makes its associated plan relatively uninteresting; devalues it. For this reason one can say that, in a certain respect, mental and physical works have a *complimentary relationship*. When we discuss negative numbers we will return to this idea.

Of course, there is intellectual work that has, besides its general cultural significance, also a *continuing* economic significance. For instance, the development of mathematical methods belongs in this category, which can be used to calculate the statics of buildings, the stability of bridges, and many other things. With such attainments of purely mental and cultural life that find their expression in science, art, and religion, we leave economic life. Where intellectual life interacts with economic processes in the narrow sense, often has to do with how capital is used, which people with what capabilities can be given responsibility, where new products can be developed, and much more.

We have described nature as one boundary to economy; the second could be described as the intellectual-cultural life, especially in so far as it is concerned with money and the use of capital. In modern economies, capital seems to be indispensable to an organized interplay of human labor, but it does not create economic value. Simply put: *Between nature and capital, real economic life unfolds with the production of goods and services*.[9]

I.4 Egoism and Altruism. Conditions of Economic Action

The first discussions about economic activities in the class are met with the highest interest. Naturally, possible profits very quickly play a role. However, if this was the only thing that was effective, we could hardly really become active. Our deliberations must begin with those who will receive the results of our labor. What do they need? What could they use? Someone who is active in business experiences the biggest disappointment if they produce without considering the need for their products. Deliberations must be aimed at the *social environment; the others*. Then we must make it relative to what our actual capacity is; how far our abilities and materials will reach. However much egotistical interest there is for a profit goal, if there is no altruistic feeling for other people and their needs, an economic enterprise can not begin. Instead of my interests I must take the interests of others into consideration. The more successfully this is done, the better for the business.

People who put profit above all else tend to pin their hopes on a gamble, or worse.

One can raise a hypothetical situation with a seventh grade class to illustrate the idea that economic activity is not necessarily created by financial incentives. Imagine that, through a stroke of fate, the class is stranded on an island, completely isolated, and dependent on one another. It would be very natural to have discussions about what each individual could do. The work would be divided up in such a way that each was dependent on the work of another. *Striving for profit is not what comes at the beginning of every business, but rather satisfying the needs of a group of people working together. That is its real meaning and its real goal.*

Of course, there are many questions that can be discussed with the students concerning practical work, organizing sales, bookkeeping, etc. The art of leading the discussion consists in formulating questions that are clear and straightforward for the students, and also showing

9 See ibid.

them simple, clear relationships (as far as possible), and insights into economic and social interrelationships.

Of course, there are many questions that can be discussed concerning practical work, organizing sales, bookkeeping, and more general questions of human life. The art of leading a discussion consists in formulating questions that stimulates our own thinking and can give insights into economic and social interrelationships. Do not always wait for answers that you already know and wish to hear again but be interested in never before heard thoughts and new ideas. If you are the teacher never forget: The time you spent with children was good when you learned something new!

But before we go into further questions in connection with economic life, let us turn to an example presentation of a project and its associated bookkeeping.

II Would you like to start a Business?

The following description is given for a Waldorf school with a class teacher in the grades school and main lesson blocks. That means that for some weeks every morning the same subject is taught for one and a half to two hours. In order to practically carry through the following project on book production it is recommended that planning begins very early. The intention of doing an economic project could be announced at the beginning of the school year and then begun later as opportunity presents itself. A discussion with the students and their parents will also allow time to acquire the necessary *credit* and other needed material.

If the preparations have progressed far enough, the project can begin. First, that which has already been discussed will be taken up again. It is important to organize the practical work, divide up tasks among individual students, make contact with potential customers, and prepare for bookkeeping. When each student understands what he is to do and production has begun, then, when possible, it can be removed from the regular lesson time slot and put into study hall time or in afternoon work sessions with parents and students together. In the regular lesson one can then concentrate on more general economic questions and bookkeeping through introduction of the balance sheet, accounts, and techniques for entering the information.

Books

The Beginning of Double-Entry Bookkeeping

A Project of a Seventh Grade &Their Class Teacher **or:**

Book Express. Our Seventh Grade Class Produces and Sells Main Lesson Books

II.1 Planning a Business

If we want to start a business we have to ask the following questions:

1. What is needed?

Every year in a Waldorf School thousands of main lesson books are used.

2. What can we produce?

The production of main lesson books is not too difficult and can be done by a 7th grade if they work carefully.

3. What do we need in order to produce the books?

We need a paper cutter, needles, awls, and scissors. As materials for the books we need paper, card stock (for the covers), and heavy duty thread. For the money we need a cash box.

4. How should the books look and what should be their sales price?

In our school a normal book is made from twelve US-Legal size sheets of paper. When they are folded there are twenty-four US-Letter size sheets of paper which amounts to forty-eight pages. For some main lesson blocks more pages are needed so more than one book is used. For this we will produce *jumbo books* with sixty pages. They will be made from fifteen folded sheets of paper. In other main lesson blocks there is less writing or drawing work to be done. For this we will make *mini books* with only 36 pages made from nine sheets of folded paper. The normal book is bound together by two metal clips. We will use heavy-duty thread instead of metal clips.

5. Where do we get the means to buy the necessary tools and materials?

We will ask our parents for a loan to purchase paper, card stock, heavy-duty thread, and tools.

6. How will we sell the books?

We will contact other classes and their teachers. Our books will better meet the needs of different main lesson blocks and be bound better, as well as being less expensive than other books. If we work hard and the quality is good then we should be able to sell them. Initial surveys of the classes indicated this.

II.1.1 The Calculations

In order to gage the financial success or failure of our project, we must calculate the cost of each kind of book as accurately as possible. For that we need to find out the cost of the paper and the card stock for the covers. The cost depends on how much is ordered at one time. How many books will we produce? How many of each sort will we be able to produce and sell? Finally, we arrived at a number of one thousand books that we would make and sell. If we make the same number of jumbo and mini books then the average number of sheets of paper per book will be twelve. We will order twelve times as much paper as card stock.

Now we write to paper wholesalers. Naturally, everything requires some preparation time, and we learn how to write a clear, concise business letter. In the end we are able to calculate fairly accurately the amount of needed materials, their cost, and the materials cost of one book:

We know that:

- One thousand sheets of A3 size paper, 90grams/sq.meter ink fast, with a lightly textured surface so that drawing with colored pencils is very possible, costs $0.014 per sheet, including tax.

- One thousand sheets of A3 size card stock for the covers, 270grams/sq.meter, in brilliant colors, costs $0.075 per sheet, including tax.

- We estimate the thread to cost approximately $0.010 per book.

The material costs are broken down as follows:

- *One jumbo book: 15 x 0.014 + 0.075 + 0.010 = 0.295*
- *One regular book: 12 x 0.014 + 0.075 + 0.010 = 0.253*
- *One mini book: 9 x 0.014 + 0.075 + 0.010 = 0.211*

In the school, forty-eight page books cost $0.90. If we sell the regulars for $0.80, the jumbos for $0.90, and the minis for $0.70, then the cost of materials for the jumbo is approx. 33%, the regular 32%, and the mini 30% of the planned sales price. Is that too much or too little? How do other businesses calculate their prices?

II.1.2 The Process (Procedure?)

Soon after the beginning of the school year we discussed the project with our parents at a parent evening at the school. The parents agreed and offered us a few things. They gave us a cash box that could be locked, two pairs of scissors, and a package of thick needles. We were able to borrow a paper cutting machine at no cost. If the machine was damaged then we would have to pay $150.00. The Wagner family, a father known only to the teacher (Mr. X), and even another student (John) borough us money. They gave us *credit* because they *believed* in the success of our venture (good parents!). We agreed on an interest rate of 10% per annum.[10] Then we thought about what we had to purchase. We needed awls, thread, paper, and card stock. We wanted to buy the awls and thread directly but order the paper and card stock and be billed for it. After we had received the things the parents gave us, as well as

10 Perhaps the parents will offer credit for no interest. One must decide whether to accept the offer or not. Paying interest provides motivation for quick repayment of the loan and also to have another look at interest formulation.

the loan money, some students purchased the awls (they were not easy to find) and strong thread. Through the school we were able to order 12,000 sheets of A3 size paper and 1000 sheets of colored card stock for the covers.

Before we began with the work, we learned how to represent our business numerically with the help of a bookkeeping system.

II.2 The Beginning of Bookkeeping

II.2.1 The List of Inventory

First we make a *list of inventory:*

Once we have our supplies, we write an **inventory** into our books of account:

Inventory

Quantity	**Item**	**$**
1	Paper cutter	150.00
1	Package of needles	3.00
2	Scissors	10.00
1	Cash box	27.00
	Cash	240.00

II.2.2 The Balance Sheet

Now we will learn what a balance sheet is. A balance sheet is a written representation of our *assets* and our *liabilities* (debt). It shows the financial situation of a business at a certain point in time. There are four main areas. In business life each of these four areas has many sub-areas. It is created so that associated things can be clearly seen. Detailed knowledge of balance sheets will have to wait until later in one's education. In our seventh grade we want only to understand the principle of balance sheets.[11] The first main area is the *fixed assets*. It includes everything that belongs to a business in the long term. In our business it includes what is necessary to produce the books; our business equipment. These things remain in the classroom. They are not part of the product and they will not be sold, at least not immediately. The actual value of our business equipment naturally depends upon our ability to make something practical with it. Such goods only get real value with their sensible and skillful application. That is why one can also view the abilities, enthusiasm, and willingness of co-workers as a part of business assets. The good reputation of a business is of non-material value consisting of the name and standing of a business, the abilities of its coworkers, and many other things. One calls the non-material value of an enterprise *goodwill*. We do not enter it into the balance sheet because it can not easily be given a monetary value.

The second main area is the *short-term assets*. It consists of all the things we want to sell. In this category belong the paper, the card stock, and the thread. These should not remain in the classroom. Money and outstanding accounts (that is the money that others owe us) also belong in the category of short-term assets.

Fixed assets and short-term assets, the *asset classes*, go on the left side of the balance sheet, the *active* side. This side of the balance sheet describes the material one works with in order to produce something, but sometimes also other assets on hand.

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11 The term *balance sheet* was borrowed from a 17th century Italian word. It goes back to an Italian word *bilancia* (scales). In Latin the word is *bilanx*: Having two scale pans. (From M. Brater/C. Munz, Die *paedagogische Bedeutung der Buchfuehrung*, Stuttgart 1994.)

The third main area represents the liabilities. They are left to us by others so that we may start producing. The loans we got from the parents and from Hans belong here. When we buy something on credit then it is a debt and also belongs to the liabilities. Liabilities connect us to those who give us credit. They remind us that we could not have begun our business venture without the help of others. Out of the past they establish an obligation on the assets.

Net worth, the fourth and final main area, comes about when we subtract the liabilities from the total assets. In many respects it describes the maneuvering room we have to use for making plans. We can get a glimpse into the future through the net worth.

Liabilities and net worth make up the *passive* side of the balance sheet. They describe the *obligations* of the assets.

One must always remain cognizant of the fact that money usually makes up the smallest part of the value of a business. Essentially, the value is often found in the production materials and the abilities of the people participating in the business, which is not easy to put in terms of monetary value. But because money is needed for daily business, purchases, worker's wages, and many other things, besides the assets and liabilities, one must have a continuous overview of the cash available at any given time. This happens by way of *cash flow* or *liquidity* calculations but we will not go further into it here.

Enterprise

Balance Sheet

(date) aaa

Assets	**Liabilities & Owners' Equity**
I. Fixed assets (Tools, etc., which we use for production)	III. Liabilities (Loans and accounts payable, etc)
II. Current assets (Materials for production, money, and accounts receivable)	IV=I+II-III Net worth (equity)
Total assets	Total liabilities & equity

The way in which the net worth is calculated assures that the sums of the active side and the passive side are equal, because through the determination of IV we always have I + II = III + IV. Thus the name *balance sheet*. Just like with an old time scale where the balance must be found between what is weighed and the weights on the scale, so it is with a balance sheet between the active and passive sides. This principle of equality is important and consequential.

Now we can make our first balance sheet (see page 29). We write in the purchased items with their price and the donated items we write in with an estimated value: How much would we get for them if we sold them? Everything must be expressed in monetary terms! The actual practical value does not go on the balance sheet here.[12]

We asked our class teacher: Why are the net worth on the right side of the balance sheet with the liabilities? Aren't the net worth considered a credit? It is important to understand this. We must differentiate between the view of the business and that of its owner(s). A balance sheet describes the financial situation of a business, not its owner(s). The business owes the owner(s) the net worth. That is why it is on the right side of the balance sheet.

12 It is certainly possible and sometimes necessary to estimate the real practical value. When equipping a business this can be done by using their established value over the course of a year as a basis, and from the profit, using interest formulation, incorporating it into the capital. This was often done in Europe after the fall of Communism to determine the value of Eastern European businesses.

From our balance sheet we easily can see how the net worth consist of the value of the needles, scissors, and the cash box. On the other hand, the cash comes completely from loans by the Wagner family, Hans, and Mr. X.

Book Express

Beginning Balance Sheet

(Date)

ASSETS			**LIABILITIES & OWNERS' EQUITY**	
Fixed assets		**$**	**Liabilities**	$
1	Paper cutter	150.00	Mrs. Smith (paper cutter)	150.00
1	Package of needles	3.00	The Wagner Family	30.00
2	Pairs of scissors	10.00	John	10.00
1	Cash box	27.00	Mr. X	200.00
----------		----------	Unpaid bills	0.00
Total fixed assets		190.00	Total liabilities	390.00
Current assets			**Net worth**	
	Cash	240.00	Net worth	40.00
	Material	0.00	----------	----------
Total current assets		240.00	Total net worth	40.00
Total assets		430.00	Total Liabilities & equity	430.00

II.2.3 Organizing the Work

As was said before, we were able to order paper and card stock through the school and be billed for it. We purchased three awls and thread using our cash. We stored everything in a closet in our classroom.

Now it was time to organize the work, both practically and from a bookkeeping standpoint. Most of us would be involved in producing the books, but some also had to be responsible for the smooth flow of materials or for a correct bookkeeping system. We tried to think of everything ahead of time: Who would do what? How would we organize the production system? How would we arrange the classroom for efficient production? Would we need any other things to help us? (The templates, for example.)

(Trans. Note) On page 30 are five photographs with captions. They are as follows:

Paper and a sheet of card stock are put into the template to make the holes for the thread

Pressed down with the "lid"

Paper with holes is taken out

Folded

And bound

We arrange all the desks in the classroom into a single row so that everyone has a place to work. *Lisa*, who is responsible for the tools, paper, card stock, and thread, sits close to the closet, our *materials warehouse*. She hands out the material as it is needed and keeps careful track of the outgoing material; more precisely, she keeps account cards. This will be explained shortly. After Lisa, comes a group of classmates who put together 9, 12, or 15 sheets of paper with a sheet of card stock. The number of books produced in one hour depends greatly on the speed at which these students work. Naturally, we discuss beforehand what kind of books we will produce that day.

The sheets of paper with their covers are then passed on to another group that has a wooden box with three sharp nails sticking up from the bottom. The bundle of paper is laid inside the box and pressed down with a lid that has holes corresponding to the nails in the box. This is how the holes for the thread are put in the exact correct position on the paper. The papers with the holes are passed to another group.13

The next group binds the paper and card stock together with needle and strong thread and passes it on. In the next group the book is folded. This requires a lot of effort and precision. We made a square using a wide board and a strip of wood to help with the folding. Then the book is cut with the paper cutter so that the white sheets do not show under the colorful cover.

When each book is finished it is given to Jane. She sorts them into boxes according to their kind and color. After every ten books she puts a piece of colored paper in the box so that later it will be easier to count them. Jane carries the full boxes to the closet and, at the end of the day's work, she writes on her accounting sheet how many books were finished that day.

Very soon we are well rehearsed and are even able to send our teacher into the teacher's lounge for a cup of coffee. She was a little apprehensive at first that all would go well. Naturally, it did...

II.2.4 Bookkeeping

Opening the Accounts

The *accounts* serve to record changes in a balance sheet item during the work of production.[14] In principle, one can open an account for every single *balance sheet item*, but it only makes sense if changes are expected. Besides, more accounts can be opened if it seems necessary. We opened an account called *business equipment* where we booked the tools that were not loaned to us, an account for the material (paper, card stock, and thread), an account called *books*, accounts for the *accounts receivable* and *accounts payable*, a sales account, where we recorded the value of the sold books, the *net worth* account, and, finally, a *profit and loss statement*, which will be discussed later.[15] Since the numbers are entered in a T-shape, we speak of T-accounts (see page 33).

The entry at the beginning of each heading is our opening balance (OB) for that account. Later, we also enter the ending balance (EB). The accounts on the active side (assets) of the

13 The device for making the holes easily and exactly was designed and built by a class in Freiburg (see Schuberth). In the middle of a flat box that was the exact same size as an A3 size sheet of paper, three nails were nailed through from the bottom in the correct positions. The paper is laid into the box and then a lid with holes in it corresponding to the positions of the nails is pressed onto the paper until the nails push through to form the holes (see photos).

14 The word *account* goes back to the Italian word *conto* (invoice).

15 One should realize that we are not concerned here with a professional system of bookkeeping, but rather an attempt to make this rather difficult task understandable to 13-year-old students in a very narrow span of time. Suggestions for improvements are always welcome!

balance sheet begin with the opening balance on the *left* side. The accounts on the passive side (liabilities) of the balance sheet begin with the opening balance on the *right* side so that when these entries are transferred to the balance sheet they will be easily put on the correct side. The left side of an account is referred to as *debit*, the right side as *credit*. With some accounts the opening balance is $0.00.

As has already been said, Lisa is responsible for the tools and materials; paper, card stock, and thread. She has four material cards, one for the tools and one for each of the three materials. She enters on the cards everything that she gives out and what comes back in.

Bernie is responsible for the cash box and sales. He also writes the invoices for the sold books, enters the accounts payable into the proper account, and controls the payments coming in. If enough money has come in he pays the accounts payable on instructions from the class. He also pays back the loans and interest at the proper time. When all is said and done, he is the one who calculates what would be entered on the profit and loss statement.

Jane takes care of the book account for the books that have been produced. She very quickly made account cards with the standing of each kind of book so that she could quickly determine if an order must be fulfilled immediately and what kind of books should be produced next. If we need other accounts later we will open them.

Again, we must ask a few questions: Why does an account for assets begin with a debit? Why does an account for liabilities begin with a credit? How can cash in the till be considered a debit?

This again depends on the assumed point of view. The students who have paper, card stock, or money, they have something to do! It is expected that they work with those things! They are obligated to be responsible to the business for what is given to them. If they have done something for the benefit of the business then they are discharged of the responsibility.

This can be well understood where the cash box is concerned: Whoever looks after the cash for our business may not look upon that money as his or her personal funds, but rather must use it for the business only, when more materials need to be purchased, for example, or it must simply be carefully kept. That is why for this person the money is a debit. They owe it to the business. Very understandable! It is the same with the accounts on the passive side: Whoever, for instance, administers a debt account is doing it as a substitute for the creditor. For the creditors, the debts of our business are credits. These are wiped out as the debts are paid.

Here the double entry bookkeeping connects the different accounts of our business. More general, in economy my accounts payable are somewhere else accounts receivable and vice verse. Actually – if the bookkeeping is correctly done – world economy is more or less one big enterprise that is connected by bookkeeping and the related facts. In contrast to a single enterprise there is not only one board responsible but many different people. World economy will work better if there is a global consciousness and the feeling of responsibility for the whole world.

Questions: Can the global financial system be seen as a way of bookkeeping of the world economy? What happens if the money system falls sick? What are sicknesses of the money system?

Lisa:

dr. Business Equipment cr.

bb	$190.00		

dr. Material cr.

bb	$0.00		

Jane:

dr.	**Books**		**cr.**
bb	$0.00		

Bernie:

dr.	**Cash**		**cr.**
bb	$240.00		

dr.	**Sales**		**cr.**
bb	$0.00		

dr.	**Accounts Receivable**		**cr.**
bb	$0.00		

dr.	**Accounts Payable**		**cr.**
		bb	$0.00

dr.	**Loans**		**cr.**
		bb	$390.00

dr.	**Profit/Loss**		**cr.**
bb	$0.00		

dr.	**Net worth**		**cr.**
bb	$40.00		

Making Business Entries

Even before we began with the production of books, we had already been actively pursuing some business activities. We listed these activities in a business *journal* according to their date, and numbered them:

(1) Oct. 14 Purchased 3 awls for $15.00, paid cash
(2) Oct. 14 Purchased 3 rolls of heavy duty thread for $15.00, paid cash
(3) Oct. 20 Received 12,000 sheets of A3xxx paper, $168.00, invoice
(4) Oct. 20 received 1000 sheets of A3xxx card stock, $75.00, invoice

In order to correctly enter these business activities, we clarify in which account each transaction belongs:

Transaction number (1) has to do with the *business equipment* account and the *cash box* account. The (money) value that is taken from the cash box shows up again in the business equipment account. The amount is entered twice; once in credit in the cash box account and once in debit in the business equipment account. Our assets have not changed by this acquisition.

dr.	**Business Equipment**		**cr.**
bb	$190.00		
(1)	$15.00		

dr.	**Cash**		**cr.**
bb	$240.00	(1)	$15.00

We must also enter the purchase (2) of the thread twice; once in the materials account and once in the cash box account. We enter transactions (3) and (4) in the materials account and also the accounts payable account:

dr.	**Material**		**cr.**
bb	$0.00		
(2)	$15.00		
(3)	$168.00		
(4)	$75.00		

dr.	**Cash**		**cr.**
bb	$240.00	(1)	$15.00
		(2)	$15.00

dr.	**Accounts Payable**		**cr.**
		bb	$0.00
		(3)	$168.00
		(4)	$75.00

Naturally, there were long discussions about what should be entered under debit and what under credit. Why is an amount that is *paid out* from cash entered into the account under

credit??? Actually, we already had this discussion when opening the accounts and the cash on hand was entered under debit; but it seems to me that one must discuss this subject often. We once again clarified: The money that Bernie was administrating was not his private funds, but rather he had a responsibility to the business, and when he paid out some money then he was discharged of that part of his responsibility. He had fulfilled a part of his assigned task.

It is easier to understand why we speak of a *double entry bookkeeping* system; because every business transaction is entered *twice*; once under debit and once under credit. Of course, what accounts are used depends upon the nature of the transaction. The accounts offset each other. How did it come about that someone thought of this double entry system of bookkeeping?[16] Our teacher reminded us about the time accounts we had discussed in the sixth grade.[17] They helped us gain a better overview of completed work, and also helped us calculate for the hours we had worked for someone else. But the most important thing was that one learned to look at every work task from two sides; from the side of those who had done the work and the side of those who received benefit of the work. These two sides exist with all work that is done for someone else. When these benefits or services are traded, as is the case when something is not a gift, then that which is given must always appear with the other as something received, and vice-versa.

For example, if I buy a loaf of bread then I give the baker money for it. I trade money for bread, and I do it because the bread is more important to me than the money, and the money is more important to the baker than the bread. The baker experiences an increase in money supply and a decrease in bread supply, and I, the buyer, experience just the opposite. If I correctly enter it, then I get a mirror image of the transaction with my transaction partner. I can become conscious of the baker's side of the transaction. So, double entry bookkeeping is a wonderful means of bringing into consciousness both sides of every business transaction. Every purchase, or even every trade, has a receiver and a giver. Imagine a purchase transaction between two businesses; the same entries will appear in each of the two bookkeeping accounts only they will be mirror images of each other.

If I look at my own business as each account being its own micro-business, its own area of responsibility, then I am already practicing looking at the interplay of human work from both sides. And, since my business can not exist only for and of itself, but rather, by using work done previously, (forestry, paper production, transport, etc.) it exists for other people for whom my work is, in turn, preliminary work for them, then economies are always a whole, in which countless people are interconnected.

If, in normal bookkeeping, every transaction is expressed in monetary terms, then, in a wider sense, one can learn to see both sides of all human to human directed activities, through which destinies are forged. Even every spoken word can be experienced from two sides; that of the speaker and that of the listener. And how different these two aspects can be![18]

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16 The first known instance of double entry bookkeeping comes from *Luca Pacioli.* B. Hardorp writes: "Luca Pacioli (1445-1515) was a Franciscan priest, teacher, and professor of theology, mathematics and bookkeeping: with great knowledge of life...He was friends wit*h Leonardo da Vinci*, with whom he was several times (1496-1499) in service to the Duke of Milan, and for whom he calculated the amount of bronze that would be needed for the equestrian sculpture for the Duke..."Benediktus Hardorp, *Lebensorientierung durch Buchfuehrung? Zum 500-Jahre-Jubilaeum der doppelten Buchhaltung*. Found in: DIE DREI, Issue 12/1994, pages 1007-1018.

17 cf. Ernst Schuberth, *Der Geometrieunterricht an Waldorfschulen,* Volume 3: *Erste Schritte in die beweisende Geometrie fuer die 6. Klasse.* Stuttgart, Verlag Freies Geistesleben, 2001.

18 cf. annotation 16.

The Book Production on the First Day and Understanding the Bookkeeping System (das buchhalterische Erfassen)

The first "workday" everything is organized as has been explained above. The template has been made with the help of the wood shop teacher and the production system has been explained. First, 100 regular books will be produced. We will need 1,200 sheets of paper, 100 sheets of card stock, and thread. The group that is responsible for putting together the paper and the cover sheets asks Lisa for the material. The group that is binding the loose sheets gets a spool of thread for $5.00. Lisa makes note of the material given out and its monetary value on the materials note card. At the end of the workday we have used thread valued at about $2.00. The leftover thread goes back to Lisa. She enters the estimated amount used. Jane enters the 100 regular books.

After we have used one whole morning for practical work, setting up the work space, and getting used to the production system, the next day we review the work from the previous day. We not only produced books, but a few of us did the accounts. Now we all look at what they have written down and write it in our own main lesson books (still those that have been purchased).

Our business transactions from Oct. 22, 20... are written as follows in the journal:

(5) 10-22-.. We used 1200 sheets of paper valued at $16.80, 100 sheets of card stock valued at $7.50, and thread valued at $2.00 in order to produce 100 regular books.

How should this be correctly entered into the books? We begin with Lisa's materials account. It receives $16.80 (paper) + $7.50 (card stock) + $2.00 (thread) = $26.30 on the *credit* side because it has been discharged of the responsibility of $26.30 through the giving out of materials. At the same time, the book account (Jane) gets $26.30 on its *debit* side. Jane is now responsible for this amount of value.

The amount of $26.30 is entered twice; once on the debit side (with Jane), and once on the credit side of the materials account with Lisa. With every entry at least one account is charged and at least one account is discharged of the same amount.

dr.	**Material**		**cr.**
bb	$0.00	(5)	$26.30
(2)	$15.00		
(3)	$168.00		
(4)	$75.00		

dr.	**Books**		**cr.**
bb	$0.00		
(5)	$26.30		

These entries describe the *flow of materials.* From the raw materials, books were made; through the work, it flowed and was transformed into the books. If we now sell the books we enter the amount sold into a *sales account, not* into the books account. Cash taken in we enter in the debit side of the cash box account and in the credit side of the sales account. If we deliver something on an invoice then we will write it into the accounts receivable as a debit.

Further Activities

What we did next resulted in the following list of activities. Trying to figure out how all these different transactions should be entered into the books was a difficult task for us. If one follows the figures of the business occurrences one will see how we did it.

(6) Oct. 24,20... We used 1,500 sheets of paper with a value of $21.00, 100 sheets of card stock with a value of $7.50, and thread for $2.00 to produce 100 jumbo books.

(7) Oct. 26, 20.. We sold 40 jumbo books for cash in the amount of $36.00 to the 4th grade. Our first sale!

(8) Oct. 26, 20.. We used 1,800 sheets of paper worth $25.20, 200 sheets of card stock worth $15.00, and thread for $3.00 to make 200 mini books.

(9) Oct. 26, 20.. We sold 40 mini books and 40 jumbo books for a total of $64.00 on an invoice to the 6th grade.

(10) Oct. 27, 20.. We used 3,000 sheets of paper worth $42.00, 200 sheets of card stock worth $15.00, and thread for $3.00 to make 200 jumbo books.

(11) Oct. 27, 20.. We sold 100 mini books for $70.00 and 100 jumbo books for $90.00 on an invoice to the 8th grade.

(12) Oct. 27, 20.. We used 2,400 sheets of paper worth $33.60, 200 sheets of card stock worth $15.00, and thread for $3.00 to make 200 regular books.

An Interim Balance Sheet

Before the autumn vacation we made an *interim balance sheet* in order to practice and to see how our business was doing. To do this we had to *close* all the accounts. That means: Every account is balanced just like on a balance sheet. We achieve this by taking the difference between debit and credit, called the ending balance, and add it the opposite side of the OB; that is, for an active account it would be in credit, and for a passive account in debit. (Materials) expenses and sales are entered on the profit and loss statement. The difference between the two is the *profit.* Profit increases our net worth and will therefore be entered into the net worth account. All ending balances will then be entered at the appropriate places on the balance sheet.

In our case, this process seems to be unnecessarily involved, but in the case of larger businesses, it is important to have an immediate overview of the profits or losses that is independent of the entire situation of the net worth. Profits or losses mirror the success or failure of a business from a financial perspective.

Closing the Accounts

dr.	**Cash**	**cr.**	
bb	240.00	(1)	15.00
(7)	36.00	(2)	15.00
		eb	246.00
	276.00		276.00

dr.	**Accounts Receivable**		**cr.**
bb	0.00	eb	224.00
(9)	64.00		
(11)	160.00		
	224.00		224.00

dr.	Books		cr.
bb	0.00	eb (W)	211,60
(5)	26,30		
(6)	30.50		
(8)	43.20		
(10)	60.00		
(12)	51.60		
	211.60		211.60

dr.	Material		cr.
bb	0.00	(5)	26.30
(2)	15.00	(6)	30.50
(3)	168.00	(8)	43.20
(4)	75.00	(10)	60.00
		(12)	51.60
		eb	46.40
	258.00		258.00

dr.	Business Equipment		cr.
bb	190.00	eb	205.00
(1)	15.00		
	205.00		205.00

dr.	Accounts Payable		cr.
eb	243.00	bb	0.00
		(3)	168.00
		(4)	75.00
	243.00		243.00

dr.	Loans		cr.
eb	390.00	bb	390.00
	390.00		390.00

dr.	Sales		cr.
eb	(X) 260.00	bb	0.00
		(7)	36.00
		(9)	64.00
		(11)	160.00
			260.00

dr.	Net worth (assets)		cr.
eb	88.40	bb	40.00
		(Z)	48.40
	88.40		88.40

dr.	Profit/Loss Statement		cr.
	(X) 260.00		(W) 211.60
		eb	(Z) 48.40
	260.00		260.00

The ending balances will then be entered in the appropriate places on the balance sheet. The accounts named “books” and “sales” with their closing inventories designated by (X) and (W) are first entered into the profit/loss statement and from there as closing inventory (Z). into the balance sheet.

Book Express

Interim Balance Sheet

October 28. 20...

Assets			**Liabilities**	
Fixed Assets		$	Liabilities	$
	Business Equipment:		Mrs. Smith (Paper Cutter)	150.00
1	Paper Cutter	150.00	Wagner Family	30.00
1	Package Needles	3.00	John	10.00
2	Pair Scissors	10.00	Mr. X (Anonymous)	200.00
3	Three Awls	15.00	Accounts Payable	243.00
1	Cash Box	27.00	---	---
Sum Fixed Assets		205.00	Sum Liabilities	633.00
Short-term Assets			Net worth	
	Cash	246.00	Net worth	88.40
	Materials	46.40	---	---
	Accounts Receivable	224.00		
	Sum Short-term Assets	516.40	Sum Net worth	88.40
	Sum total	721.40	Sum total	721.40

The net worth have increased by $48.40. That is not very much when one thinks how much we have already worked. But we have not yet sold very many books. The exchange, or sale, (exchange of money for product or vice-versa) is what allows the value to really come about, not our work alone. It must first be *valued* by others.

Continuing the Work

After the autumn school vacation xxx we continue the work of our business venture. After a little while, the following entries could be found in our journal:

(13) Nov. 5, 20.. We sold 150 regular books for $120.00 cash to the third grade.
(14) Nov. 5, 20.. The sixth grade paid the invoice in the amount of $64.00 cash.
(15) Nov. 5, 20.. We purchased thread and paid $3.00 cash.
(16) Nov. 6, 20.. We used 2,100 sheets of paper worth $29.40, 200 sheets of card stock worth $15.00, and thread worth $3.00 to make 150 mini books and 50 jumbos.
(17) Nov. 6, 20.. We sold 100 regular and 100 jumbo books for $170.00 cash to the third grade.
(18) Nov. 6, 20.. The eighth grade paid the invoice in the amount of $160.00 cash.
(19) Nov. 7, 20.. We paid our debt to the Wagner Family, Hans, and Mr. X for a total of $240.00 and also paid the accrued interest of $1.20.
(20) Nov. 7, 20.. We paid the invoice for the paper and card stock delivery in the amount of $243.00 cash to the school. The school will pay the invoice directly.
(21) Nov. 8, 20.. We sold 100 mini books for $70.00 cash to the fourth grade.
(22) Nov. 10, 20.. We sold 120 jumbo books for $108.00 cash to the second grade.
(23) Nov. 10,20.. The rest of the books we purchased ourselves – 110 mini books, 50 regular, and 50 jumbo – for $162.00 using class money budgeted for that purpose **(**not from our business accounts!).
(24) Nov. 10, 20.. We returned the paper cutter ($150.00) loaned to us by Mrs. Smith.

We created a new account for the interest we paid on the loans.

The completion of our Enterprise

When the paper materials have been used we end our business enterprise. What do we need to think about in order to do that? The books are all sold. What should we do with the business equipment? How do we close out the books? And finally: What is the financial result of our work?

We managed to sell our business equipment, including the template and leftover thread, for $50.00 to a student in the upper grades. He had noticed how well our books sold and wanted to start his own small business. This business functioned well for some time and some of the students in our class even worked for him. The sale of our business equipment was our last business transaction (25).

(25) Nov. 15, 20. We sold our business equipment (minus the paper cutter) and the rest of the thread for $50.00.

Of the $50.00, we entered $48.00 into the business equipment account and $2.00 into the materials account as credits, and, of course, $50.00 debit in the cash box account. The value of our business equipment on our balance sheet is $55.00. The loss of $7.00 shows up in the business equipment account (V). However, with a professionally correct bookkeeping system we would have had another procedure.

Then we had to once again close the accounts just as we did with the interim balance sheet. That means: Just like the balance sheet, at the end, every account must be balanced. Added to that, we calculate the difference between debits and credits and enter the amounts opposite the beginning balances. We see the *profit* in the final entry on the profit/loss statement as well as in the difference between the opening balance and the ending balance of the net worth. It gives immediate expression as to how much higher our customers valued the finished books as opposed to the materials used to produce them. Only when we, or others, encounter such a higher estimation of value can we, or others, be active in business.

II.2.4.1.1 Die abgeschlossenen Konten xxx

dr.	Business Equipment		cr.
bb	190.00	(24)	150.00
(1)	15.00	(25)	48.00
		eb (V)	7.00
	205.00		205.00

dr.	Material		cr.
bb	0.00	(5)	26.30
(2)	15.00	(6)	30.50
(3)	168.00	(8)	43.20
(4)	75.00	(10)	60.00
(15)	3.00	(12)	51.60
		(16)	47.40
		(25)	2.00
		eb	0.00
	261.00		261.00

dr.	Books		cr.
bb	0.00	eb (W)	259.00
(5)	26.30		
(6)	30.50		
(8)	43.20		
(10)	60.00		
(12)	51.60		
(16)	47.40		
	259.00		259.00

dr.	Sales		cr.
eb (X)	890.00	bb	0.00
		(7)	36.00
		(9)	64.00
		(11)	160.00
		(13)	120.00
		(17)	170.00
		(21)	70.00
		(22)	108.00
		(23)	162.00
			890.00

dr.	Cash		cr.
bb	240.00	(1)	15.00
(7)	36.00	(2)	15.00
(13)	120.00	(15)	3.00
(14)	64.00	(19)	241.20
(17)	170.00	(20)	243.00
(18)	160.00	eb	662.80
(21)	70.00		
(22)	108.00		
(23)	162.00		
(25)	50.00		
	1.180.00		1.180.00

dr.	Accounts Receivable		cr.
bb	0.00	(14)	64.00
(9)	64.00	(18)	160.00
(11)	160.00	eb	0.00
	224.00		224.00

dr.	Accounts Payable		cr.
(20)	243.00	bb	0.00
eb	0.00	(3)	168.00
		(4)	75.00
	243.00		243.00

dr.	Loans		cr.
(19)	240.00	bb	390.00
(24)	150.00		
eb	0.00		
	390.00		390.00

We used the interest formula to calculate the interest[2]:

$$z = K \cdot \frac{p}{100} \cdot \frac{t}{360}.$$

We got the loans on Oct. 20th and paid them back on Nov. 7th. This gives t = 18 days of interest. The interest rate was p = 10%. The entire loaned amount was K = \$240.00. According to the interest formula z = \$1.20.

dr.		Interest Paid		cr.
bb		0.00	eb	1.20
(19)	(Y)	1.20		
		1.20		1.20

[2] See Ernst Schuberth, 6th grade book xxx

dr.	Profit/Loss		cr.
(X)	890.00	(W)	259.00
		(V)	7.00
		(Y)	1.20
		eb (Z)	622.80
	890.00		890.00

dr.	Net worth		cr.
eb	662.80	bb	40.00
		(Z)	622.80
	662.80		662.80

(W) expresses the disbursement of materials, (V) is the loss from the disposal of the business equipment, (Y) is the interest payment. The income (profit) of $890.00 stands greater than the losses (disbursements) of $267.20. The difference between the two amounts gives a clear profit (Z) of $622.80. This amount is entered in the net worth account and from there is entered into the balance sheet like the other closing amounts:

Book Express

Closing Balance Sheet

Nov. 20, 20...

Assets				**Liabilities**
Fixed Assets		$	Liabilities	$
	Business Equipment:	0.00	Loans	0.00
Sum Fixed Assets		0.00	Sum Liabilities	0.00
Short-term Assets			Net worth	
	Cash	662.80	Net worth	662.80
	Sum Short-term Assets	662.80	Sum Net worth	662.80
	Sum total	662.80	Sum total	662.80

If we compare the net worth in the closing balance with the opening balance, we see that net worth have increased by $622.80. Since we have changed all of our assets into money capital it is logical that the cash box amount stands at $622.80.

Summary Thoughts

What value have we created through our activity? The books, of course, which have fulfilled their duty to the students, and with which some of the students have created true works of art. This value stands independently from what we have earned. Our earnings also fundamentally express something else: On the one hand, they express how well we did the work. For example, if we had wasted a lot of material we would have produced less books for the same materials cost. On the other hand, our earnings tell about the relationship our work has to other people: Is there any interest in our work? Do other people want it? Are there customers for us? Who is still producing books and at what price? How is their productivity? We discussed many questions of this kind together. One student said: We really didn't earn very much. We are thirty students in the class and have sometimes worked very hard. If we worked one-quarter of the time, like adults, and had to live from the money, it would be very tight. Our parents have fed us, clothed us, etc. during this time. Besides, we didn't pay any taxes or other social expenses like others who “really” work. All of this made us think and

put a damper on our initial pride. We decided to go and visit a real book factory and see how they are made. This was a very interesting field trip. In a factory not far from Heilbronn we saw large machines from which books shot out lightning fast, were automatically boxed, and soon warehoused. There were only a few people to be seen. We did not see any books that looked like those we had produced. Where do we normally get those kinds of main lesson books? We went to the school office to ask and learned that they are often made by people who work under protected conditions. Again, we had many discussions about these things.

Finally, we agreed on an evaluation of our work. The main value consisted in what we had *learned;* a small understanding of business, and we would not have wanted to miss that. The fruits of our knowledge would become visible one day, but only after we're grown!

Review of the Bookkeeping

We learned a lot, but it was hard work. Double entry bookkeeping seemed more difficult than producing the books. Our teacher said that in real businesses the bookkeeping is done by specialists who use computer programs. It is done very differently from the way we did it. But that does not matter. Most of us understood the process! If some of us become experts one day then we will also learn how to use a computerized bookkeeping system. But, in any case, today we discovered that we were capable of starting a small business, and then we would of course pay taxes! Our teacher said that was not necessary for this small "classroom" business.

II.3 Appendages

The following notes are given as a possible impetus for discussions. They should not be taught as fixed viewpoints, but rather as encouraging contemplation about the questions that have been raised. Something to be especially wary of are evaluative judgments such as, this is good – that is bad. We need an area of phenomenological social studies that discovers the effects on society of thoughts, viewpoints, and decisions.

II.3.1 Division of Labor Reduces Prices. How does it Change the Work Process?

Almost as a matter of course, we divided up the labor for the booklet production. By doing so, we developed increasing skill for the work that fell to us. We were able to produce the booklets faster and better than if each person had made an entire booklet on their own. The reasoning behind this division of labor is that, for example, a tailor has certainly developed different skills than a woodcutter, etc. The many good and inexpensive things that we use in large numbers everyday are thanks to such divisions of labor and specialization of work. Today, we add to that the fact that special tools and machines are manufactured for specific tasks. When it comes to specialized activities, it should be noted that we find a natural specialization in all animal species.

Division of labor allows us to increase the amount and quality of produced goods, and, at the same time, significantly decrease the amount of time needed to make each product. One speaks of an increase in *productivity.* Through the use of machines and development of new technologies, in other words, through *new thinking*, productivity is consistently increased and fewer and fewer people are needed to produce the necessary goods. For this reason, today all children can go to school in our part of the world. The time needed for working is reduced and it is possible to take vacations and do many other things that were unimaginable just three hundred years ago.

However, at the same time, specialization and division of labor makes work increasingly one-sided. Does this one-sided specialization threaten to make human beings take on more animal-like traits? In discussing these themes we touched upon many different questions

connected with increased industrialization in modern times. There is much to be discussed here in connection with history, geography, and other subjects. Here are some possible questions:

How does an individual person find balance in their lives if their work has become monotonous due to specialization? What roles do art, religion, and other aspects of culture play?

- How does an individual get a grasp on the whole product to which he or she contributes?
- Can the individual participate in bettering or beautifying the products?
- What share of that which is produced should go to the individual?
- What forms of sharing are possible? Here, as many different forms as possible should be concretely presented. For example, how are the teacher's salaries at a Waldorf School established?
- From an economic perspective, how do all the different people and professions fit into a society? (business people, priests, artists, etc.)

These and many other questions can be discussed with the students, and, in general, lead to intensive participation. Henry Ford's autobiography may provide an impetus for many questions or possibly answer some as well.19

II.3.2 The Wagoner

In the fourth lecture of Rudolf Steiner's national economics course, he describes the development of a wagon driver's business, in order to illustrate questions about generating capital with a model. He set his story in the economically simpler times of the middle ages.20 I will begin with his story because it offers a good opportunity to go into essential economic and social concepts and connections. The story may be told very freely to the students with one's own embellishments as desired.

We begin with a short description of the mountain mines in the middle ages where deposits of ores and other minerals were often far from the villages. So, it was usually a long march to and from the hard work in the mines.

One day one of the men had the idea of putting benches for about twelve men into a lightly built farm wagon. He would use horses from his parents' farm that were not in use and, in that way, take himself and his friends to work and back. It would go faster and not make them so tired. They started out at the same time in the morning and arrived fifteen minutes earlier and were therefore able to lengthen their working time by that amount. That raised their earnings and allowed them to be more rested when they arrived home in the evening. The passengers paid the owner of the wagon a small sum for taking them.

Now, the wagon was parked in front of the mine tunnel all day and not in use. The owner, an entrepreneurial young man, was not very appreciative of his work in the cold, dark, and wet tunnel. He was always looking for opportunities to look after the horses that appeared to him to have a better destiny in the light and air then he had inside the mountain. Often, farm women would walk by on the path not far from the mine with heavy-laden carts full of goods they were taking to the market in the village where most of the mountain people lived. They brought eggs, bacon, chickens, and other things to sell at the market. It was a hard journey for them.

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19 Henry Ford, born July 30, 1863 in Dearborn, Michigan, died April 7, 1947 in Detroit. His biography appeared with the title *Mein Leben und Werk,* Leipzig 1923, and *Erfolg im Leben: Mein Leben und Werk,* in association with S. Crowther. Munich, List 1952.

20 Rudolf Steiner, *Nationaloekonomischer Kurs,* Complete Works 340, Lecture of July 27, 1922.

When these women saw the young man with his horses going by, they asked him to take them down to the village. He answered that he earned his living in the mountain and could not simply ride around for the fun of it. So the women started to offer him certain of their wares until he realized that he would not be able to buy that many things with the money he earned at the mine. So they agreed that he would take them down the mountain and back again twice a week in time to take his friends from the mine.

This is just an example of how one could paint the picture of how a former miner became a wagon driver who was soon very busy because he was dependable and available. This work was much more agreeable to him than his former job at the mine.

Soon he was being asked to haul things at times he was unable to do it because he was still going to and from the mine at set times of day. When the demand for his services kept increasing he decided to have a second wagon built that would be more suited to carrying freight than people, but could be used for people as well. But since he could not drive two wagons at once he had to look around for someone to help him. He found a man who was his neighbor's son and he was also dependable and skillful. The neighbor had a farm and seven sons so he did not necessarily need the labor of one of his sons. The earnings from the second wagon were shared. The owner kept the rest because most of the inquiries from customers went to him and he owned the wagons and the horses. He had become a capitalist in the true sense of the word. The horses and wagons were his capital upon which he earned interest through the work he did for others.

He had a third wagon made but had bad luck with it. It seemed something was always breaking on the wagon or the horses appeared to be weak and sick. For a long time he thought this was merely bad luck until some people told him that the driver of this wagon was abusing the horses and forcing them to go on roads that were in poor condition or too steep. He found a new driver and then his business began to get better because he was not losing so much money. He could only use people who were responsible and skillful workers.

Many years went by. It was a time in which there was peace in the land. The mine brought riches and with the wealth the driver’s business increased. Because of him the goods could be dependably and quickly exchanged. He married and his wife bore him a daughter. She was an only child. Now that he was older he hoped to be able to find a son-in-law who could take over his business, thus securing his living in old age.

The wealth of the land had awakened in the people a desire for beauty. One day a man appeared in the town who was a talented wrought-iron craftsman. His work on the cathedral was admired by everyone. There were of course other blacksmiths in town but none of them could come close to the artistic skill required to make anything like what the new man could do.

Destiny brought this young man into the family of the wagon driver and he asked for the daughter's hand in marriage. Everything about this marriage would have been fine if only the new son-in-law was willing to take over his father-in-law's business. There were many different wagons standing under covered shelters. There was a long row of horses in the barn. Whoever had something to transport always went to this business. The marriage was delayed, but the young man did not want to give up his profession. He thought that making artistic creations from iron was a much nobler task than driving a freight wagon. The daughter declared that she wished to marry no other man so her father took a step that he would not have thought possible earlier in his life. He found a buyer for his business. Now he had a lot of money. He built a beautiful, big new house for himself, his wife, and the children, and next to it was a wide, light-filled smithy that could hold many workers. The iron craftsman took on apprentices in his shop and soon his reputation had traveled far past the borders of his town. He was very busy with work for churches, noblemen, and rich citizens.

Here, one can point out to the students how the real capital of the old man was turned into money capital with the sale of his business. The owner of money disconnects himself entirely from real, material things. He can transform his money capital into completely other forms of real capital so that there is no connection to be found with the original real capital.

This is comparable to electricity, for example, that runs street cars, lights, or heats something. The electricity itself appears to have no real quality but it can affect the most varied real qualities in other things.21 From this comparison one can gain some clarity about the character of money, even though in the middle ages money still had some real capital value because it was made of gold or silver. But it is not this real capital value of money that is really interesting for us, just like electricity in itself is not what makes it interesting, but its effect on other things.

21 cf. Georg Unger, *Vom Bilden physikalischer Begriffe*, Vol. 1-3, Stuttgart, 1959 to 1967.