important methods used to teach the subject, together with a discussion of their raison d'être and their implications for children, teachers and schools.

With regard to the problems of generalisation, it would be worth reminding English readers that until the unification of the Reich in 1871 Germany was a patchwork of mostly small states, all with different governments and different educational systems. It is therefore impossible to make accurate generalisations about educational policy or practice as one might, for example, about England in the same period. It is not possible, as it would be in relation to Britain under the Science and Art Department, to make sound generalisations as to what kind of work was being done in this or that kind of school, or by a particular age group. Although many of the methods discussed here were intended for a special age range or school context, there is no guarantee whatever that they were so used; on the contrary, it is clear that once published or promulgated teaching methods were almost invariably adapted for use with children and students for whom they were never intended. The primary intention is therefore to identify and describe the main teaching methods used and to set them in a context of pedagogical history.

I will not weary the reader with a detailed account of the problems which beset any research study dealing almost exclusively with foreign language source material. However, it might be deemed relevant to mention the two following issues. The first is that some of the specialist terms in German do not have an English equivalent, or if they do it is so archaic that it would not mean anything to a contemporary reader. A case in point here is the word *Vorlage*, which meant a drawing or, more commonly, a print, from which the learner copied. In such cases I have provided a translation at the first mention, and then continued to use the German word. The second problem is that it is clear from a study of their usage that some of the terms did not have a stable meaning throughout the period and all over the German-speaking world. In such cases I have tried to make it clear from my use of the word what special shade of meaning it might have had in the context in question. I have provided a translation of the principal German-language book titles on first citation and then continued to use the German title throughout. To be consistent I have also followed this rule in relation to a book like Pestalozzi's *Wie Gertrud ihre Kinder lehrt* [How Gertrude teaches her children], which will, of course, be familiar to most English readers. A short glossary of German specialist terms can be found on pages 253–254.

1

The Origins of Pedagogical Drawing: Pestalozzi and Buss

Precursors

Many educational thinkers before 1800 recognised the potential of drawing as a subject in general education and made proposals for its adoption into the school curriculum. As examples of special relevance to the history of the teaching of drawing in German-speaking Europe one might mention the Moravian divine and educational reformer Johann Amos Comenius (1592–1670), the German Philanthropinist Johann Bernhard Basedow (1724–1790) and the French-Swiss Jean Jacques Rousseau (1712–1778).[1] The thinking of these pioneers rarely, however, went beyond the level of generalised recommendations; and it is not until the early years of the nineteenth century that we find an attempt to utilise drawing as a full-fledged subject in the general school curriculum together with the definitive characteristics of a theoretical rationale, a developed syllabus and a specially devised teaching method. Before 1800 the teaching of drawing, even in general education, consisted in the main of makeshift adaptations of methods derived from the conventions of the academy school, the atelier and private tuition. These often featured the practice of copying from flat designs, recommended by Basedow but rejected by Rousseau. They also tended to depend upon personal tuition of the individual rather than simultaneous instruction of a whole class. During the nineteenth century these methods were largely replaced by methods devised to teach drawing as a class subject to frequently large groups of children. The shift was from *Einzelunterricht* (tuition of individual children) to the so-called *Massenunterricht*, the simultaneous instruction of large school classes, which frequently exceeded sixty in number. This development was accompanied by a completely transformed attitude to the role of drawing in general education and the emergence of the concept of "pedagogical drawing" (*das pädagogische Zeichnen*), "whereby," as E.J. Hentschel was to write in 1838, "one is accustomed to understand that which is necessary for everyone in the population to learn for the

purpose of the harmonious development of his powers, as opposed to artistic drawing (*Kunstzeichnen*)."[2]

Pestalozzi's Lasting Influence

This important innovation took place in the years around 1800 and centred on the German-speaking Swiss Heinrich Pestalozzi and his immediate disciples and assistants. Its first major public expression can be dated to 1801, when he published *Wie Gertrud ihre Kinder lehrt* [How Gertrude teaches her children][3] and 1803, which saw the publication of the elementary drawing manual entitled *ABC der Anschauung* [ABC of *Anschauung*].[4] The latter work was prepared by Pestalozzi's assistant Christoph Buss as a realization of the Pestalozzian method applied to drawing. Only the preface is by Pestalozzi himself, although he is known to have approved of Buss's interpretation of his pedagogical method.[5] The word *Anschauung* has been variously translated as "observation", as "sensory impression", or as "sensory intuition". The fact is that there is no satisfactory equivalent for the term as it was used by Pestalozzi and his circle. A discussion of its meaning will be provided below. Both of the publications already mentioned will also be discussed below, together with others produced by his assistants Joseph Schmid and Johannes Ramsauer.

Almost all subsequent German-language authorities on the teaching of drawing in schools refer back to Pestalozzi as a figure of unprecedented significance. According to Oswald Grassmann, whose study *Der Zeichenunterricht in der Volksschule* [The teaching of drawing in the elementary school] appeared in 1888, Pestalozzi represented "a turning point in the history of the teaching of drawing"[6] because of his claim that drawing could be justified as an essential and integral part of every child's general education, and not merely as a luxury or optional extra. "From now on," remarked Grassman, "every child was to learn how to draw, for without instruction in drawing there could be no harmonious human development."[7] The Jena educational theorist Wilhelm Rein, writing in 1879, described Pestalozzi as the first to attempt to teach drawing according to pedagogical principles and pointed to the transformation of attitudes to drawing for which he was responsible. After Pestalozzi, he wrote, drawing was no longer to be thought of as a pursuit for a narrow class of dilettanti; nor was it to be confined to the "artistically talented"; nor only to those who needed it as part of the foundation for a vocation or a trade. Now it was to be granted equality with other subjects already accepted into the general school curriculum and was to be used for the cultivation of faculties found, in varying degrees, in all children. Nor was drawing to be valued exclusively for the quality of its products—the drawings themselves—but as an educational

process by means of which the child's skills, intellect and personality could be developed. Summarising Pestalozzi's achievement, Rein wrote:

> Before he engaged himself in the educational history of mankind the art of drawing had not been used pedagogically and was taught in schools and educational institutions only for special payment. The purpose of acquiring the subject was principally to practise drawing as a dilettante; no one had thought of an elementary treatment of the subject. What had been sought was not human development *through* art, but human development *towards* art, towards the status of artist. All this has changed since Pestalozzi's influence. He recognised in drawing an educational subject of general human culture, by means of which an aptitude which was a part of human nature must be developed and exercised, and granted it the same position and importance as other essential educational subjects.[8]

A contemporary reader who turned directly from eulogistic accounts of Pestalozzi's personality and genius to a work like the *ABC der Anschauung*, which embodies his theory of elementary education in relation to drawing, would probably be shocked and disappointed by its apparent dullness and aridity. He would find a series of what appeared to be little more than banal and repetitious geometric exercises, containing nothing which could be related to modern notions of art education, self-expression and child art. Indeed, many subsequent commentators were to charge Pestalozzi with having laid the foundation for the worst excesses of nineteenth century pedagogy, with its iron discipline, its subject-centered authoritarianism and its dreary uniformity. Negative evaluation of Pestalozzi's innovations were not long in appearing. Only three years after his death Wilhelm Perschke reported: "The enthusiasm for his teaching method has gone up in smoke, and the belief that those forms contained the possibility for a regeneration of humanity has disappeared."[9] Reviewing the history of elementary drawing method in 1893 Konrad Lange, one of the leaders of the German reform movement remarked: "It has arisen from a complete misunderstanding of the whole Pestalozzian theory," and concluded rather gloomily: "As to the further development of this principle by Herbart, Fröbel and the more recent teachers of drawing I shall remain silent. It is not a pleasurable task to write the history of an aberration."[10]

The study of Pestalozzi presents special problems for anyone predominantly or exclusively concerned with the teaching of drawing. The first of these is the sheer quantity of his published work. The definitive German edition of his works"[11], commenced in 1927 and planned to run to 21 volumes, is still in progress at the time of this writing. References to drawing are scattered throughout this vast *œuvre*, and no one but the most dedicated Pestalozzianer could claim to have read everything said by the master on the subject. In addition to being prodigious in quantity, his literary works are

both complex and frequently obscure. Pestalozzi never claimed to be a philosopher or a social scientist in the modern sense, and even his more ardent apologist will have to agree with his biographer Kate Silber that "since Pestalozzi was untrained in scientific accuracy, he uses his terms loosely and ambiguously."[12] This is especially true of terms of, for us, critical importance, such as *Kunst*, which can mean "art" in the contemporary sense, or simply "skill", or any one of several shades of meaning in between. Needless to say, only a fraction of Pestalozzi's total output is available in English translation.

In the course of the nineteenth century Pestalozzi's voluminous writings were printed in large editions and widely read throughout German-speaking Europe as well as being translated into other European languages. In addition to this there has appeared a large secondary literature which includes several biographical studies and even periodical series such as *Pestalozzi-Blaetter* (1880–1906) and *Pestalozzi-Studien* (1927–1932). A proportion of this secondary material has been written in the spirit of educational hagiography, a fact which further complicates the process of attaining a clear and balanced assessment of Pestalozzi's true achievement. In an article entitled "*Pestalozzi unser Führer*" [Pestalozzi our leader], published in 1905, his biographer Paul Natorp provided a half-ironic account of his enduring messianic reputation:

> At a time of critical decision he appeared like someone sent by God, since we were poised on the brink of destruction. Even the most impartial dared to compare him with he who threw himself into the depths of wretchedness in order to save, who "himself lived like a beggar, in order to learn how to enable beggars to live like men"—the man from Nazareth.[13]

"And yet," continued Natorp wryly, "how completely different were the circumstances and the manner of his achievement."[14]

In order to reduce the topic to manageable proportions the following approach will be used. A brief summary of Pestalozzi's life and times will establish the principal historical events of his day and their relation to his personal biography. As far as is possible, historical background and biographical data will only be introduced when it can be shown to have had a bearing on his views on the teaching of drawing in general education. This will be followed by an account of his theories on the teaching of drawing, especially in relation to the two key works *Wie Gertrud ihre Kinder lehrt* and the *ABC der Anschauung*. His approach to drawing will then be discussed in the context of his general theory of education. Finally we shall rehearse and discuss some of the evaluations of the success of the Pestalozzian system of teaching drawing.

Historical Context and Biographical Information

Heinrich Pestalozzi (1746–1827) was born in Zurich and descended from a family of Italian Protestant refugees which had settled in Switzerland in the mid-sixteenth century. In the mid-eighteenth century Switzerland contained a number of philanthropic institutions for the promotion of public education and health and the combatting of poverty, crime and destitution. In many respects, however, Switzerland, like its monarchist neighbour France, was socially and politically stagnant. As part of a policy to concentrate economic and social power in the hands of a limited class, the Swiss cantons had since the second half of the seventeenth century closed their registers of citizenship, and it was almost impossible for a peasant to obtain full citizen status.[15] Marriage between citizens and peasants was forbidden. Rural peasants were denied the right to move to the town or to practise a trade protected by one of the citizens' guilds. Political and economic power was concentrated in the hands of a small number of prominent families. Civil rights, political influence and wealth were largely determined by heredity; and there was little opportunity for a member of the peasant or subject class, no matter how gifted and energetic, to break out of the social role which had been allotted to him at birth. As a modern historian put it, "Oligarchy reigned everywhere under different names."[16]

The ruling autocracies, like the guilds and the means of production and sale, were concentrated in the towns, which tended to create a cultural and economic rift between the urban and the rural populations. In the canton of Berne, non-burgesses were not permitted to trade; in Zurich, industrial activity was confined by law to the bourgeoisie. "The most selfish administrations were the corporative ones, Zurich and Basel in particular. The situation they created was one where town systematically exploited countryside."[17] The steadily increasing wealth of the cities, based upon improvements in manufacturing techniques and entrepreneurial activity, did nothing to ameliorate the plight of country folk, and over-population, disease, crime and corruption all played a part in creating a mood of unrest and a population ripe for revolution. The response of officialdom was the customary combination of strict censorship and severe penalties for offences against the social and political order.

Pestalozzi's father, a surgeon and oculist, died when Pestalozzi was only five years old, and he was raised only by his mother and a faithful family servant. The two women struggled in reduced circumstances to maintain appearances and to raise and educate the children of the family in a manner appropriate to their class. His background was in consequence something of an anomaly in his day, namely that of a poor citizen. "Thus Pestalozzi was brought up with great simplicity and came in contact with the poor far more

than most young 'citizens'."[18] His school career was undistinguished and he left without formal qualifications. He spent several periods with his grandfather, a country pastor, thereby gaining his first insights into the plight of rural peasants. Transferring to a college which prepared young men of good family for the professions, he joined a circle of students and intellectuals dedicated to social and political reform, becoming a member of the "Helvetic Society", an association which was regarded with suspicion by the authorities.

As Pestalozzi arrived at adulthood, the ideas of the Enlightenment filtered through to Switzerland, creating cultural ferment and arousing an intensified desire for social justice and political reform. The publication of the *Social Contract* by the Swiss expatriate Rousseau in 1762 served to fuel the reformist zeal of the Helvetic Society, and in the same year his *Emile*, referred to by Pestalozzi as a "dream book" (*Traumbuch*), heralded the coming assault on educational conventions. Both works were prohibited and publicly burned in Geneva, Rousseau's home town, and their author was sentenced in absentia to a period of imprisonment. Pestalozzi's involvement with radical politics and allegedly subversive literature brought him under the suspicion of the authorities and culminated in a brief period of imprisonment.

He wavered in the choice of a profession. After an attempt at the ministry he turned to law; but both professions would have exacted the penalty of a degree of social conformity which he was not prepared to pay. He finally settled on the role of gentleman-farmer. Agriculture had a special appeal for people in his position: compared with the suffocating conventions of city life it promised nature, freedom and the open air. Recent improvements in cultivation and animal husbandry through the exploitation of scientific advances appeared to offer a cure for the endemic poverty of country folk, promising them economic and social independence from the cities and even the prospect of a rustic Idyll—a vision which was to haunt the thought of his generation and which found expression in the work of his English contemporary William Blake (1757–1827).

In 1769, after a brief and inadequate training in agricultural techniques, he bought an estate at Neuhof bei Birr and moved in with his newly-wedded wife, Anna Schulthess. Pestalozzi had little to offer the enterprise in terms of technical knowledge or business sense, and his unquenchable enthusiasm was not enough to make the venture a success. His revolutionary theories of scientific agriculture did not produce the dramatic results which had been hoped for, and year by year the estate ate into his own and then his wife's resources. An important consolation was the birth of his son in 1770, whom he named Jean-Jacques after his idol Rousseau. He decided to educate the boy himself and began a diary of his progress, the pages of which illustrate

the evolution of his thought in relation to education and teaching, and the formulation of principles which were ultimately to determine the Pestalozzian approach to drawing.

According to this diary, on 14 February the three-year-old child was drawing straight lines under his father's direction. His friend the bookseller Johann Christain Füssli states a principle which Pestalozzi was to elaborate as one of the foundations of his pedagogy—that no exercise should be undertaken until the preceding one had been perfectly completed.

> I made him draw straight lines and an upright perpendicular line. Herr Füssli said to me: "Everything that they do should be quite complete. Let there be no going on from a to b till a is perfectly known—and so in everything. Never be in a hurry to proceed to the next point, but remain at the first one till it has been thoroughly mastered, in this way you will avoid confusion in the future." Order, accuracy, completeness, perfection—how strongly I feel that my character was not properly developed in these points in my earliest years. These same failings are now a source of danger to my child—the temptation to yield to the exuberance of his feelings, to be satisfied with quick, showy success, and, blinded by the brilliance in many things, to forget or ignore particular faults. Lack of development is concealed by a semblance of development. Do not let me forget: Everything complete and nothing in a hurry—order, accuracy, completeness, and perfection.[19]

Five days later, on 19 February, we find Pestalozzi reflecting upon the moral benefits of education. Turning again to drawing he considers the value of the child's drawing an object from his everyday surroundings. He lays the stress on the moral value of patient work; it does not really matter if the drawing itself, which is probably beyond the child's competence, is successful.

> Let the natural instinct for imitation guide you here. You have a stove in your room. Make a drawing of it; if your child in the course of a whole year should not succeed in drawing a proper stove, he will at least have grown accustomed to sitting still and working.[20]

It is in the Neuhof diary that we find the earliest expression of principles which were to provide the basis for Pestalozzian pedagogy. They include the principle that the material to be learned should be ordered in a logically determined sequence which took account of the laws of human development; that no stage should be attempted until the preceding one had been completed to perfection; that there should never be a sense of hurry or urgency. The application of these principles in the teaching of drawing was to pose special problems for the teacher: What kind of drawing exercises permit of an ordered sequence of difficulty? How does one establish a criterion of perfection in relation to the drawings of very young children? Must highly gifted children be bound by the sequence and pace of a predetermined syllabus?

In 1775 he converted Neuhof into a colony for the poor and by 1777 he was accommodating 50 poor people including 36 children, for whom he provided an elementary education combined with work experience. The colony was a success in educational terms but a financial disaster and in 1779 had to be disbanded, leaving Pestalozzi and his wife ruined. He turned to writing as a livelihood, publishing between 1781 and 1787 a highly successful didactic novel entitled *Lienhard und Gertrud* [Leonard and Gertrude]. The novel tells the story of a village community afflicted by poverty and corruption. Gertrude, a simple but virtuous and intelligent housewife, demonstrates how someone of minimal education but equipped with good sense and good will can overcome hardship and evil. Significantly, Pestalozzi includes drawing as one of Gertrude's modest range of accomplishments:

> Except spinning, sewing, and the other household arts of which she is master, Gertrude knows little beyond the beginnings of drawing and writing and nothing at all of what may be called technical education.[21]

In 1793 Pestalozzi met the German philosopher Gottlieb Fichte, who was responsible for introducing him to the work of Immanuel Kant. Kant's *Kritik der reinen Vernunft* [Critique of pure reason] had been published in 1781, the same year as the first volume of *Lienhard und Gertrud*, and was to be a major influence in the development of European philosophy. From this time on we find evidence of Kantian thought in Pestalozzi's work including, as I shall argue below, a special influence in relation to the teaching of drawing.

After the abandonment of the Neuhof scheme in 1779 Pestalozzi committed himself to writing for a period of almost two decades. Like many of the intellectuals and artists of his day he was at first an ardent supporter of the ideals of the French Revolution when it broke out in 1789. His support for revolutionary ideals led in 1792 to his being made Honorary Citizen of the French Republic. The subsequent transformation of the Revolution into a war of foreign conquest engulfed Switzerland in the tides of conflict, producing hardship which exceeded even that of the pre-Revolutionary period.

The formation of the French-inspired Helvetic Republic in 1798 gave Pestalozzi the opportunity to return to teaching after a break of nearly twenty years. He was given in 1798 the responsibility for organising a school at Stanz to cater for destitute and orphaned children left in the wake of the total destruction of the town by the French army. The Stanz institution lasted only a few months before its premises were requisitioned by the French army as a military hospital, but it reanimated Pestalozzi's resolve to

commit himself to the theory and practice of education. He moved to Burgdorf, first as an assistant in a school under the direction of a local cobbler named Dysli—not an exceptional arrangement at that time—and subsequently as director of a state-sponsored institution which comprised a school linked to a training college housed in the nearby Schloss Burgdorf. It was during this period that he assembled the team of assistants who were to develop his pedagogical theory in their own work, including Hermann Krüsi, who arrived in 1800, Christoph Buss, who was to compose most of the *ABC der Anschauung*, and Joseph Schmid, who was to specialize in mathematics and drawing and to write an important manual on drawing entitled *Die Elemente des Zeichnens nach Pestalozzischen Grundsätzen* [The elements of drawing according to Pestalozzian principles]. Some of his staff came to the school as children. These included Johannes Ramsauer, who literally arrived in a cartload of child refugees and rose to the position of assistant master. Ramsauer was later to write one of the most original and influential drawing manuals of the nineteenth century. The Burgdorf institution acquired an international reputation, attracting many visitors such as Johann Friedrich Herbart, who succeeded Kant in the chair of philosophy at Königsberg and became the most prominent German pedagogue of the nineteenth century.

In 1805 the whole institution was moved to Yverdon, where it remained for twenty years. It has been suggested that its role as an educational showcase led to an unhealthy preoccupation with results and a destructive rivalry among the staff. It also to a certain degree lost sight of one of Pestalozzi's most cherished ideals, in that most of the children were fee-payers from wealthy families. He subsequently opened a school for poor children at Clindy which was later merged with the Yverdon institution. After the closure of Yverdon in 1825 he spent the last two years of his life completing literary projects and dreaming of starting again with a school for poor children at Neuhof, an ambition which was to remain unrealized at his death in 1827.

Wie Gertrud ihre Kinder lehrt

In 1801, two years after the move to Burgdorf, Pestalozzi revived the character of Gertrude—the personification of capable motherhood which he had invented for his didactic novel *Lienhard und Gertrud*—for use in the title of *Wie Gertrud ihre Kinder lehrt*, subtitled, "An Attempt to Help Mothers to Teach their own children". On this occasion, however, he abandoned the fictional form of the earlier book and adopted the structure of a series of fourteen letters addressed to Heinrich Gessner, a Berne book-seller, who in fact suggested the title of the book.[22]

In *Wie Gertrud* Pestalozzi provides us with a detailed account of the evolution of his thoughts on the teaching of drawing, the creation of the *ABC der Anschauung*, and its place in his total scheme of general education. He was not on the face of it eminently equipped for the task of reforming the art of drawing for, in the words of his ardent disciple Christoph Buss, "he could unfortunately neither write nor draw."[23] Pestalozzi was not at all deterred by his personal inadequacies, but ingeniously converted them to advantages; for the nature of his task was to find a way in which people of little personal achievement, teachers and parents, could foster the development of children in their care:

> I could teach writing without being able to write perfectly myself; and really my ignorance of all these things was essentially necessary, in order to bring the highest simplicity to methods of teaching, and to find the means whereby the most inexperienced and ignorant man might also do the same with his children.[24]

He defined drawing as "a linear definition of form, of which the outline and surface are rightly and exactly defined, by complete measurement."[25] Pestalozzi emphasised the character of drawing as linear, mimetic and precise, describing it in a more extended definition as "the power of representing to oneself the sense-impression made by an object, its outline and the characteristics contained within the outline, by means of similar lines, and of being able to imitate these lines accurately."[26] The foundation of drawing, according to Pestalozzi, was precision of observation. The task of the teacher was to find a way of making the child's perception reliably precise and to enable it to cultivate the skill of hand needed to convert precise perceptions into accurate linear statements. Reviewing the existing methods of teaching drawing, Pestalozzi claimed that "the usual course of our art education is to begin with inaccurate observation and crooked structures, then to pull them down and build up again crookedly ten times over, until at last, and late, the feeling of proportion is matured."[27] All earlier teachers, he felt, had overlooked the critical factor of accurate measurement. The result was that only a gifted few survived this haphazard process to attain any degree of competence in drawing or even the accuracy of perception upon which drawing depended. Traditional instruction in drawing was, like the condition of education itself, to be compared with a great house "of which the upper storey was bright with the highest and best art, but inhabited by few men."[28] The result of this fallible and unreliable mode of education was that "art stayed in the hands of the few happy ones who had time and leisure to gain this sense by circuitous ways."[29] The absence of a reliable method and the fallibility of existing methods meant that no one now thought of drawing as an ordinary human right. It was this mistaken view which Pestalozzi wished to eradicate.

Pestalozzi focusses our attention on several kinds of operation, rising in order of sophistication and complexity. At the most elementary level we have "the simple kind of sense impression of things"[30] upon which rests "the art of active observation" (*Anschauungs-kunst*) which enabled the mind to respond alertly and observantly to sense data. This cultivated mode of receiving sense impressions was a necessary prelude to the art of measurement (*Messkunst*) and the correct differentiating of forms. This must in turn precede drawing, which is the correct imitation of forms. "Finally," he concludes, "we use the power of the art of drawing in the art of writing."[31] In terms of complexity, the art of drawing lay between that of accurate measurement and writing; its function was to enable the child to rise from the level of vague sense impressions to the formation of clear ideas.[32]

After struggling for some time to identify a way of bringing the child forward along this path, it came to Pestalozzi "like a *Deus ex machina*" that "the means of making clear all knowledge gained by sense impressions comes from number, form and language."[33] These three modes of conceiving the world were to become the pillars of his pedagogical theory. The achievement toward which he wished to lead the child could be summarised in three questions:

> 1. How many, and what kinds of objects are before him
> 2. Their appearance, form or outline
> 3. Their names; how he may represent each of them by a sound or word[34]

These three modes of analysing experience were congruent with three operations, namely counting, measuring and speaking. Drawing could play a unique role in bringing together all three, in that it entailed the discrimination of individual forms, the analysis of their shapes, and the use of language to denote them.

Turning his attention to the more specific question as to what kind of drawn imagery would provide a basis for an orderly and secure advance in the child's observational powers and drawing skills, Pestalozzi decided upon "a series of measured subdivisions of the square, which are arranged according to simple, safe and clear rules, and include the sum total of all possible sense impressions."[35] Drawing instruments were to be strictly forbidden, but the child was given transparent sheets of horn upon which were inscribed a series of basic figures, and these could be used to check the accuracy of its own efforts on the slate. He was firmly convinced that the child should always begin by working on the slate, and should proceed by stages to pencil and finally to pen. One benefit of drawing on slates was that the images could be repeatedly corrected; another was that drawings on slate were all erased at the end of the day, which left no residue as a possible source of admiration or pride. It was important "that man should be

educated without conceit, and not come to set a fictitious value on his own handiwork too soon."[36]

Having reached this stage in his thought, Pestalozzi needed an assistant who would be capable of translating his ideas into practice by preparing a manual for the teaching of drawing. This opportunity came to him in the person of Christoph Buss, who joined his staff at Burgdorf in 1800 and who was to compose the *ABC der Anschauung*, published in 1803. The third letter of *Wie Gertrud* provides us with an account of Buss's origins which can be supplemented from other sources.

Christoph Buss and the Development of *ABC der Anschauung*

Chistoph Buss, the son of an administrator of a theological foundation, was born in Tübingen in 1776. He supplemented his meagre education by taking piano lessons from a schoolmate and later by receiving private tuition in drawing. Encouraged by his sucess, he applied for admission to the recently founded academy at Stuttgart, but discovered that entry to the academy was barred to children from middle and working-class families. Bitterly disappointed by this setback, he continued for some time with his drawing lessons, but was eventually forced to turn to a trade and entered the workshop of a bookbinder. Dissatisfied with his position, Buss moved to Switzerland hoping to earn a living as a music teacher, but his personal diffidence made it impossible for him to find pupils and he once again reverted to the trade of bookbinder in Basel. It was here that he got to know two of Pestalozzi's assistants, Tobler and Krüsi, and learned that Pestalozzi was looking for a teacher of music and drawing for the school at Burgdorf. Buss, described as a tall imposing young man with engaging blue eyes and a noble brow,[37] later reflected on this time of decision:

> I knew I was backward in general culture and in drawing, and my hope of finding opportunity of advancing both made me quickly decide to go to Burgdorf, although I was warned by several people against having connection with Pestalozzi, because he was half an idiot, and did not know his own mind.[38]

Buss's first impressions tended to bear out the rumours:

> His first appearance hardly surprised me. He came down from an upper room with ungartered stockings, visibly dusty, and as if completely distraught, with Ziemssen, who had also just come to visit him.[39]

But as was the case with so many of Pestalozzi's circle, Buss was quickly won over by the older man's genuine benevolence and simplicity, and he was soon convinced that he had done the right thing in coming to Burgdorf.

The next day he accepted Pestalozzi's invitation to sit in on a class. At first he saw "nothing but an apparent disorder and a, to me, disconcerting confusion."[40] He also felt that the children were forced to remain too long on one point. But going beyond these superficial impressions he began to recognise that the children were thereby enabled to produce work of a very high standard and were enjoying an elementary education which had been lamentably lacking in his own case. He reflected that

> for the first time I began to see the flitting about and the jumps which had been permitted in my own education as a child in an unfavourable light, and it convinced me in the belief that if I had been made to dwell as long and as steadily on the starting points, I should have been better prepared to help myself in progressing towards more advanced things, and to overcome all the evils of life and the melancholy in which I was now plunged.[41]

Pestalozzi and Buss began to discuss the former's plans for a drawing manual which would lay down the best syllabus and method for the elementary course. Pestalozzi himself was singularly ill-equipped for such a task for, as Buss observed, "he could unfortunately neither write nor draw, although he had brought his children to a level of achievement in both subjects which I found incredible."[42]

At first Buss found Pestalozzi's ideas completely incomprehensible. The art of drawing, Pestalozzi explained, consisted of lines, angles and curves. A way had to be found of using drawing to convert dim sense impressions into clear ideas.[43] Pestalozzi had already decided that the square was the foundation of all forms, and that the drawing method should be based upon the division of squares and curves into parts. He exhorted Buss to aim for elemental simplicity and gave him simple patterns as a guide. Buss struggled for several months without success. It should be noted here that Pestalozzi was not the most lucid exponent of abstract ideas and tended to be voluble and incomprehensible when excited. The whole experience must have been something of an ordeal for the earnest Buss, who found himself at the end of a period of several months with a series of unrelated geometric forms. "It was hard," he mournfully recollected. But this period of trial yielded its reward, and as a result of "matured insight", as if in a moment of revelation, the necessary teaching method became clear to him and the *ABC der Anschauung* was completed in a couple of days.[44] "There it was," reported Buss incredulously, "I did not know yet what it was, but the first recognition of its nature had the greatest effect upon me. I did not know before that art consisted only of lines."[45] The completion of the *ABC der Anschauung* was for Buss accompanied by a transformation of his own perceptual process:

> Now, suddenly, all things that I saw stood between lines which defined their outlines. In my perception I had never divided the outline from the objects. Now in my

imagination they freed themselves from it and fell into measurable forms, from which every deviation was distinct to me. But as at first I saw only objects, now I saw only lines. . .[46]

The *ABC der Anschauung*

In *Wie Gertrud ihre Kinder lehrt*, published in 1801, Pestalozzi gives the impression that the *ABC der Anschauung* was complete at that time, but it was not published until 1803 and it is likely that the intervening period was used for trials of the course with the children at Burgdorf. The full title of the work was *ABC der Anschauung, oder Anschauungs-Lehre der Massverhältnisse* [ABC of *Anschauung*, or Instruction in the *Anschauung* of proportional relations] and it consists of over two hundred pages of text arranged in two parts and accompanied by three fold-out plates. It is clear that the work was intended as a teacher's manual and not, as was so often the case, a book to be used by children as a source of self-instruction (Figs. 1 and 2).

In the preface which he wrote for the *ABC der Anschauung* Pestalozzi outlined its intended position in his system of elementary education. Nature, he argued, placed before the child's eyes thousands of objects which adults have learned to order in terms of number, form and size. It was the purpose of an earlier elementary book, the so-called *Buch der Mütter* [Mothers' book] to develop in the child's mind elementary concepts of unity, plurality, number and form. This experience, to be undertaken by the mother before the child went to school, was regarded as an essential introduction to the development of the sense of proportional relations:

> It must lead the mother to teach her child that the sphere, the apple, the eye-ball, a ball of thread, a plate, a hoop, etc. are round, that an egg is oval and the living room door rectangular; that a man is larger than a child, the man's head larger than a child's head, that the upper eye-lid is larger than the lower, the middle finger longer and the thumb thicker than the other fingers.[47]

Pestalozzi had identified as the fundamental means for the teaching of formal relations the straight line and the square.[48] The reduction of all proportional relations to comparisons of straight lines and the coordinates provided by the sides of the square would develop simultaneously the child's ability to count, reckon and gauge proportions by eye. The ability to gauge accurately by eye (*Ausmessungskraft*) was particularly prized by Pestalozzi. Each lesson in the *ABC der Anschauung* was designed to follow a prescribed structure consisting of a routine in which the teacher demonstrated and named the figure to be learned, then involved the children in a question and answer session about its form, and ending with the children drawing the figure for themselves. The class were then to seek objects in their environment which incorporated the form just learned. One actual exercise reads as follows:

> In this exercise one gets the children to draw freehand simple horizontal lines, without regard to their determined length, but with attention to their straight direction.
> The teacher draws his line and says to the children:
> I draw a horizontal line.
> The children do the same and say all together:
> I draw a horizontal line.
> The teacher: Have you done it?
> The children answer: Yes!
> Teacher: What have you done?
> Children: I have drawn a horizontal line.
> The teacher continues and says:
> I draw underneath this line a second horizontal line, which is longer than the first.
> The children repeat the same.
> The teacher again asks, as above: Have you done it?—and what have you done?
> And the children answer to the second question:
> I have drawn a second horizontal line underneath this line, which is longer than the first.
> The teacher then continues with the third, fourth, fifth, etc., and it is up to him to draw as many lines, and to have as many lines drawn, as he wishes; but with each line the questions "Have you done it?" and "What have you done?" must be repeated and, as above, answered by the children.
> After this he repeats the same exercise with vertical lines.[49]

Page by page the exercises increase in complexity, introducing the horizontal, the vertical, sloping lines and varieties of angles. At a certain point exercises in reversability test the children's comprehension. Perfection was to be achieved through constant repetition, and drawing instruments were forbidden. Pestalozzi insisted that "it is essentially necessary to lead the children through constant repetition to perfection in the copying of these lines of the square and its divisions, and not in any way to permit them to use for gauging a ruler or compasses or any other instrument."[50]

In order to concentrate the children's efforts on the content of the course they were not permitted to draw anything which did not consist of simple lines and curves. On the other hand, the greatest freedom should be permitted in the combination and invention of forms based upon these simple ingredients. The combination of discipline and freedom would, Pestalozzi argued, develop at an early age the child's sense of economy, order and taste:

> It is unbelievable, how this freedom within the limitations of the use of their imagination instils at the earliest age simplicity, order and taste, sharpens the ability to gauge by eye (*Augenmass*), and lays into their hands quite early a high level of executive skill (*Kunstkraft*).[51]

This rather stern regime was to be alleviated by such devices as the introduction of the occasional deliberate mistake, at which the more attentive children could be depended upon to shout with pleasure, "No! No! No! That can't be!"[52]

Pestalozzi and Rousseau

The most important precedent for Pestalozzi's treatment of drawing in education is to be found in Rousseau's *Emile*, published in 1762 and known and admired by Pestalozzi. Both men attached a high priority to the training of visual perception: as Rousseau put it, "Of all the senses, sight is that which we can least distinguish from the judgments of the mind; so it takes a long time to learn to see."[53] Rousseau's emphasis upon sight was not at all obvious in an age when education was predominantly a matter of listening to precepts, learning texts by heart and reciting lessons aloud. In such circumstances, mouth to ear communication predominated, and sight had no higher purpose to serve than as a faculty for the digestion of a written or printed text, or perhaps an early warning system of the teacher's displeasure. Rousseau's references to the value of gauging by eye as a basis for knowledge of form and to drawing as a means of developing and reinforcing this knowledge might almost have been written by Pestalozzi:

> One cannot learn to estimate the extent and size of bodies without at the same time learning to know and even to copy their shape; for at bottom this copying depends entirely on the laws of perspective, and one cannot estimate distance without some feeling for these laws.[54]

Rousseau, too, stresses that the importance of drawing for Emile "is not so much for art's sake, as to give him exactness of eye and flexibility of hand."[55] He therefore rejected the professional drawing master of the day, "who would only set him to copy copies and draw from drawings."[56]

However, these similarities between Rousseau and Pestalozzi should not blind us to their pronounced differences. Rousseau does not provide us with detailed advice as to the content and manner of Emile's education in drawing, but he does tell us that "nature should be his only teacher, and things his only models. He should have the real thing before his eyes, and not a copy on paper. Let him draw a house from a house, a tree from a tree, a man from a man, etc."[57] Although Pestalozzi would have warmly endorsed the spirit of empiricism in such advice, he was neither willing nor able to make it a part of his own teaching procedure. He was not willing because he believed it was vital for the teacher to break down the complexity of nature into its constituent forms for the pupil, to identify and "elementarise" the

underlying geometry of the visual world in a way which would make it comprehensible and assimilible for the child. No house, no tree and no human form presented the elemental simplicity which would enable the child to make an accurate start. Pestalozzi was not able to adopt such a procedure because of the fundamentally different tasks which the two men had set themselves. We are reminded that Rousseau was describing the education of one child of good birth by a tutor of intelligence and cultivation who could devote his full time and energy to the task of teaching Emile. Pestalozzi's ambition was to find a secure method by means of which a teacher of quite modest education and ability could teach large groups of children effectively. Teaching drawing before a natural motif presupposes the principle of *Einzelunterricht*, for the simple fact that one object can only be viewed from one position at a time, and anything of value which the teacher might say must be said from the experience of that position. A curious feature of the exercises in the *ABC der Anschauung* is that they are not dependent upon a firmly prescribed viewpoint: because of their elemental geometric simplicity their meaning can be conveyed to all corners of a large classroom without serious distortion. They therefore conform to the requirements of *Massenunterricht*.

Perhaps the most important difference between Rousseau and Pestalozzi concerns their attitude to the finished drawings. Rousseau would have the drawings of Emile and his tutor "framed and covered with good glass, so that no one will touch them, and thus seeing them where we put them, each of us will have a motive for taking care of his own."[58] He would have the drawings hung around the room to provide "a source of interest to ourselves and of curiosity to others, which will spur us on to further emulation."[59] Such a procedure would have been anathema to Pestalozzi, who firmly repudiated any notion that the role of drawing was the production of attractive and desirable artifacts, and who went to some pains to ensure that the child would not grow proud or covetous of its creations.

Concept of *Anschauung*

It is significant that the title *ABC der Anschauung* was chosen for the Pestalozzian drawing manual, rather than *ABC of Drawing* or *ABC of Art*, and at this point it would be helpful to discuss the meaning of this key and problematic term in Pestalozzian theory. The term *Anschauung* is a noun derived from the German verb *anschauen*, meaning "to see, to perceive, to behold." Mellin's *Encyklopädisches Wörterbuch*[60], a philosophical reference work published at the time Pestalozzi moved to Burgdorf, subdivides the meaning of the term into "sensory representation" (*sinnliche Vorstellung*) and "intuitive representative" (*intuitive Vorstellung*). In the first case the

perceiving subject receives direct sensory impressions which he interprets as the representation of an object existing outside of himself; in the second the subject calls to mind an object or an experience which he has had in the past and thereby intuites something which is not at that moment present to his senses. Mellin develops his account with reference to Kant's proposition that there are several ways of acquiring knowledge of an object. Using the example of the city of Magdeburg, Mellin states that it would be possible to gain an impression of the town from a verbal description, without actually having visited it. This description might involve terms such as river, bank, north and south. But these can only call up mere thoughts (*bloss Gedanken*) and the subject is forced to synthesize them into a perhaps faulty mental picture of the city. Or, Mellin continues, we might present the subject with a picture of a river bank, a street, and so on. We should then have to depend upon the subject's powers of invention and imagination (*Phantasie*) to combine images into an accurate mental picture of the city. But no matter how detailed and thorough we make our verbal descriptions and our pictorial images, there would always, Mellin argues, be the risk of confusion with a completely different city which happened to have certain characteristics in common with Magdeburg; like Constantine's soldiers, we could believe Constantinople to be Rome.

However, Mellin continues, there is one sure way of gaining a reliable knowledge of the city of Magdeburg, and that is to visit the city itself, to walk about its streets, to touch its buildings and hear the voices of its inhabitants. Under such circumstances, he argues, there can be no discrepancy between the Magdeburg in our minds and the Magdeburg which surrounds us: "There is here no further difference between Magdeburg as my personal representation and Magdeburg as the object of my representation."[61] Mellin points out that this perfect correspondence between external stimulus and internal impression, which results in true *Anschauung*, precedes thought, for the sensory impressions must subsequently be ordered by the understanding to make sense. At the stage of *Anschauung* the representation is only an appearance (*Erscheinung*); the mind has not yet got to work on it.

Mellin's account of *Anschauung* harmonises in many respects with Pestalozzi's use of the word. Pestalozzi rejected the widespread convention of the parrot-learning of words for which the child had no clear associated meaning. He was equally dissatisfied with the use of pictures as a substitute for direct sensory experience of objects, complaining that even the revered Comenius and Basedow, who had both pioneered the use of pictorial imagery in education, "substituted a painted world for the real one."[62] There was no substitute for bringing the child into direct contact with the object of a lesson and giving it unmediated experience of the thing in itself:

> The *Anschauung* of nature itself is the only true source of human teaching because it provides the only foundation of human understanding. Everything which goes beyond this is only the consequence of and abstraction from this *Anschauung*, consequently in every case in which *Anschauung* is imperfect, one-sided and undeveloped, and in every case in which *Anschauung* is uncertain, inaccurate, and unreliable we find delusions and error.[63]

However, the purpose of education is not merely to thrust the child into a sensory confrontation with objects and experiences. Although direct sensory experience of nature is essential to the formation of the child's understanding, these sensory data alone create a sea of confusing impressions. The task of the teacher, Pestalozzi argued, is to arrange the child's experiences in terms of their logical priority and complexity and thereby enable the child to bring order to these confusing impressions:

> "The World," I said to myself in this dreamy soliloquy, "lies before our eyes like a swirling sea of bewildering *Anschauungen*; the task of teaching, and its whole art, since our development through nature herself is not sufficiently rapid and unimpeded, is to remove this confusion which lies in our *Anschauungen*, to differentiate the objects which they present, to bring together the similar and the related again, and thereby to make everything clear to us and elevate the *Anschauungen* to perfect clarity and distinct ideas."[64]

The Kantian flavour of this passage is unmistakable. Even Pestalozzi's image of the "swirling sea of bewildering *Anschauungen*" is reminiscent of Kant's metaphor of pure understanding as an island of truth surrounded by

> a wide and stormy ocean, the region of illusion, where many a fog-bank, many an iceberg, seems to the mariner, on his voyage of discovery, a new country, and while constantly deluding him with vain hopes, engages him in dangerous adventures, from which he never can desist, and which yet he never can bring to a termination.[65]

Although both men regarded sense impressions as essential to the process of animating and activating the understanding, they both also recognised them as a potential source of confusion. Like Kant, Pestalozzi felt the need to penetrate the shifting veil of sense impressions—the Kantian *phenomena*—in order to obtain a true knowledge of the thing in itself—the Kantian *noumenon*.

The influence of Kant's work upon Pestalozzi, which begins with his meeting with Fichte in 1793, has been discussed by several authorities.[66] Speaking of Pestalozzi's desire for a greater theoretical clarity in his work, Natorp comments that,

> The meeting with an enthusiastic disciple of Kant, Fichte, increased in him even more this living drive. He found with astonishment that he was fundamentally at one with the immense revelations of the intellectual revolutionary of Königsberg.[67]

The issue of special interest here concerns the Kantian notion of space and its possible relation to Pestalozzi's pedagogical application of drawing. In the *Kritik der reinen Vernunft* Kant turned his attention to the use of sensory impressions as a source of human understanding.[68] He describes the process by means of which we receive sensations, which we tend to regard as being caused by objects located in space around us. These sensations are given to us a posteriori; that is, we think of them as properties of the objects rather than as, say figments of our imagination or properties of our own minds or sensory apparatus. It was—and, popularly, still is—customary to regard the form of an object, its extension and location in space, as yet another of its sensory properties, comparable with its colour, its texture and so on. By means of an argument too complex to be rehearsed in full here, Kant proposed that such a view was mistaken; that space, and therefore form, was not a sensory property of objects which we encounter empirically, but a "pure intuition" which exists a priori in the mind.[69] Although we talk of "spaces", and of "forms" which exist as interruptions in those spaces, we can in fact conceive of only one space, which has a fixed and continuous quantity however much we subdivide it or rearrange the matter contained within it. Space is therefore a particular, and not a general, concept. To develop Kant's argument, one might accept that it is possible to remove an object from its location in space, or to change its material nature in some way; but it would be absurd to ask whether the space occupied by our surrounding the object, before or after our intervention, had in any way changed. Kant concluded that "Space is not a conception which has been derived from outer experiences," but "a necessary representation a priori, which serves for the foundation of all external intuitions."[70] The logical sequel of such a view is that form, which is an object's extension in space, is the product of a mental operation and not the perception of a quality residing in the object: "It is then, the matter of all phenomena that is given to us a posteriori; the form must lie ready a priori for them in the mind, and consequently can be regarded separately from all sensations."[71] Furthermore, Kant argued, time falls into the same category of experiences as space, in that although it is popularly regarded as the product of sensory experience, it is in fact the material of a priori intuitions and part of the fabric, as it were, of the human mind.[72]

Pedagogical Application of *Anschauung*

The pedagogical corollary of these observations is that space and time—which Pestalozzi called "the raw material of all human instruction"[73]—cannot be acquired by the child merely as a result of induction from sensory experience, but already exist in an undeveloped state in the child's mind,

awaiting activation and cultivation. The teacher's task was to arouse intuitions of form by presenting the child with a carefully ordered sequence of formal elements (hence "elementarisation" of the subject) which he would observe, name and draw. These elements were to be gradually increased in complexity, but the increments of complexity were to be so small that the child would not recognise the fact that he was tackling ever more difficult exercises. At the same time, each exercise would present a synthesis and summation of all the previous exercises. The whole series, which would constitute the elementary syllabus, would have to accord not only with the internal logic of the subject, but, more importantly, with what he believed to be the psychological laws of human development. Of this method, adopted in the *ABC der Anschauung*, Giesker has written:

> It is characteristic for his method, which was intended to suit the course of nature, namely here inner and outer human development, that these formal elements were not given to the child from outside, as it were, and derived from objects empirically, but that even they could be found in the deepest nature of man itself.[74]

It is relevant to note that previous to the *ABC der Anschauung* Pestalozzi had already experimented with the same principle of analysis followed by gradual synthesis in the teaching of speech, by breaking down words into syllables which the child learned one by one, gradually adding them together to make up quite complex polysyllabic words. The teaching of language is, however, far less susceptible to this approach. There is no phoneme comparable in its primal simplicity with the point or the horizontal line; the syllables used in language are not derived a priori but determined by social conventions and traditions. Syllables are not, like geometric forms, capable of infinite permutations without departing from the realm of sense; there comes a point at which one passes into the realm of nonsense, of syllabic structures which are communicable but which have no referant. In his enthusiasm to subject language to the same kind of analytic/synthetic treatment, Pestalozzi fell into two traps. The first was that he asserted that words have a natural or inevitable association with their referant, almost as if the name of an object could be regarded as comparable with its texture or colour; the second was that he created situations in which the child was required to repeat syllables which had no intrinsic meaning as a kind of propaedeutic to real language use.[75] Even the alphabet itself—the ABC—that paradigm of elemental simplicity and logical sequence, is in fact completely arbitrary in its construction. There is no logical necessity in following *A* with *B*, and *B* with *C*; their order has been determined by historical and cultural conventions. A logical order might, for example, be based upon groupings of letter kinds (e.g. vowels, followed by plosives,

followed by sibilants). But no matter how we ordered the alphabet it would never achieve the level of a priori inevitability of which geometric forms are capable.

Geometry and Drawing

There was nothing particularly new in Pestalozzi's belief that geometric forms could provide a basis for the teaching of drawing. Many manuals before his day recommended similar practices, often as a preliminary or a complement to drawing from objects or life. Henry Peacham, writing in 1606, advised his readers to practice drawing forms such as circles, squares and cylinders, ". . .till you can do them indifferent well, using the help of your rule and compasse."[76] Half a century later Crispyn de Passe recommended the study of geometric form on the ground that "all things created in the world have a certain proportion in themselves," and reported that as a result of long study and experience he had observed that "every thing created by God has sympathy with the figures of Euclid."[77] The anonymous author T. P. of *Academia Italica* (1666) begins his directions to the reader as follows:

> Now having the Instruments ready by you, the first thing I shall commend to your Practice, shall be to draw Ovals, Circles, Squares; and the reason you should be first well exercised in these is, because hereby you will be fitted for the performance of other things.[78]

Gerhard de Lairesse, in one of the most popular manuals of the mid-eighteenth century, advised the practice of drawing dots, straight lines and curves before moving on to simple objects.[79] He also discusses in terms very similar to those used by Pestalozzi the concept of *Messkunst*, and even talks of "an ABC of *Messkunst*"[80] The reverence for geometric forms as the basis of all drawing was sustained throughout the nineteenth century, and in his *Essais sur la Théorie du Dessin* (1896) Guillaume said of them: "One must therefore conclude that the absolute character of exact ideas in art is proof that they (geometric forms) are elements and they must serve as the basis of all teaching of drawing."[81] The anonymous author of *Vorschlag zu einer neuen Lehrart in der Freyenhandzeichenkunst* [Proposal for a new method of teaching the art of freehand drawing] published in Breslau in 1774, the year in which Pestalozzi was making his early observations of Jean Jacques's development, advised the reader to practice amongst other things "the dividing of straight lines into even and uneven proportions, first in two parts, then in four, in eight, etc. secondly in three, in six, in nine parts, and so forth."[82]

Anyone who took an interest in the teaching of drawing could hardly avoid encountering the widespread view that the study of geometric forms

might provide a basis for drawing from nature. The originality of Pestalozzi's use of the idea was that for the first time drawing was elaborated as a subject in an elementary curriculum. It did not set out to provide special skills for the artist, designer or craftsman, or for the gifted amateur, but purported to advance the development of faculties which were possessed in varying degrees by all children, and which one simply could not afford to neglect. It had demonstrable areas of overlap with two sectors of the curriculum which have been traditionally identified as central to elementary education: number and language. Indeed, it could be used as a vital bridge between the two in a way which had never previously been exploited.

More than any other scheme of teaching, the *ABC der Anschauung* fulfilled perfectly Pestalozzi's ideal of an uninterrupted progression (*lückenlose Progression*).[83] The sequence consisted of a series of steps designed to ensure that the complexities of each were entailed in the following one, together with a small, imperceptible increment of difficulty, producing what he called an uninterrupted series of forward steps (*eine lückenlose vorschreitende Stuffenfolge*).[84] New material would be introduced so gradually, and so closely in accord with what he believed to be the laws of psychological development, that the child would not be aware of any sense of difficulty or struggle whilst following this "gradual psychological march forward" (*allmählige(n) psychologische(n) Progressionsmarsch*).[85] As Pestalozzi himself put it:

> The ABC, this great means of skill and of truth, proceeds in its origin from nothing and leads uninterruptedly in its sequence to everything. Together with the *Buch der Mütter* the *ABC der Anschauung* is the general means of development of all receptivity to truth, and all abilities must develop from it, just as the law of the development of a tree proceeds from the powerful simplicity of its roots.[86]

The Method

Probably the most striking characteristic of classes held according to the Pestalozzian system was the manifest sense of "method" (*Methode*), which brought children together into unified, synchronous activity. Previously, drawing had been thought of as a solitary activity, albeit one which could be undertaken by groups of individuals, each intent on the progress of his own drawing. Copying from prints and drawings tended to take this form; the teacher's task often amounted to little more than the handing out of "examples" in no systematically determined order and the maintenance of peace and quiet in the classroom—a duty at which they were not always successful. The children worked away at the examples, often with no reference to the teacher and with no consciousness of their fellows' performance except in terms of viewing a finished copy. Descriptions of copying, which continued unabated well into the nineteenth century,

abound. Friedrich Otto, writing in 1837, gives us a typical example. After describing the random nature of the content of the copies, with their eyes, noses, hands and feet, he continued:

> The teacher's business consisted of the dealing out of 'example' sheets (*Musterblätter*) according to an order which the opened portfolio provided and as passing fancy dictated. The child's task was a mechanical and unfaithful copying (*Nachzeichnen*).[87]

The methods previously employed to teach drawing to children in schools, that is, in the few places where it was taught at all, had to conform to the low level of ability which was common amongst teachers and the conditions of extreme austerity under which they worked. Roughly half of the teachers in Swiss elementary schools in Pestalozzi's day were local clerics. The other half was composed of people from the lower occupational orders and from retired soldiers.[88] Teachers normally received no fixed salary but levied a small fee from each child or collected it by visiting homes in the neighbourhood. They were normally forced, and expected, to ply an ancillary trade (*Nebenberuf*) to eke out a living; particularly favoured were sedentary trades such as shoemaking, which could be undertaken whilst supervising a class, or those which, like beekeeping or rat catching, did not require constant attendance. When Pestalozzi first arrived at Burgdorf he was obliged to share a large class with Herr Dysli, a local cobbler. The classroom was divided by a chalk line, on one side of which Dysli repaired boots whilst hearing the catechism, on the other side of which Pestalozzi conducted his experiments in *Massenunterricht*.

Under the Pestalozzian method the children tackled each new task simultaneously, listening together, observing together, responding orally in chorus and finally drawing together. According to Pestalozzi this was the only way in which large groups of children could be effectively taught in classes. At Stanz and at Burgdorf he had constantly sought ways of improving large group teaching. Later he recollected:

> As I was obliged to give the children instruction alone and without help, I learned the art of teaching many together: and since I had no other means but loud speaking, the idea of making the learners draw, write, and work simultaneously was naturally developed.[89]

The method was evolved on the basis of empirical study of the child's mental and physical development, and as human development operates according to certain fixed laws there could, he felt, be only one correct method. In a footnote in *Wie Gertrud ihre Kinder lehrt* he observed, "I must remark here that the *ABC of Anschauung* emerges as the only true means of teaching the correct judgment of the form of all objects."[90] Children might be expected to resist the acute discipline of such teaching procedures, but the reverse seems

to have been the case. As Buss reported, "The whole method is for everyone a game, as soon as the thread of its starting points is grasped"[91] Even the less talented children, for whom school had previously been a place of failure, were delighted and surprised by their success: "It is impossible to describe the results to which this developed power may raise all, even the weaker children," Pestalozzi observed.[92] The result was a rise in the morale of the children and the teacher which was unattainable with other methods. Even Buss responded to the method with an almost religious fervour, claiming that "Knowledge of the method has largely restored the cheerfulness and strength of my youth, and revived my hopes for myself and the human race."[93]

Pestalozzi and Art

One feels bound to enquire what relation if any Pestalozzi saw between his approach to the teaching of drawing and the modern concepts of "art" and "art education". The question is complicated by his flexible and ubiquitous use of the word *Kunst*, both alone and in combinations such as *Messkunst* (the art of measuring). Although indiscriminately translated in modern contexts as "art," for Pestalozzi and his contemporaries the term frequently had a quite different and much more generalised meaning as a noun derived from the verb *können*, meaning "to be able." In this fundamental sense it simply meant a skill or facility, and in the space of a couple of pages he could use it with many slightly different shades of meaning.[94] The central defining characteristic of *Kunst* for Pestalozzi remained a performative skill. As Natorp has put it, the word *Kunst* "meant for him a technical ability (*technisches Können*)" and the word *Kunstbildung* "became identical with training for work."[95] It should be remarked that the expression "art education" (*Kunsterziehung*) was virtually unknown in the literature of German education until the period of the reform movement of the 1890's. Even then, Alfred Lichtwark, one of the leading protagonists of the reform movement, felt constrained to object to the use of the term.

It would appear that Pestalozzi's early life and education provided him with no appreciable knowledge of or taste for the plastic arts, and there is no indication that he remedied this omission in later life. Nor did he profess to have any practical skill, for as Buss, his ardent admirer and disciple, reported: "he could neither write nor draw." Indeed, it is possible that Pestalozzi felt a positive antipathy towards the art of his day. During the second half of the eighteenth century European art was almost exclusively an urban phenomenon, by and large produced by city dwellers for purchase and enjoyment by city dwellers. The landscapes of Boucher (1703–1770) provide us with an urban conception of the countryside which is far removed from the social and economic realities of rural life. Even masters of landscape like

Richard Wilson (1714–1782) and Gainsborough (1727–1788) couched their observations of nature in the idealizing and classicizing pictorial conventions of the day. The revival of naturalism based upon the direct observation of nature and the development of regional schools of landscape can be dated to the life-times of Constable (1776–1837), Caspar David Friedrich (1774–1840) and the artists of the Norwich School (active 1803–1825). The gulf between the mid-eighteenth century attitude to the countryside and that of the early nineteenth century is indicated in Constable's contempt for Boucher's landscapes as "the pastoral of the opera house" and "a bewildered dream of the picturesque."[96]

Pestalozzi professed a life-long commitment to country folk and country children, a sector of Swiss society generally removed from the processes of the production, exchange and enjoyment of art works. His own difficult childhood planted in him a profound respect for certain personal values, notably frugality, self-sufficiency and simplicity. Art, in contrast, could be seen as a social luxury which had no bearing on the lives of peasants who were struggling for the very basics of survival. Although references to the enjoyment of natural beauty abound in Pestalozzi's writings, mentions of works of plastic art are hard to find. An exception is his reference to "the Egyptians and the Etruscans, whose drawings all rest upon a perfect skill in gauging."[97] The irrelevance of art to the grim stuggle for survival led Pestalozzi to an almost Platonic contempt for the role of the artist, a sentiment which he conveys in his fable "The Painter of Men":

> There he stood, surrounded by a crowd, and one man said, "So you have become a painter? You would have done better to mend our shoes." He answered, "I would have mended your shoes; I would have carried stones for you; I would have drawn water for you; I would have died for you; but you did not want my services, and in the enforced emptiness of my crushed existence there was nothing left for me to do but to learn how to paint."[98]

In reading this fable we must remember that for twenty years Pestalozzi himself was, metaphorically speaking, forced against his will to live the life of a "painter of men", namely as an author and novelist, between the collapse of the Neuhof scheme and the resumption of his educational activity at Burgdorf.

Definition of Drawing

As we have seen, Pestalozzi defined drawing as

> the ability to apprehend the outline of all objects and the features contained within the outline through correct perception (*Anschauung*) of the object itself, by means of similar lines, and to be able to imitate them faithfully.[99]

Elsewhere he stressed again the linear character of drawing, the distinction between outline and form, and the centrality of the ability to gauge by eye: "Drawing is a linear determination of form, the profile and content of which may be specified by means of a perfected ability to gauge."[100] He repeatedly emphasised that drawing depended upon correct perception and was "essentially tied to the gauging of forms."[101] From these and other statements it is clear that in spite of the highly abstract character of the *ABC der Anschauung* his definition was essentially a naturalistic one, aimed at the correct observation and recording of the environment. Pestalozzi's conception of naturalism is however more consistent with neoclassical theory, with its emphasis on pure linearity, clarity of expression and the formulation of ideal forms, than with the naturalistic mode of Romanticism, with its preoccupation with specifics, its penchant for light and shade, and its enthusiasm for invention and fantasy. The latter qualities are hinted at in the following definition of drawing which appeared in a manual published in London about 1800.

> Drawing is the art of reproducing the appearances of objects; it expresses by lines and shadows the resemblance of anything whatever, and even reproduces to the inspection of others the conceptions of the mind.[102]

In theory, the *ABC der Anschauung* was to be anchored to reality by three principal means. Before undertaking the elementary course, the child should have followed the *Buch der Mütter* under the guidance of his mother, and this would include drawing from simple objects; whilst following the course he would constantly be required to seek the forms being studied in the surrounding environment; and having acquired the skills of correct perception and faithful linear depiction of forms, he could go on to apply them to drawing from nature. The bonds with the practice of drawing from observation (other than the observation of geometric forms) were, however, extremely weak, and further weakened by the pervasive emphasis on drawing as a kind of plastic realization of mathematical concepts. One may safely assume that in practice the majority of the children who followed the course laid down in the *ABC der Anschauung* never rose far beyond what were essentially elementary exercises in geometric observation drawing. Pestalozzi moreover, like his idol Rousseau, forbade copying from art works such as prints and drawings. The result was a more or less complete divorce from art—even bad art—which reduced drawing to a series of exercises in perception, oral drill and manual dexterity. In the words of Eduard Spranger, "drawing according to Pestalozzi is not an artistically-intended inventive drawing, but a primitive geometric drawing."[103] Giesker has attempted to defend Pestalozzi on this issue, pointing out that the child should in theory have had a good introduction to drawing from objects in

the pre-school stage, whilst following the *Buch der Mütter*.[104] The flaw in this argument is that Pestalozzi would have known perfectly well that the children at Burgdorf who followed the *ABC der Anschauung* would not have had this introductory experience; for most, perhaps all of them, the *ABC der Anschauung* was their first taste of organised teaching in drawing. Viewed in this light it makes the course seem like an idle experiment, or even worse, a premature stereotyping of the child's concept of drawing. It is not surprising that the *ABC der Anschauung* had a very limited currency within the Pestalozzi institution and was soon supplanted by courses (those by Schmid and Ramsauer) which swung in certain respects to the other extreme.

The modern reader who still finds it a mystery why Pestalozzi's children tolerated, let alone enjoyed such a regimented mode of teaching should perhaps bear two factors in mind regarding the circumstances of the formulation and use of the method. The first is Pestalozzi's own personality and the inspiring effect it had on children and staff alike. From all accounts (and there are many) his physical ugliness, his dishevelled dress and his highly unmusical voice belied a magnetic personality capable of inspiring love and confidence in children after only the slightest acquaintance. Having won their love and confidence, there was no end to which the children would not follow him in his sometimes eccentric experiments in mass teaching. The second factor which should be borne in mind is that the majority of the children who came to his institutions at Neuhof, at Stanz and at Burgdorf were not only poor, but often literally verminous, starving and diseased. Many of them came with vivid and recent memories of the devastation of the war, the total disruption of social order by revolution, and widespread starvation. Pestalozzi and his school represented the first nice thing that had happened to them, providing them with food, shelter, clothing, affection and hope. In such circumstances it is not surprising that they responded favourably to the high degree of organisation and control. One of the problems of the method was that the two conditions described above were not subsequently maintained: the system inevitably fell into the hands of teachers who lacked Pestalozzi's sympathetic flexibility and made a rigid code of it; and as times stabilized and improved, children came to regard the disciplined life of the classroom as a regrettable imposition.

Subsequent Career of Buss

The career of Christoph Buss subsequent to the publication of the *ABC der Anschauung* is of special interest in that he became the first drawing teacher at a Pestalozzi school to find employment outside.[105] In 1804, one year after the publication of the *ABC der Anschauung*, he moved with the school to

Yverdon. At this time there was growing dissent among the staff in relation to the use of his drawing manual, and when this came to a head in 1805 he took the opportunity to leave Yverdon and move to the newly-created post of drawing and music teacher to the civic authority of Burgdorf. His departure was very much regretted by Pestalozzi, who was destined to endure continuing and often acrimonious disputes between the members of his staff.

In his new post Buss was commissioned to provide lessons in drawing, music and writing at the local Burgerschule.[106] His drawing lessons were designated *Kunstzeichnen* (art-drawing) and surprisingly, within a year he seems to have abandoned completely the principles and practice of the *ABC der Anschauung*, setting his children copies from prints of figures, landscapes and objects. Giesker speculates as to the reasons for this remarkable volte-face and regression to the time-honoured recipe of copying.[107] Possibly Buss had been so deeply wounded by his colleagues' assaults on the *ABC der Anschauung* that he once more lost the confidence in himself which he had so proudly proclaimed in 1801.[108] Possibly, too, Buss was not a sufficiently creative personality to sustain his convictions once he was removed from the inspiration and protective guidance of Pestalozzi's charisma. He seems to have slumped back into the mood of embittered melancholy which he brought with him to Switzerland. He was forced to take private pupils to supplement his inadequate salary, and reflected with some bitterness,

> A teacher can be useful, if he wants to be, and when circumstances and responsibilities do not force him to make his school a sideline (*Nebensache*) and earnings elsewhere his main interest, and therefore make him behave in an undutiful manner.[109]

The school authorities seemed to be satisfied with his work, and so there was no reason to invite problems by trying to be original or innovative.

In 1815 the city authorities of Burgdorf sought ways of improving educational provision in the town in the light of the growing demands of the industrial revolution for skilled mechanics and artisans. On professional advice (not Buss's) they decided to divide their public provision into two institutions, a Gelehrteschule which would prepare children for the professions and public service, and a Berufsschule aimed at providing a basic education for future artisans and craftsmen. In the Gelehrteschule drawing was provided as an optional liberal study. In the Berufsschule the children were taught so-called *Linearzeichen*, which comprised straight-line, exercises with instruments, abstract inventions on straight lines, curves, ovals, etc., and, later in the course, light and shade, elevations and plans and technical drawing. Buss was responsible for teaching the course at the Berufsschule, one of the conditions being that the children were to use drawing instru-

ments throughout. This represented a crucial break with the Pestalozzian principle that the children should develop their ability to judge proportional relations by the systematic practice of gauging with the naked eye.

In 1819 Buss moved to Berne, where he taught in the Literarschule and also at the local academy. Here he returned again to the practice of freehand drawing and devised a syllabus which was an attempt at a systematically ordered sequence more extended than that of the *ABC der Anschauung*.[110] However, like the *ABC der Anschauung*, the course at Berne lacked a nexus with the world of real objects and was essentially a cold form of geometric drawing. By the time Buss died at the age of nearly eighty many other teachers had attempted, with similar lack of success, to breathe life into the *ABC der Anschauung* and convert it into a viable basis for the teaching of elementary drawing.

2

The Development of Pestalozzian Theory: Joseph Schmid and Johannes Ramsauer

Joseph Schmid and Burgdorf

After Buss's departure from the Pestalozzi school at Burgdorf his position as the leading influence upon the teaching of drawing at the institution was taken by Joseph Schmid, the assistant who had been his fiercest critic. Schmid set out to purge the school of Buss's influence, rejecting the ethos of the *ABC der Anschauung* and replacing it with his own drawing manual *Die Elemente des Zeichnens nach Pestalozzischen Grundsätzen* [The elements of drawing according to Pestalozzian principles] which was published in 1809 (Figs 3–5). Schmid was born at Au in 1787.[1] In 1801, at the age of fourteen, he was sent by his father to an uncle in Switzerland, who placed him at the Pestalozzi school at Burgdorf. Schmid was something of a mathematical prodigy, and was admired by Pestalozzi as an example of the flowering of human qualities under the influence of his teaching. In 1804 he moved with the school during its brief and abortive stay at Münchenbuchsee, and then on to Yverdon. In the same year, at the age of only seventeen, he was acting as assistant teacher for mathematics and proportional relationships (*Massverhältnisse*). At this time the children were following the course in the *ABC der Anschauung*, which had been published in 1803, although its content was being developed at least as early as 1801. Schmid's animosity for Buss must have been intense and effective, for the latter left the school only one year later, in 1805. All the accounts of Schmid suggest that he was a thoroughly unattractive personality. As part of his preparation for teaching he spent a period every morning and evening ostentatiously praying with a rosary that he might be granted insight into Pestalozzi's method. (In view of the trials suffered by Buss, this might not have been an unwise precaution.) According to Krüsi, Schmid "learned slowly, but with iron diligence."[2]

Schmid's success and his early elevation to the teaching staff seems to have turned his head; according to one of his colleagues, "He strode like a ruler through the rooms of the castle and stood like a lord in front of the